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YALE UNIVERSITY

Box 1987, Yale Station
New Haven, Connecticut 06520

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WOMEN'S STATUS AND FERTILITY IN BENDEL STATE OF NIGERIA

Christiana E. E. Okojie

University of Benin, Nigeria

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Dr. Okojie was a Postdoctoral Fellow at the Economic Growth Center in 1988 and is a member of the faculty of the Department of Economics and Statistics at the University of Benin, P.M.B. 1154, Benin City, Nigeria.

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ABSTRACT

SubSaharan Africa lags behind other developing regions in the demographic transition during which the regime of high fertility and mortality changes to one in which both stabilize at much lower levels. This paper reports empirical evidence on socioeconomic fertility differentials from a 1985 sample of 15 rural and urban communities in Bendel State of Nigeria. A review of the literature on female status and fertility explores distinctions between the economic framework of fertility determinants, based on factors affecting market productivity or "public status," and the sociological framework that emphasizes intrafamily relationships that determine "private status" of women and men. Among the factors that are particularly important in accounting for fertility differences in this survey are female education which decreases completed fertility, and husband education which increases fertility. The effects on fertility of these human capital endowments of women and men is not particularly sensitive to whether one controls for the still important fertility differences associated with ethnic/tribal/religious groups.

I. INTRODUCTION

In the last few decades, fertility has become the subject of serious concern to development planners in many parts of the world. It is widely agreed--with some dissentions--that lower fertility levels and thus lower population growth rates would lead to more rapid rates of economic and social development. This attitude led to an emphasis on fertility reduction programmes (family planning) in many parts of the developing world. Such an approach is 'supply-oriented' (Turchi, 1985), and assumes that the actual number of children born exceeds the number desired by parents. The appropriate policy was therefore to institute family planning programmes, a policy which has been successful in parts of the developing world.

Available evidence suggests that the situation may be different in sub-Saharan Africa where the problem may not be a supply, but one of excess 'demand'. Countries in sub-Saharan Africa continue to lag behind other developing countries in the demographic transition from a regime of high fertility and mortality to a regime in which both birth and death rates stabilize at much lower levels (Faruqee and Gulhati, 1983). Despite significant progress in living standards, a substantial fall in mortality, an impressive expansion in education, and a fairly rapid urbanization in the 1960s and 1970s, fertility rates remain high in most of sub-Saharan Africa. The prospects for fertility reduction are not very bright (Faruqee and Gulhati, 1983; Bongaarts, Frank and Lestaeghe, 1984). World Fertility Survey results show that sub-Saharan countries portray a pronatalist culture. Desired family size ranges between 6-8 children, only small minorities want to stop childbearing, and levels of contraceptive practice are negligible (Gille, 1985). Furthermore, traditional child-spacing mechanisms in Africa such as long durations of breast-feeding and postpartum sexual abstinence, are declining. This in addition to lower mortality rates and slow adoption of modern contraceptive practice (as a substitute for traditional mechanisms) suggest higher fertility levels in the future (Bongaarts, Frank and Lestaeghe, 1984).

Nigeria is one of the countries with the highest fertility and population growth rates in Africa (Faruqee and Gulhati, 1983). The Nigerian fertility survey of 1981/82 reported completed fertility of 5.84 children ever born for all women and 5.95 children for currently married women. An overwhelming majority--87.3 percent--of currently married fecund women wanted to have more children. Mean number of additional children desired was 5.2 among women who gave numeric answers (National Population Bureau, 1984). The report further showed that contraceptive knowledge and use levels were very low. As many as 66.3 percent of respondents had

never heard of any contraceptive method. Ever use levels were correspondingly low; 84.9 percent had never used any contraceptive method, 12.5 percent had used at least one inefficient method while only 2.6 percent had used an efficient method.

Given such high fertility levels, the population growth rate is correspondingly high in Nigeria. It has been estimated in the Nigerian National Development Plan of 1981 to be between 2.5 to 3 percent per annum. High fertility levels (and rapid population growth) are not in the best interests of the nation because it slows down economic and social development but may however be in the interests of individual families responsible for the nation's rapid growth. Thus an understanding of the micro-motivations and economic logic of the individual families producing the nation's population is a necessary starting point for any policy-oriented population research (Schultz, 1981). A comprehensive approach to this understanding begins with an analysis of the determinants of the demand of children and an examination of ways in which socio-economic development can affect this demand (Turchi, 1985).

Women's status has been cited as a major determinant of fertility in the demographic literature. This paper presents some findings from a study designed to examine the relationships between women's status and their fertility behavior in Bendel State of Nigeria. A distinction is made between women's public and private status. The general hypothesis tested is that the higher a woman's status, public or private, the lower her actual or desired fertility.

The rest of this paper is organized as follows: the next section briefly describes data sources, Section III outlines the theoretical considerations underlying the analysis while Section IV presents the empirical results. The final section summarizes the findings of the study and raises policy implications.

II. DATA SOURCES

The data base on which the analysis draws is a 1985 survey of ever-married women 15-50 years old in Bendel State of Nigeria. An important objective of the study was to establish the presence or absence of differentials in fertility and their determinants across ethnic group living in rural and urban areas. Five major ethnic groups were selected for inclusion in the study--the Binis, Ishans, Western Ibos, Itsekiris and Urhobos. One town and two urban communities inhabited mainly by each ethnic group were purposively selected, making a total of five urban and ten rural communities. A multi-stage sampling approach was adopted. In each community

(except in one where the sample was 100 percent), a sample of enumeration areas was taken and all dwelling units listed. At the second stage, a sample of households was selected. Each sample was therefore representative of its community. In each household, a household questionnaire, and one or more female questionnaires (all eligible women in the household) were administered. Altogether, 1,713 households and 2,145 female questionnaires were considered suitable for analysis.

Since 'women's status' is considered to be context-specific (Mason, 1984; Smith, 1986), community questionnaires were administered to informants to collect background information on customs and restrictions on women, and levels of socio-economic development.

III. THEORETICAL CONSIDERATIONS

3.1. Operationalizing the Concepts of Women's Status

The concept 'women's status' is as difficult to define as it is to operationalize. Numerous definitions exist. Most of the definitions of women's status connote the idea of gender inequality. The three concepts of gender inequality usually focussed on are: (1) inequality in prestige, (2) inequality in power and (3) inequality in access to or control over resources (Mason, 1984). Women's status is thus multi-dimensional, and men and women may be relatively unequal along more than one dimension. Aspects of women's status have been found to be largely independent of each other so that no particular variable can predict how women fare on one or the other aspect (Youssef, 1982). It is, therefore, difficult to arrive at definitions of high or low status of women. It is usually left to the researcher to define the concept within the context of the environment under study (Youssef, 1982).

Various indicators have been used to operationalize the concept in demographic studies. Most analyses of fertility behavior have focussed on three aspects of women's status: education, employment and husband-wife relationships (Youssef, 1982). However it has been pointed out that in discussing the status of women in developing countries, there is a need to distinguish between the 'public' and the 'private' status of women (Buvinic, 1976). This distinction is important because there may be no correlation between women's status in the society and their power in the household. Women may have lower status or power at the household level and higher status at the social level and vice versa (Safilios-Rothschild, 1982). Public status refers to society's evaluation of women relative to men; it may be ascribed or achieved. Private status refers to women's power

and influence at the household level relative to male members, especially their husbands. Thus operationalizing the concept of status of women requires indicators of women's public and private status.

