

<http://aps.journals.ac.za>

The Demand for Children in Anambra State of Nigeria: A Logit Analysis.

Ngozi M. Nwakeze

Department of Economics, University of Lagos, Nigeria.

Email: ngnwakeze@yahoo.com

ABSTRACT

This paper provides empirical evidence on the determinants of demand for children in Anambra State of Nigeria. To achieve this, a micro framework was adopted and cross sectional data explored. Logistics regression technique was used for the data analysis and the factors identified as strong predictors of demand for children include wife's level of participation in decision-making, occupation, place of residence, husband's education among others. Surprisingly, wife's education is among the weak predictors. This supports the assumption that female education is a necessary but not sufficient condition to guarantee fertility decline. Cultural inertia may account for this, considering its adverse consequence on women's access to productive resources and level of participation in decision-making.

Keywords : Demand for children, desired family size, decision-making, fertility outcome, Anambra state

Background

The persistence of high fertility in many developing countries and the attendant socioeconomic consequences are among the important problems of our time. In Nigeria, available statistics show that fertility has not declined to an appreciable level. Also past government efforts at fertility reduction, particularly the 1988 National Population Policy, has not yielded the desired result. According to the Nigeria Demographic and Health Survey (NDHS), the Total Fertility Rate (TFR) of Nigeria in 1990 was 6.01. The 2003 NDHS gave TFR of 5.7 (NPC/ORC Macro, 2004). These rates are still very high when compared with the average TFR of 3.5 for all developing countries (PRB, 2003). The natural increase of 2.8% is considered very high when compared with the average population growth rate of 2.6% for Sub-Saharan Africa and 1.6% for the less developed countries (PRB, 2003). The growth rate of 3.2% in the 2006 provisional census figure was a striking revelation that raises an important question: what are the factors that shape and sustain high fertility in Nigeria? In other words, what are the factors that influence the demand for children in Nigeria? Although a number of socioeconomic and cultural factors influence fertility and reproductive decisions, the low status of women appears to be a crucial factor in the Nigerian context.

Even within Nigeria, there are large differences in fertility and natural increase among states and ethnic groups. For instance, while the rate of natural increase in Nigeria as a whole is 2.8%, it is 3.3% for Anambra State (NPC, 1999). Equally important is the fact that a greater proportion of growth in the population is from natural increase. Therefore, the causes of high fertility in Nigeria particularly in the context of Anambra State (with high female literacy and high population density), require some explanations. The paper hypothesizes that the economic dependence of women on men (and consequently their limited decision-making power) has strong positive effect on the persistent high fertility in Anambra State of Nigeria.

Brief Literature

Conceptual and Theoretical Considerations

Conceptually, demand for children here refers to the number

of children a couple is willing and able to have within a given socioeconomic and cultural context. Ability has two dimensions. First, it refers to the capability to reproduce, that is, to be fertile or fecund. The second refers to the caring capacity, that is, being able to care for the children in terms of providing quality education, food, adequate shelter and other necessities of life. In traditional economic theory, household demand is influenced by price, income and taste. These factors equally apply to household demand for children, although in a somewhat different manner. This is because there is no market price for children. The shadow price is therefore used but this cannot be easily and precisely determined. For this reason, the price or cost of children is measured by the opportunity cost of mother's time. Also in this study, fertility outcomes are used as measures for demand for children.

Fertility here refers to the actual reproductive performance of a couple. This is measured using children ever born and desired family size. Total Fertility Rate (TFR) is the average number of children that would be born alive to a woman (or group of women) during her lifetime if she was to pass through her childbearing years (15-49) conforming to the age-specific fertility rates of a given year. In this study, two fertility measures are used namely; Children Ever Born (CEB) and Desired Family Size (DFS). CEB refers to the total number of children a woman has had (born alive) as at the time of interview. Desired Family Size, on the other hand, is the total number of children a woman (couple) would like to have by the end of her reproductive or child-bearing age. This measure captures the current thinking about future fertility behaviour and may more likely contribute to our understanding of fertility determinants. The CEB measures the actual fertility while the Desired Family Size (DFS) measures the expected or planned fertility.