(a) Public Status

This can be derived from a male relative or achieved through personal efforts.

(i) Ascribed or derived status: In the Nigerian society like in many others, women derived social or public status from their fathers, brothers, husbands or male guardians. This is very important in Nigeria where most men and women come from traditional, rural backgrounds. Indicators of derived public status used in this study are husband's income, education and occupation. The higher a man's income, and/or education, the more prestige he enjoyed in the society, and by implication the higher the wife's social status.

(ii) Achieved status: In the last few decades in Nigeria, as the society has modernized, women's status and roles have changed. For many women, achieved as well as ascribed forms of status are now available. Individual women have achieved status in their own right as successful professionals. Indicators of achieved status are respondent's occupation, education, income and labor force status. (Achieved status can also be an indicator of 'class' status.)

(b) Private Status

Women's influence in household relations can be explained by the resources theory (Rodman, 1972) and the ideology theory (Cromwell, *et al.*, 1973). According to the theory of resources, the balance of power in the household depends on the resources each partner contributes to the marriage. The resources include income, education, occupational prestige, etc. The ideology theory is based on the idea that culture or society determined individual behavior, that is decision styles are culture-specific (Hull, 1983). In this case, conjugal relationships are defined largely in cultural terms, and the conjugal relationship "depends on the local moral codes, religion and the general pattern of social policies" (Hull, 1983). Individuals thus base their behavior on these internalized norms (Beckman, 1983). The ideology theory emphasizes social norms and cultural determinants of whom should have power, that is, in whom does legitimate power lie? According to Blood and Wolfe, the theory asserts that "cultural definitions of whom ought to have power probably influence it" (Cromwell *et al.*, 1973).

Conjugal relations are based not only on ideological or cultural expectations, but also on factors such as personality, strength of affection between spouses, comparative income and education, age, etc. (Rodman, 1972; Oppong, 1970). Both theories of conjugal relations tend to be operational concurrently depending on the

level of development of the society. It is hypothesized that the more developed the society, the more relevant is the resource theory in explaining conjugal relations, while the level developed the society, the more applicable is the ideological theory (Cromwell *et al.*, 1973). A woman's private status or relative power in the household therefore depends on the prevailing ideology and the amount of resources she possesses vis-a-vis her husband. The more cohesive the patriarchal structure (as is the case in Nigerian societies), the more conformity there is to expected traditional sex-role expectations in the household. Private status of women in the present study refers to the nature of conjugal relations between the respondent and her husband in their household. Indicators used measured the extent to which the household was 'traditional' or modern in behavior, factors which led to conformity with traditional sex-role expectations. These were:[1]

(i) Sex-role ideology: a source measuring the degree of internalization of sex-role expectations by women.

(ii) Decision-making: a score measuring the degree of husband-dominance in household decision-making.

(iii) Division of labor: A score measuring the extent to which husbands performed domestic chores.

(iv) Husband-wife age difference: the higher the age difference, the more traditional the nature of conjugal relations is expected to be.

(v) Wife's economic power: a score measuring the relative financial contribution of the respondent to the household.

(vi) Marriage type: whether the woman was monogamously or polygamously married and whether a first wife or not.

Based on the ideological explanation of household power, the more traditional the households are in outlook and behavior, the more inferior the position of women is likely to be, that is, the lower women's private status. The resources theory leads us to expect that women with more resources such as education and income (that is, higher public status) may also have higher private status. Such interactions are not explicitly analyzed in this paper, although several public status and private status variables are controlled in the final specification of the regression analysis. The reason for reporting a sequence of regression specifications is that it can be argued that the private status variables--such as husband-wife age difference or marriage type or relative economic contribution (i.e. female labor force participation)--are themselves endogenous along with fertility. In other words, the private status variables and fertility are probably affected by common unobserved variables.

Including such endogenous household behavioral variables in the fertility regression would, in this case, bias the other regression coefficients. It should be pointed out, however, that in the Nigerian context the society does not view these private status variables as ones that the majority of women decide on or independently choose. For most respondents, household behavior as reflected in the private status variables conform to traditional sex-role expectations.

3.2. Empirical Formulation of the Model

The standard formulation of the microeconomic theory of fertility emphasizes the demand for children as the key to fertility behavior. The influence of supply factors are also recognized but as Schultz (1981) pointed out, most existing empirical evidence is not designed to discriminate between the importance of supply or demand determinants. Therefore, what is generally presented as empirical evidence of determinants of fertility combines factors that might logically influence both supply and demand with factors that influence one or the other (Schultz, 1981). A general way of looking at fertility decision-making is to present the household as making a choice about the number of children it wants within an economic framework of constrained choice. Many empirical studies have concluded that economic variables account for a statistically significant share of cross-sectional variation in aggregate and individual fertility even though the specific models used differ in terms of analytical complexion and econometric complexity (Schultz, 1973a). However, theories of household behavior derived from generally accepted economic tenets do not yield many refutable propositions with regard to fertility unless additional constraints are imposed (Schultz, 1973b).

Some authors have also argued that the microeconomic theory of demand for children with emphasis on price and income effects is of limited relevance for explaining fertility in developing countries where decision-makers face in addition, constraints imposed by cultural norms (Jones, 1977). They suggest modifications of the microeconomic model to reflect the social milieu under investigation. Many studies have been carried out which have included additional variables such as community factors, biological determinants, etc., in their model findings with those of studies applying the microeconomic model suggests that both specifications give similar results (Farooq and Simmons, 1985).

In this study, the analysis proceeds from the economic framework of the microeconomic model of fertility which is expanded to include other variables of interest to the study., The paper reports results for the economic model, and for the expanded socio-economic model which includes measures of private status not

usually included in economic models of fertility. Private status variables are included to measure some of the factors which may influence the tastes of women for children. The economic model includes the public status variables, wife's education, husband's education and occupation, and community variables.

No attempt is made to develop any formal theory. The object here is to specify a relation between fertility and price, income and other constraints that are not themselves determined jointly with the number of births. A reduced form demand equation which expresses number of children born as a function of explanatory variables assumed to be outside parental control (that is, purely exogenous variables) is estimated. All variables which could be jointly determined with fertility such as age at marriage, duration of marriage, labor force and migrant status and private status variable are initially excluded as explanatory variables. To capture nonlinearity of cumulative fertility, age is introduced as a quadratic variable. The fertility equation is also estimated for age groups to minimize problems due to interaction between age and other explanatory variables.

The model to be estimated can be summarized as follows:

$$F = f(X, Z, E) \tag{1}$$

where F = measure of fertility,

X = a vector of public status variables,

Z = a vector of private status variables, and

E = a vector of environmental or community variables.

It is assumed that the relationship is approximately linear, and the equation to be estimated is of the form:

$$F = \alpha_0 + \alpha_1 X_1 + \cdots + \alpha_m X_m + b_1 Z_1 + \cdots + b_n Z_n + c_1 E_1 + \cdots + c_s E_s + e\,. \tag{2}$$

The error term e is assumed to be normally distributed with zero mean, constant variance and uncorrelated with the explanatory variables. The expected signs and relative magnitudes of the parameters are discussed below. Table 1 shows the definitions of variables used in the regression equations.