The theoretical perspective for this study is derived from the new home economic theory of fertility. The pioneering works in the area of microeconomic theory of fertility were those of Leibenstein (1957) and Gary Becker (1960). They looked at the usefulness of microeconomic analysis, by applying the economic theory of consumer behaviour, in understanding fertility behaviour and emphasized demand for children as the key factor. The contradictions in classical viewpoints and the failure of demographic transition

theory justify its assumption that fertility declines with socio economic development that led to the idea of the new home economic theory of individual fertility decision-making. The major reaction to the new home economic theory of fertility is that it does not look at the dynamic aspects of structural changes in the demographic variables over the life cycle. An increase in the absolute or relative cost of children should, *ceteris paribus*, decrease the demand for children and result in an appropriate adjustment in fertility.

Empirical Evidence

In this section, we examine the determinants of childbearing and rearing particularly those relating to women's status. Women's status is multidimensional and we can only focus on some aspects of their socioeconomic status. They include education, employment, access to and control over productive resources and decision-making power. Earlier empirical evidence on gender perspective focused on education and employment (labour force participation) while access and control over productive resources, husband-wife relationship or more precisely women's decision-making power *vis-à-vis* men is gradually receiving attention. One of the early writers is Jejeebhoy (1991). The author argues that the net effect of women's status on fertility is weak or even negative at the earlier stage of demographic transition but becomes increasingly negative as the demographic transition progresses. In Nigeria, using Bendel State as a case study, Okojie (1990) found that completed fertility decreases with higher levels of wife's education while husband's education has the opposite effect. According to her, this is because higher education of wives can lead to higher earnings and thus a higher opportunity cost in terms of the time required for childbearing and rearing.

Shapiro and Tambashe (1992) found that education and employment in the modern sectors have negative relationship on fertility. This followed from the fact that contraceptive use is distinctively higher for better-educated women and for working women. In a study of female labour force participation, Lim (2001) noted that an inverse relationship between labour force participation and fertility would be observed if and only if certain conditions prevail. The conditions include among others that the job seriously conflicts with childbearing and that the satisfaction that women derive from their job exceeds that which they derive from having

children. She finally suggested that attempts to link women's labour force participation to fertility should go beyond the participation rates and examine the quality of employment such as security of income provided by employment and whether employment provides incentive to the use of child labour. Therefore, as long as the opportunities for women in the labour market are confined to jobs with high disutility and low productivity, couples will not perceive market work as an attractive alternative to childbearing.

In summary, it was noted that the relationship between women's status and fertility is inconclusive. It varies across time and space. Also within countries, there are regional and socio-economic differentials. As regards education, there appears to be a general consensus that female education has a positive effect on fertility decline after a certain threshold level. But, the desired threshold level has not been established. Other studies that relate education and fertility include the works of Govindasamy and Malhotra (1996), Al-Qudsi (1998) and Cleland (2001). As regards employment, writers {example Shapiro and Tambashe (1992), Cosio-Zavala (2001) and Lim (2001)} have different opinions on the likely effect of employment on fertility. Nevertheless, there seems to be a general consensus that women who are employed tend to have fewer children and those with many children work less outside the home. This appears intuitively correct since both activities (ie child care and outside jobs) compete equally for women's limited time and attention.

Authors such as Caldwell (1987), Bongaart (1998) and Colien (1998) have associated the slow pace of fertility transition in Sub-Saharan Africa to strong cultural factors particularly those that are embedded in the gender system. Addressing the issue of gender equity in fertility, McDonald (2000) argued that fertility transition from high to low fertility has been associated mainly with improving gender equity within the family.

Smith (2004) observed some inherent contradictions in Nigeria's fertility transition. Examining the burdens and benefit of having children, the author viewed the existence of the pressure to limit birth (occasioned by the high cost of having quality children under market system) and pressure to maintain high fertility (occasioned by "wealth in children") as a paradox. And, this paradox

may continue for a long time except there is a cultural transformation addressing the issue of gender inequality. Similarly, Nwakeze (2006a) in discussing the paradox of women's empowerment highlights the influence of culture on women's behaviours. Also, religion is an important aspect of culture that has implications for reproductive behaviours. This view is supported by authors like Lehrer (2004:707) and McQuilla (2004).

In recognition of the possible effect of cultural inertia in slowing down the pace of fertility transition, some writers advocate a change in gender system that would favour female autonomy. Cosio-Zavala (2001) has stated that gender relations have critical but neglected influence on fertility behaviour and suggested that gender perspective should be introduced into the study of fertility transition. Cosio-Zavala went further to identify some indicators of woman's authority that may have effect on reproductive outcome. They include, among others, wife's involvement in economic decisions and her contributions to household expenditures. It has been argued that women's economic independence and control over productive resources are very crucial in enhancing their decision-making power. Several studies support this view. Examples include, Kritz & Makinwa-Adebusoye (1993), Desai (1994), Davis and Zhang (1997), Fapohunda (1998) and Tfaily (2004). They conclude that expanding women's decision-making power, via improvement in their socio-economic status, will bring about reduction in birth rates and family size.