The dependent variable in the fertility equations estimated in the next section is children ever born to individual women. The equation is estimated for the entire sample, for urban and rural women, and for three age cohorts (15-24 years, 25-34 years and 35-50 years) respectively.

Age and age squared are included as explanatory variables to control for the biological supply of children and to capture the non-linearity of cumulative fertility with respect to age.

TABLE 1

DEFINITIONS OF VARIABLES

DEPENDENT VARIABLE	
Children Ever Born	Number of live births
EXOGENOUS VARIABLES	
PUBLIC STATUS VARIABLES	
Woman's Education	
None	No education by wife (omitted)
Primary	Primary education by wife (1 if yes)
Secondary	Secondary education by wife (1 if yes)
Tertiary	Tertiary education by wife (1 if yes)
Husband's Education	
None	No education by husband (omitted)
Primary	Primary education by husband (1 if yes)
Secondary	Secondary education by husband (1 if yes)
Tertiary	Tertiary education by husband (1 if yes)
Husband's Occupation	
Not in Labor Force	Husband not in labor force (omitted)
Professional-Technical	Husband in professional-technical occupations (1 if yes)
Sales	Husband in sales occupations (1 if yes)
Agriculture	Husband in agriculture (1 if yes)
Services	Husband in craft and service occupations (1 if yes)
COMMUNITY CHARACTERISTICS (exogenous)	
Poor Accessibility	Access road-sand/sea poor accessibility (omitted)
Accessible	Access road-tarred (1 if yes)
Very Accessible	Access by tarred road and sea (1 if yes)
Modern Occupations	Main occupations--modern (omitted)
Mainly Farming	Main occupation is farming (1 if yes)
Farming-Fishing	Main occupations are fishing and farming (1 if yes)
Health	Modern hospitals present (1 if yes)
PERSONAL CHARACTERISTICS (Exogenous)	
Age of Woman	Age of respondent
Age Squared	Age squared
Age times Education	Age × education (converted into equivalent years^2)
Christian	Christian (1 if yes)
Bini	Respondent is Bini (omitted)
Ishan	Respondent is Ishan (1 if yes)
Western Ibo	Respondent is Western Ibo (1 if yes)
Urhobo	Respondent is Urhobo (1 if yes)
Itsekiri	Respondent is Itsekiri (1 if yes)
Other Ethnic	Respondent from any other ethnic group (1 if yes)
PRIVATE STATUS VARIABLES (Potentially Endogenous)	
Sex-role	Sex-role ideology score (1 if traditional)
Decision-making	Household decision-making score (1 if modern or egalitarian)
Division of Labor	Husband's score on division of labor in household (1 if traditional)
Very Low Contribution	Wife's contribution to household finances very low (omitted)
Low Contribution	Wife's contribution to household finances low (1 if yes)
High Contribution	Wife's contribution to household finances high (1 if yes)
Age Difference	Husband-wife age difference in years
Monogamous	Monogamous marriage (omitted)
Polygamous--First	Polygamous--1st wife (1 if yes)
Polygamous--Other	Polygamous--junior wife (1 if yes)

Respondent's (female) and husband's education are introduced as measures of the value of time and family income emphasized by the economic demand model. It is usually assumed that for the wife the substitution effect of the wage rate outweighs the income effect thereby leading to a negative effect of the wife's education on fertility. The net effect of husband's education is indeterminate; some studies have found the effect of husband's education to be positive or U-shaped (Cochrane, 1979). A positive effect of male education on fertility is often hypothesized. Husband's education and occupation are used as proxies for income in this study. A priori expectations are indeterminate for male education while a negative relationship between female education and fertility is expected.

All the community variables introduced as explanatory variables--accessibility of the community, occupation mix and availability of modern health services--measure the degree of urbanization or socio-economic development of the sample area. It is expected that the more accessible the community to external influence, the more modern the occupation mix, and the greater availability of health services, the lower fertility is likely to be.

Ethnic group and religion are introduced as factors which may influence perceptions of the costs/benefits of children and therefore attitudes to family size, birth control, etc., that is, they may proxy unobserved variables, including the taste for children. A priori expectations are indeterminate for ethnic group, while Christians are expected to have lower fertility.

With respect to sex-role ideology, household decision-making and division of labor, it was expected that the more traditional the household, the higher fertility was likely to be. Age difference between spouses could influence communication between them, and thus the greater husband-wife age difference, the greater the communication gap, especially with respect to discussion of topics like family size and family planning, which are sensitive subjects in the Nigerian society. Age difference is expected to be positively related to fertility.

The higher the wife's financial contribution to household expenses, the greater the influence she may have in family decision-making. However, high financial power could have an income effect on fertility leading to woman who have more children. Also, having more children could necessitate greater financial contribution by way of expenses on food, clothing and school fees for children. A priori expectations are therefore indeterminate.

Studies have shown conflicting results on the relationship between marriage type and fertility. Some studies have shown that monogamous women have higher fertility (Ekanem, 1974; Farooq, 1985). Others have

found higher fertility among polygamous woman (Ohadike, 1968), while others found no significant difference (Olusanya, 1971). Some authors have suggested that a polygynous woman's rank order in marriage may have an important effect on fertility (Lestaeghe, 1984; Bean and Mineau, 1986). A priori expectations are that polygamously married women have lower fertility than monogamous women, and that polygamous women of higher order (second and higher) have the lowest fertility.

IV. EMPIRICAL FINDINGS

Estimates of children ever born are reported below for all ever-married women, three age cohorts, and for rural and urban women separately. Table 2 presents means and standard deviations of dependent and explanatory variables for all women and for the age cohorts.

Altogether, 1,814 women had complete information on all the variables used in the estimated equations. The mean age of respondents was 33.6 years for all women and 21.5 years, 29.0 years and 41.2 years for the age cohorts, respectively. Mean age at marriage for all women is 17.9 years, while mean number of children ever born for the total sample (2,145 women) is 4.6 children. As expected, the illiteracy rate is higher among older women and their husbands. While 34 percent of all women had no formal education, the proportions were 13 percent, 21 percent and 51 percent for the age groups 15-24 years, 25-34 years and 35-50 years, respectively. Forty percent of the husbands of the oldest women (35 to 50 years) had no formal education as against 17 percent and 19 percent among women aged 15-24 years and 25-34 years, respectively. Agriculture was the main occupation of husbands--43 percent of husbands were in agricultural occupations.

With respect to private status variables, most women irrespective of age live in traditional households--64 percent hold traditional sex-role views, 65 percent live in husband-dominant households (in decision-making), while 91 percent of husbands performed few if any household chores. Age differences between husbands and wives were large, averaging about 11 years for all women and for all age groups. Most women--56 percent--were in monogamous marriages.

TABLE 2

MEAN AND STANDARD DEVIATIONS* OF VARIABLES IN REGRESSIONS, ALL WOMEN AND BY AGE GROUPS

Variable	Mean (Standard Deviation) All Women	15-24 Years	25-34 Years	35-50 Years
Children Ever Born	4.64	1.97	4.22	5.78
	(2.53)	(1.26)	(1.95)	(2.59)
Woman's Age	36.61	21.52	29.01	41.25
	(8.26)	(1.96)	(2.69)	(4.76)
Age Squared ($\times 10^{-2}$)	11.97	4.66	8.48	17.24
	(5.74)	(.829)	(1.57)	(4.01)
Woman's Education:				
Primary	0.48	0.53	0.57	0.37
Secondary	0.12	0.28	0.13	0.07
Tertiary	0.07	0.07	0.09	0.06
Woman's Age-Education ($\times 10^{-2}$)	1.85	1.77	2.00	1.75
	(1.62)	(91.9)	(1.31)	(1.99)
Husband's Education				
Primary	0.40	0.43	0.43	0.35
Secondary	0.20	0.26	0.24	0.16
Tertiary	0.15	0.21	0.15	0.12
Husband's Occupation:				
Professional-Technical	0.23	0.28	0.26	0.18
Sales	0.12	0.15	0.13	0.11
Agriculture	0.43	0.20	0.37	0.54
Services	0.20	0.33	0.22	0.14
Community Characteristics:				
Accessible	0.59	0.69	0.56	0.58
Very Accessible	0.17	0.20	0.21	0.14
Mainly Farming	0.57	0.47	0.51	0.66
Farming-Fishing	0.20	0.17	0.23	0.18
Lack of Health Facilities (no hospital)	0.60	0.75	0.64	0.53
Ethnic Group:				
Ishan	0.20	0.16	0.17	0.25
Western Ibo	0.15	0.14	0.13	0.18
Urhobo	0.26	0.33	0.29	0.21
Itsekiri	0.14	0.14	0.16	0.12
Other Ethnic	0.08	0.10	0.09	0.06
Christian	0.49	0.54	0.49	0.47
Private Status Variables:				
Sex-role	0.64	0.61	0.63	0.67
Decision-making by Women	0.35	0.32	0.36	0.35
Division of Labor	0.91	0.92	0.90	0.92
Age-difference (man/woman)	11.21	11.24	11.70	10.76
	(7.52)	(8.49)	(7.43)	(7.29)
Low Contribution to Household	0.50	0.38	0.49	0.55
High Contribution to Household	0.18	0.13	0.18	0.18
Polygamous--First Wife	0.19	0.07	0.14	0.26
Polygamous--Other Wife	0.25	0.34	0.29	0.18

*Figures in parentheses are standard deviations reported for continuous variables. The remainder of the variables are binary dummy variables equal to one if the individual is in this class. The standard deviation for these variables is a function of the mean (m), i.e. standard deviation = $\sqrt{m(1-m)}$.

Regression Results--All Women

Tables 3 and 4 present Ordinary Least Squares (OLS) estimates of the equations specified. Table 3 shows the results for the economic model of demand for children in which price, income and community variables only are used as explanatory variable. Table 4 presents results for the expanded model including ethnic group variables, and Table 5 includes other household behavior variables linked to private status, although some of these variables may not be exogenous to fertility.

Table 3 confirms the importance of economic variables in fertility decision-making among the samples studied. There is a strong inverse association between children ever born and female education; fertility declines monotonically with higher levels of education even after controlling for the age-education interaction. This negative and highly significant association is evident among the oldest women (35-50 years) most of whom have completed childbearing. Education has no significant effect in the younger age groups. The results imply that education has no significant effect on the timing of fertility of younger women but is significantly related to completed fertility. At the end of childbearing, highly educated women end up with smaller families than less educated women.

The positive and significant coefficient of husband's education suggests a positive effect of husbands' income on fertility. Higher education husbands who can earn higher incomes may be able to afford more children. The income effect is evident for the age groups 25-34 years and 35-50 years.

Husband's occupation has a positive but insignificant association with fertility. Wives of men in professional-technical occupations have slightly fewer children than other wives. Such wives are likely to be themselves more educated. Omission of husband's occupation variables did not change husband's education effects.

Accessibility of the community to external influence has no significant association with fertility, but becomes significant when ethnic group variables are later introduced. Occupation-mix which measures the range of employment opportunities in the community is significantly associated with fertility among older women. Women who live in primarily farming communities have higher fertility than others, while those who live in fishing communities have the lowest fertility.

Associations between income and education and fertility may be due to the underlying ethnic diversity of the population that is not being held constant in Table 3. Therefore, seven ethnic categories are added to the regressions in Table 4, including the omitted Bini group. The ethnic categories are jointly statistically significant explanatory variables, except among the youngest group of women. The partial effect of the woman's education

TABLE 3

OLS ESTIMATES OF CHILDREN EVER BORN, BASIC MODEL, FOR ALL WOMEN AND BY AGE GROUPS

Variable	Mean (Standard Deviation) All Women	15-24 Years	25-34 Years	35-50 Years
Intercept	-8.102	-2.260	-7.926	0.518
	(-7.685)	(-0.254)	(-1.031)	(0.064)
Age of Woman	0.612	0.190	0.467	0.214
	(11.305)	(0.228)	(0.891)	(0.555)
Age Squared ($\times 10^{-2}$)	-0.007	0.002	-0.003	-0.003
	(-9.511)	(0.083)	(-0.291)	(-0.555)
Woman's Education:				
Primary	-1.135	0.918	0.255	-2.911
	(-3.046)	(0.546)	(0.251)	(-2.498)
Secondary	-2.182	1.391	0.129	-5.163
	(-3.755)	(0.471)	(0.076)	(-2.661)
Tertiary	-3.329	1.403	0.014	-7.614
	(-4.230)	(0.361)	(0.006)	(-2.879)
Woman's Age times Years of Education	0.005	-0.007	-0.002	0.010
	(3.491)	(-0.694)	(-0.313)	(2.672)
Husband's Education				
Primary	0.427	-0.234	0.520	0.443
	(2.951)	(-0.721)	(2.667)	(1.866)
Secondary	0.502	-0.054	0.607	0.479
	(2.522)	(-0.151)	(2.362)	(1.315)
Tertiary	0.479	-0.085	0.416	0.689
	(1.911)	(-0.206)	(1.290)	(1.491)
Husband's Occupation:				
Professional-Technical	0.433	-0.097	0.099	0.953
	(1.268)	(-0.213)	(0.194)	(1.594)
Sales	0.773	-0.002	0.314	1.356
	(2.138)	(-0.003)	(0.583)	(2.189)
Agriculture	0.449	-0.252	0.578	0.649
	(1.266)	(-0.493)	(1.073)	(1.092)
Services	0.553	-0.459	0.533	0.983
	(1.569)	(-0.966)	(1.012)	(1.621)
Community Characteristics:				
Accessible	0.181	0.625	0.207	0.137
	(1.098)	(1.801)	(0.914)	(0.506)
Very Accessible	0.018	0.412	0.302	-0.410
	(0.077)	(0.998)	(1.308)	(-0.940)
Mainly Farming	0.014	-0.282	0.302	-0.197
	(0.093)	(-1.326)	(1.666)	(-0.682)
Farming-Fishing	-0.929	-0.222	-1.036	-1.057
	(-5.400)	(-0.777)	(-4.871)	(-3.159)
Lack of Health Facilities (no hospital)	-0.099	-0.316	0.003	-0.046
	(-0.624)	(-1.157)	(0.012)	(-0.169)

TABLE 3 (continued)

Variable	Mean (Standard Deviation) All Women	15-24 Years	25-34 Years	35-50 Years
N	1814	235	754	825
R^2	0.3288	0.1542	0.2584	0.0672
F	48.85	2.19	14.23	3.22
Prob > F	0.007	0.0045	0.0001	0.0001
Joint F-Tests on Hypothesis that Coefficients are all zero (df):				
Age-Age Squared (2)	128.184	0.055	0.812	0.308
Woman's Education (3)	15.184	0.190	0.006	7.567
Woman's Age-Education and Levels (4)	15.185	0.189	0.006	7.567
Husband's Education (3)	7.746	0.144	5.299	3.666
Occupation (4)	2.746	0.201	0.563	3.073
Accessibility (2)	0.292	2.046	1.479	0.178
Occupation Mix (2)	10.499	1.412	4.412	5.045

Figures in parentheses are t-statistics.

TABLE 4

OLS ESTIMATES OF CHILDREN EVER BORN
INCLUDING ETHNIC GROUP
ALL WOMEN AND BY AGE GROUP

Variable	Mean (Standard Deviation) All Women	15-24 Years	25-34 Years	35-50 Years
Intercept	-7.916	-5.261	-8.815	1.212
	(-7.529)	(-0.585)	(-1.141)	(0.151)
Woman's Age	0.606	0.494	0.525	0.181
	(11.268)	(0.583)	(0.999)	(0.474)
Age Squared ($\times 10^{-2}$)	-0.007	-0.005	-0.004	-0.002
	(9.459)	(-0.254)	(-0.399)	(-0.459)
Woman's Education:				
Primary	-0.997	1.466	0.270	-0.378
	(-2.681)	(0.874)	(0.266)	(-2.051)
Secondary	-2.001	2.199	0.148	-4.288
	(-3.452)	(0.788)	(0.087)	(-2.225)
Tertiary	-3.136	2.679	-0.001	-6.498
	(-3.994)	(0.691)	(-0.001)	(-2.473)
Woman's Age times Years of Education	0.004	-0.011	-0.002	0.009
	(3.182)	(-0.999)	(-0.321)	(2.202)
Husband's Education:				
Primary	0.447	-0.126	0.539	0.483
	(3.067)	(-0.383)	(2.173)	(2.038)
Secondary	0.522	-0.054	0.622	0.458
	(2.619)	(-0.152)	(2.399)	(1.266)
Tertiary	0.526	-0.084	0.443	0.682
	(2.097)	(-0.199)	(1.361)	(1.486)
Husband's Occupation:				
Professional-Technical	0.423	-0.202	0.038	0.919
	(1.240)	(-0.438)	(0.075)	(1.549)
Sales	0.721	-0.126	0.266	1.177
	(2.002)	(-0.249)	(0.491)	(1.919)
Agriculture	0.393	-0.501	0.549	0.472
	(1.113)	(-0.972)	(1.018)	(0.799)
Services	0.528	-0.569	0.491	0.917
	(1.509)	(-1.184)	(0.931)	(1.529)
Community Characteristics:				
Accessible	0.467	0.645	0.343	0.644
	(2.582)	(1.654)	(1.373)	(2.125)
Highly Accessible	0.509	0.634	0.568	0.267
	(2.033)	(1.437)	(1.785)	(0.569)
Farming	0.349	0.222	0.399	0.414
	(2.074)	(0.766)	(1.953)	(1.259)
Farming/Fishing	-0.422	-0.176	-0.837	0.048
	(-1.939)	(-0.474)	(-3.082)	(0.115)
Health Facilities	-0.215	-0.317	-0.119	-0.154
	(-1.322)	(-1.105)	(-0.532)	(-0.560)

TABLE 4 (continued)

Variable	Mean (Standard Deviation) All Women	15-24 Years	25-34 Years	35-50 Years
Ethnic Groups:				
Ishan	-0.660	-0.643	-0.177	-1.034
	(-3.564)	(-1.615)	(-0.723)	(-3.282)
Western Ibo	-0.689	-1.080	-0.429	-0.842
	(-3.444)	(-2.763)	(-1.636)	(-2.430)
Urhobo	-1.015	-0.538	-0.380	-1.838
	(-5.347)	(-1.604)	(-1.592)	(-5.201)
Itsekiri	-0.761	-0.328	-0.203	-1.309
	(-3.065)	(-0.681)	(-0.666)	(-2.827)
Other Ethnic	-0.599	-0.734	-0.108	-0.798
	(-2.639)	(-2.033)	(-0.393)	(-0.743)
Christian	0.173	-0.252	0.326	0.187
	(1.561)	(-1.420)	(2.242)	(0.943)
N	1814	235	754	825
R^2	0.339	0.201	0.267	0.099
F	38.37	2.20	11.04	3.68
Prob > F	0.0001	0.0017	0.0001	0.0001
DF	1789	210	729	850
Joint F-Tests on Hypothesis that Coefficients are all zero (df):				
Age-Age Squared (2)	127.468	0.349	1.019	0.225
Woman's Education (3)	12.989	0.581	0.007	5.395
Woman's Age-Education and Levels (4)	12.991	0.581	0.007	5.395
Husband's Education (3)	8.660	0.071	5.577	3.456
Occupation (4)	2.425	0.586	0.436	2.451
Accessibility (2)	5.922	2.684	2.926	1.661
Occupation Mix (2)	0.048	0.103	1.117	0.492
Ethnic Group (6)	21.659	0.007	1.634	16.223

Figures in parentheses are t-statistics.

is reduced by the inclusion of the ethnic variables between those with primary and no education, but the other effects of the woman's education and that of the man are essentially unchanged. Husband occupation effects are also unchanged. Only the accessibility of the community becomes more positively associated with fertility after controlling for ethnic groups.

In Bendel State of Nigeria, markets are held periodically (once in five days) in different communities. On market days, there is usually regular transport to various villages or urban centers (serving many villages). Most rural women go to different markets in neighboring communities (which can include an urban center) to sell their agricultural or fish products, and so can interact with others regularly. The lower fertility of residents in "inaccessible" villages may also be due to higher recall errors, since female literacy was also lowest in those communities. It could also be a purely community factor, for example in Itsekiri communities, where average family size is about four children. In Table 5, when the private-status variables are added, most of the signs and significant levels remain unchanged. Women's education remains negatively and significantly associated with fertility, among older women, while male education remains positive.

Occupation mix loses significance, while health facilities exert a negative but insignificant effect. Many Nigerians patronize hospitals only as a last resort; traditional doctors are still very popular. Ethnicity continues to exert a significant influence on children ever born reflecting the importance of ethnic norms about family size on fertility decision-making and other omitted variables that differ across these groups. Age difference of the spouses and household division of labor have the expected positive relationship with fertility; they are also statistically significant. Decision-making is unexpectedly positive and significant, that is, women who claim to participate more in household decision-making have higher fertility. This could be due to a positive income effect if such women exert more family power due to their higher incomes, or that power in family decision-making derives from the number of children and is thus jointly determined.

Wive's contribution to family finances has a nonlinear relationship; fertility first rises and then falls with her increasing contribution. Higher contribution implies higher economic power and therefore higher domestic status for the wife but not higher fertility. Thus at low levels of contribution and lower domestic power, fertility rises as her contribution increases from very low levels to low levels.

Marriage type has a significant association with fertility. Polygamous women have lower fertility than monogamous women. The difference is highly significant for wives of higher rank order. The observed

TABLE 5

OLS ESTIMATES OF CHILDREN EVER BORN,
INCLUDING ALL WOMEN AND BY AGE GROUPS

Variable	Mean (Standard Deviation) All Women	15-24 Years	25-34 Years	35-50 Years
Intercept	-8.606	-2.177	-8.501	2.510
	(-8.085)	(-0.237)	(-1.118)	(0.318)
Woman's Age	0.598	0.207	0.453	0.076
	(11.204)	(0.240)	(0.875)	(0.202)
Age Squared	-0.007	-0.001	-0.002	-0.001
	(-9.397)	(0.550)	(-0.249)	(-0.201)
Woman's Education				
Primary	-0.834	0.754	0.768	-2.249
	(-2.261)	(0.443)	(0.761)	(-1.981)
Secondary	-1.798	1.084	0.901	-4.208
	(-3.136)	(0.383)	(0.534)	(-2.229)
Tertiary	-3.012	1.113	0.834	-6.498
	(-3.879)	(0.283)	(0.371)	(-2.526)
Woman's Age times Years of Education	0.004	-0.006	-0.003	0.008
	(2.994)	(-0.582)	(-0.699)	(2.190)
Husband's Education				
Primary	0.397	-0.010	0.469	0.402
	(2.733)	(-0.032)	(2.368)	(1.709)
Secondary	0.524	0.103	0.667	0.414
	(2.648)	(0.279)	(2.597)	(1.157)
Tertiary	0.614	-0.002	0.522	0.767
	(2.462)	(-0.004)	(1.618)	(1.692)
Husband's Occupation				
Professional-Technical	0.440	-0.230	0.116	0.706
	(1.302)	(-0.494)	(0.230)	(1.195)
Sales	0.703	-0.223	0.312	0.935
	(1.970)	(-0.436)	(0.584)	(1.532)
Agriculture	0.467	-0.500	0.667	0.325
	(1.330)	(-0.971)	(1.253)	(0.554)
Services	0.531	-0.571	0.574	0.647
	(1.527)	(-1.171)	(1.100)	(1.083)
Community Characteristics:				
Accessible	0.528	0.652	0.307	0.830
	(2.916)	(1.619)	(1.212)	(2.752)
Very Accessible	0.605	0.517	0.469	0.599
	(2.398)	(1.119)	(1.450)	(1.279)
Mainly Farming	0.315	0.192	0.454	0.262
	(1.873)	(0.629)	(2.214)	(0.801)
Farming-Fishing	-0.375	-0.289	-0.729	-0.040
	(-1.718)	(-0.755)	(-2.658)	(-0.097)
Health Facilities	-0.266	-0.352	-0.048	-0.325
	(-1.632)	(-1.204)	(-0.213)	(-1.168)

TABLE 5 (continued)

Variable	Mean (Standard Deviation) All Women	15-24 Years	25-34 Years	35-50 Years
Ethnic Group:				
Ishan	-0.415	-0.658	-0.145	-0.459
	(-2.201)	(-1.584)	(-0.591)	(-1.413)
Western Ibo	-0.647	-0.955	-0.491	-0.679
	(-3.223)	(-2.366)	(-1.866)	(-1.962)
Urhobo	-0.808	-0.482	-0.206	-1.529
	(-4.239)	(-1.400)	(-0.862)	(-4.298)
Itsekiri	-0.636	-0.183	-0.097	-1.119
	(-2.584)	(-0.371)	(-0.320)	(-2.433)
Other Ethnic	-0.494	-0.737	-0.033	-0.683
	(-2.193)	(-2.019)	(-0.121)	(-1.511)
Christian	0.140	-0.193	0.321	0.054
	(1.273)	(-1.071)	(2.236)	(0.275)
Private Status Variables:				
Sex-role	0.007	-0.089	0.079	-0.134
	(0.068)	(-0.479)	(0.567)	(-0.683)
Decision-making	0.209	0.087	0.148	0.239
	(1.952)	(0.453)	(1.079)	(1.235)
Division of Labor	0.401	0.059	0.141	0.831
	(2.275)	(0.186)	(0.671)	(2.474)
Age-difference (man/woman)	0.029	0.027	0.035	0.018
	(4.084)	(2.341)	(3.619)	(1.344)
Low Contribution to Household	0.286	-0.227	0.042	0.702
	(2.493)	(-1.179)	(0.288)	(3.301)
High Contribution to Household	-0.022	-0.317	-0.234	0.326
	(-0.149)	(-1.179)	(-1.222)	(1.217)
Polygamous--First Wife	-0.367	0.158	-0.459	-0.404
	(-2.657)	(0.465)	(-2.359)	(-1.860)
Polygamous--Other Wife	-0.864	-0.189	-0.856	-1.274
	(-6.405)	(-0.815)	(-5.121)	(-4.942)
N	1814	235	754	825
R^2	0.3619	0.2324	0.2996	0.1473
F	21.65	1.91	9.64	4.27
Prob > F	0.0001	0.0040	0.0001	0.0001
Joint F-Tests of the Hypothesis That All Coefficients Are Zero (df):				
Age-Age Squared (2)	126.08	0.611	0.784	0.041
Woman's Education (3)	11.237	0.122	0.258	5.451
Age-Education (4)	11.239	0.122	0.258	5.451
Husband's Education (3)	9.212	0.078	6.045	3.346
Husband's Occupation (4)	2.647	0.685	0.689	1.385
Accessibility (2)	7.881	2.082	2.052	4.080
Occupation Mix (2)	0.032	0.028	0.431	0.114
Ethnic Group (6)	14.101	3.362	0.923	9.554
Contribution (2)	1.327	2.064	0.429	5.952
Marriage Type (2)	30.575	0.005	19.709	18.426

Figures in parentheses are t-ratios.

TABLE 6

MEANS AND STANDARD DEVIATIONS OF VARIABLES* IN REGRESSION, BY RURAL AND URBAN WOMEN

Variable	Rural	Urban
Children Ever Born	4.67	4.61
	(2.47)	(2.59)
Woman's Age	35.08	32.36
	(8.03)	(8.23)
Age Squared ($\times 10^{-2}$)	12.95	11.08
	(5.72)	(5.62)
Woman's Education:		
Primary	0.51	0.45
Secondary	0.06	0.18
Tertiary	0.02	0.12
Woman's Age times Years of Education	1.51	2.17
	(1.45)	(1.70)
Husband's Education:		
Primary	0.46	0.33
Secondary	0.09	0.30
Tertiary	0.06	0.22
Husband's Occupation:		
Professional-Technical	0.08	0.36
Sales	0.11	0.14
Agriculture	0.72	0.16
Services	0.08	0.31
Community Characteristics:		
Accessible	0.34	0.82
Very Accessible	0.17	0.18
Mainly Farming	0.58	0.56
Farming-Fishing	0.42	0.00
Ethnic Group:		
Ishan	0.22	0.19
Western Ibo	0.14	0.16
Urhobo	0.22	0.30
Itsekiri	0.24	0.05
Other Ethnic	0.03	0.12
Christian	0.34	0.63
Private Status Variables:		
Sex-role	0.71	0.59
Decision-making	0.37	0.34
Division of Labor	0.90	0.93
Age-difference (man/woman)	11.89	10.60
Low Contribution to Household	0.57	0.44
High Contribution to Household	0.15	0.20
Polygamous--First Wife	0.23	0.15
Polygamous--Other Wife	0.31	0.19

*Figures shown in parentheses are standard deviations.

relationship is partly due to the higher age at marriage of higher order wives (in this study) implying shorter durations of marriage. It could also be due to lower fecundity among higher order wives (Lestaeghe, 1984).

Factors which show significant associations with fertility among all women in this study are: male and female education, age, ethnic origin, household decision-making and division of labor, age difference and marriage type. These results are confirmed by joint F-tests reported at the bottom of each table of regression estimates.

Age Group 15-24 Years

In this age group only husband-wife age difference is statistically significant, and the overall regression equation is insignificant. Most of the women have just started childbearing and with a mean number of children ever born of 1.9; these women are still far from their target number of children that the framework is intended to explain.

Age Group 25-34 Years

Women in this age group are in their prime childbearing years. Women's education has an insignificant association with childbearing. Husband's education however has a positive and significant relationship reflecting evidence of a strong income effect. Marriage type, occupation mix, and husband-wife age difference have statistically significant associations with fertility.

Age Group 35-50 Years

In this age cohort, most of the women have completed childbearing. More educated women end up with fewer children than less educated or uneducated women. This is achieved through the combined effects of higher age at marriage and greater use of contraception. (Analyzed in a companion paper.) Completed fertility is also affected significantly and positively by husband's education, ethnic group, wife's financial contribution, highway and marriage type. Husband-wife age difference is not significant for this age group, most of whom are first (of a polygamous marriage) or only wives.

Urban-Rural Women

Table 6 shows the means and standard deviations of variables used in the separate rural and urban regression equations. Urban women are slightly younger than rural women: mean age is 32.3 years for urban and 35.1 years for rural women, respectively. Urban women as expected have also achieved higher levels of education than rural women, but still substantially less than their husbands. While 42 percent of rural women

have no formal education, only 25 percent of urban women have no formal education. Similarly, while only 8 percent of rural women have attained secondary and tertiary education, 30 percent of urban women have attained secondary and higher education. The distribution is similar for their husbands, but higher than for women. While only 15 percent of rural husbands have secondary and higher education, 52 percent of urban husbands have achieved these levels. The majority of rural husbands are in agricultural occupations, while most urban husbands are in professional-technical and service occupations. There are more Christians among urban women. Husbands do little work in the household, in both rural or urban areas. The husband-wife age difference is slightly lower among urban women, while more urban women are in monogamous marriages, 66 percent of urban women as against 46 percent of rural women.

Table 7 presents the fertility regressions for rural and urban women separately, where community characteristics are not always defined to vary across urban areas and are thus omitted from these regressions. Column 1 shows the results for the basic economic demand model, column 2 shows results holding constant for ethnic groups, while column 3 reports the addition of the potentially endogenous socio-economic variables representing the private status of women. Among rural women, female education has a negative but insignificant effect on fertility. Husband's education continues to be positive and significant. When socio-cultural variables are added to the equation, husband's education remains significant. Ethnic group, marriage type and wife's financial contribution are significant as for all women.

Among urban women, female education has a statistically significant negative relationship with fertility, while male education has a positive and significant set of coefficients, though smaller than in the rural subsample. Husband's occupation is significant for urban women only. Age differences and marriage type remain highly significant. However ethnic group and wife's financial contribution are insignificant for urban women (Joint F-tests).

The economic model (emphasizing public status measures) appears to be of greater relevance for older women, who have completed or are near completion of childbearing, than for the timing of births among younger women. The regressions are highly significant for all women, for the older age groups, for rural and urban women separately. The estimated regressions are insignificant for women in age group 15-24 years and the fertility timing captured at this early age. The results confirm the importance of economic factors in cohort completed fertility decision-making , but suggests the need for other approaches, if the goal is to explain the timing of firth birth or the onset of childbearing (Schultz, 1973b). The rural-urban comparisons confirm what other studies

have found: the negative woman's education-fertility relationship is stronger for urban than for rural women (Cochrane, 1979), but there are as yet relatively few older rural women with more than a primary education in Nigeria on which to base such an assessment. Furthermore, the observed positive, though statistically insignificant, effect of education on fertility among younger women (see Table 5) may be due to greater ability to have more live births by educated women as a result of improved health, better nutrition, and shorter durations of breast feeding and postpartum sexual abstinence which counteract the negative effects on cumulative fertility at higher ages (Schultz, 1981; Cochrane, 1979; Farooq, 1985).

In sum, economic (or public status) variables generally account for most of the explained variation in fertility as noted in many other studies, but ethnic and private status measures also made a significant contribution to explained variation, especially for the oldest age group and for rural women. F-tests for the significance of subsets of coefficients showed that private status variables were significant at the 0.01 level in all subsamples except for the youngest age group (15-24 years) for whom neither economic (public status) nor private status variables explained fertility levels.[4]

V. CONCLUSIONS

Based on cross-section data from a sample of women from fifteen rural and urban communities in Bendel State of Nigeria, reduced-form equations are estimated for children ever born as a function of socio-economic and cultural variables. The outlined theoretical framework on the determinants of fertility appeared to have reasonable empirical validity. Socio-economic factors are by and large relevant for fertility decisionmaking in Bendel State in Nigeria.

Among the economic factors (public status measures), female education appears to exert a pervasive influence. Completed fertility decreases with higher levels of education. The relationship is stronger among urban women who have attained higher levels of education than among rural women. One may thus infer that as women attain higher levels of education, they will have fewer children at the end of their childbearing years than less educated or uneducated women. Educated husbands are consistently associated with higher fertility than uneducated ones for all samples of women, except the youngest age group.

TABLE 7

OLS ESTIMATE OF CHILDREN EVER BORN,
BY RURAL AND URBAN RESIDENCE

Variable	Rural Women (1)	(2)	(3)	Urban Women (4)	(5)	(6)
Intercept	-5.875	-4.056	-5.396	-9.178	-9.089	-9.534
	(-3.038)	(-2.15)	(-2.799)	(-7.185)	(-7.12)	(-7.253)
Woman's Age	-0.506	0.476	0.491	0.670	0.660	0.640
	(-5.685)	(5.50)	(5.701)	(9.719)	(9.60)	(-9.301)
Age Squared ($\times 10^{-2}$)	-0.005	-0.005	-0.005	-0.008	-0.008	-0.008
	(-4.494)	(-4.31)	(-4.429)	(-8.152)	-8.05)	(-7.864)
Woman's Education:						
Primary	-0.403	-0.219	0.092	-1.35	-2.268	-1.230
	(-0.619)	(-0.35)	(0.146)	(-2.837)	(-2.71)	(-2.645)
Secondary	-1.209	-0.953	-0.473	-2.450	-2.416	-2.366
	(-1.138)	(-0.92)	(-0.459)	(-3.457)	(-3.41)	(-3.362)
Tertiary	-1.479	-1.844	-1.542	-3.878	-3.885	-3.875
	(-0.978)	(-1.25)	(-1.058)	(-4.079)	(-4.09)	(-4.096)
Woman's Age times Years of Education	0.0008	0.0006	-0.001	0.006	0.006	0.006
	(0.338)	(0.29)	(-0.055)	(3.633)	(3.70)	(3.718)
Husband's Education:						
Primary	0.326	0.389	0.398	0.596	0.673	0.629
	(1.730)	(2.07)	(2.107)	(2.521)	(2.83)	(2.641)
Secondary	0.593	0.389	0.712	0.463	0.529	0.525
	(1.849)	(2.07)	(2.261)	(1.678)	(1.92)	(1.914)
Tertiary	1.267	1.296	1.263	0.339	0.456	0.549
	(2.745)	(2.87)	(2.824)	(1.042)	(1.40)	(1.686)
Husband's Occupation						
Professional-Technical	-0.865	-1.178	-0.903	0.607	0.729	0.691
	(-0.865)	(-1.20)	(-0.925)	(1.691)	(2.03)	(1.919)
Sales	-0.556	-0.431	-0.312	0.863	0.967	0.919
	(-0.540)	(-0.43)	(-0.315)	(2.213)	(2.48)	(2.349)
Agriculture	-0.374	-0.609	-0.413	0.499	0.525	0.529
	(-0.369)	(-0.62)	(-0.423)	(1.268)	(1.34)	(1.351)
Services	-0.320	-0.404	-0.258	0.544	0.606	0.571
	(-0.307)	(-0.40)	(-0.256)	(1.472)	(1.64)	(1.548)
Ethnic Group:						
Ishan		-1.312	-0.696		0.387	0.461
		(-5.36)	(-3.626)		(1.71)	(1.791)
Western Ibo		-0.951	-0.862		-0.092	-0.139
		(-3.29)	(-2.857)		(-0.40)	(-0.614)
Urhobo		-0.611	-1.208		-0.414	-0.341
		(-6.17)	(-4.438)		(-2.05)	(-1.662)
Itsekiri		-1.793	-1.469		-0.285	-0.278
		(-7.10)	(-5.668)		(-0.83)	(-0.807)
Other Ethnic		-1.326	-1.149		-0.138	-0.081
		(-2.80)	(-2.438)		(-0.55)	(-0.326)
Christian		0.329	0.217		-0.015	-0.010
		(1.93)	(1.272)		(-0.11)	(-0.070)

TABLE 7 (continued)

Variable	Rural Women (1)	(2)	(3)	Urban Women (4)	(5)	(6)
Private Status Variables:						
Sex-role			-0.155			0.199
			(-0.915)			(1.399)
Decision-making			0.225			0.137
			(1.459)			(0.923)
Division of Labor			0.371			0.432
			(1.452)			(1.699)
Age-difference (man/woman)			0.033			0.023
			(3.122)			(2.194)
Low Contribution to Household			0.209			0.405
			(1.211)			(2.636)
High Contribution to Household			0.325			-0.009
			(1.336)			(-0.048)
Polygamous--First Wife			-0.519			-0.028
			(-2.644)			(-0.142)
Polygamous--Other Wife			-0.930			-0.610
			(-4.722)			(-3.212)
N	864	864	864	950	950	950
R^2	0.231	0.288	0.316	0.396	0.407	0.423
F	19.61	17.99	14.31	47.22	33.54	25.06
Prob > F	0.0001	0.0001	0.0001	0.001	0.0001	0.0001
Joint F Tests of the Hypothesis That All Coefficients Are Zero (df):						
Age-Age Squared (2)	32.487	30.449	32.688	94.823	92.515	86.831
Woman's Education (3)	0.974	0.799	0.404	13.411	13.143	12.957
Age-Education (4)	0.974	0.980	0.405	13.440	13.141	12.956
Husband's Education (3)	8.306	9.670	9.984	3.499	4.906	5.199
Husband's Occupation (4)	0.282	0.456	0.239	3.259	4.146	3.801
Ethnic Group (6)		39.197	24.113		0.357	0.216
Contribution (2)			2.189			1.749
Marriage Type (2)			19.231			4.403

Figures in parentheses are t-ratios

The socio-cultural variables (private status measures) are also associated with fertility levels in Bendel State of Nigeria. In particular, monogamous unions and greater differences between the ages of the husband-wife were consistently associated with higher fertility for most sub-groups.

Comparing the results of the economic model with those of the expanded socio-economic model, one may conclude that economic variables, or women's public status, explained most of the variations in fertility. However, for older women (age group 35-50 years) ethnic groups added half as much to the explanation of fertility as did the public status variables.

The difference between the overall level of rural and urban fertility in this study was insignificant. The mean number of children ever born is 4.67 and 4.61 for rural and urban women, respectively. Adding an urban dummy variable to the regression (not reported) did not show a statistically significant difference in rural-urban fertility, controlling for the three alternative specifications. The lack of significance of education among rural women could therefore be due to the lower education of older rural women or to the narrow range of rural employment opportunities which decreases the opportunity cost of childbearing for the more educated rural women.

Given the importance of women's education for fertility behavior in this study, one would expect that increasing female education would lead eventually to a decline in completed fertility. Therefore, an appropriate population policy measure will be to increase the provision of educational facilities for women.

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FOOTNOTES

*This paper presents some of the main findings of a project supported by the Rockefeller Foundation titled "Women's Status and Fertility in Bendel State, Nigeria." The study investigated the relationships between women's status and total births, desired family size, knowledge and use of family planning and other proximate determinants of fertility. Only the results for children ever born are presented in this paper.

[1]To compute scores for private status variables, respondents were asked various questions about their sex-role attitudes, decision-making and division of labor in their households and their contribution to various household expenses. Their answers were scores using Likert-type rating scales. Scores ranged between zero and five. For decision-making and contribution to household finances, respondent's average scores were computed only for decisions or expenses relevant to their households. Cut-off points were as follows:

(i)	Sex-role ideology, and decision-making	1-60 :	traditional
		61-100 :	modern
(ii)	Contribution to household expenses	0.1-1.5 :	very low
		1.51-2.5 :	low
		2.51-35 :	high
		3.51-5.0 :	very high
(iii)	Division of labor	1-20 :	traditional
		21-60 :	modern

[2]For the education-age interaction, the education dummies were converted into approximate years of schooling as follows:

None	0 years (0)
Primary	7 years (7)
Secondary	5 years (12)
Tertiary	4 years (16)

Thus a woman with tertiary education would have spent approximately 16 years at school.

[3]For dummy variables, standard deviations can be calculated as SE = $\sqrt{\mu(1-\mu)}$, where μ is the mean value.

[4]The subsets of coefficients tested were Sexrole, Decisions, Husbhelp, Age-diff, WCTRB2, WCTRB3, $R-T_2$, $R-T_3$. Calculated F-ratios were as follows:

	Sample Size	F
All Women	1814	7.68
15-24 years	235	1.47
25-34 years	754	4.24
35-50 years	825	5.56
Rural	864	4.26
Urban	950	3.32

Separate tests which included religion and ethnic group in the subset of coefficients were also statistically significant.

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