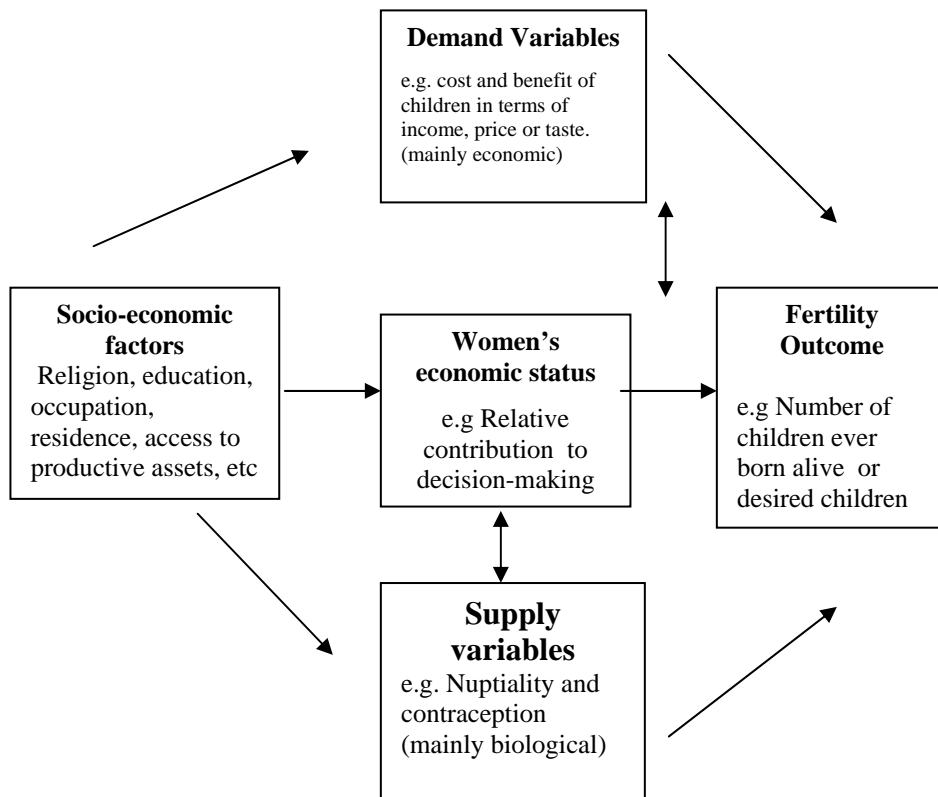
Isiugo-Abanihe (1994) in a study of five urban areas in Nigeria observed that males dominate in decision-making roles, which supports the patriarchal system operating in almost all the ethnic groups. According to him, the decision-making by males extend even to minor or trivial matters. For instance, males' reproductive behaviour was affected more by their preferences rather than by their wives wishes; notwithstanding that it is the women that bear children. This is not very surprising since according to the author wives tend to be socially and economically dependent on their husbands. In the opinion of Isiugo-Abanihe (2003:24);

“it is likely that if current female empowerment and awareness programmes continue, it would greatly enhance the status and role of women, as well as change the total personality of Nigerian women. It is not inconceivable that

with improved self-image and status, women would in time start to question the authority of men in certain matters, and maybe start to reject values that have hitherto served to keep them down, which would of course include those supporting high fertility”.

This is consistent with the views of Wolf and Ying-Chiang (1994) that the high fertility in the pre-modern China partly depends on the peculiar oppressive patriarchy that existed. In conclusion, therefore, this paper proposes that the factors that sustain high fertility in Nigeria are economic, social and cultural; and that change in fertility behaviour would be achieved if and only if women participate actively in household decision-making. This is demonstrated in figure 1.

Figure 1: Model of the Interactions Between Women’s Economic Status and Fertility.



The model in figure 1 represents the household fertility decision-making process by highlighting those conditions and behaviours through which women's economic status can influence fertility. In other words, those factors that influence women's economic status stand as the intermediate variables through which fertility outcomes can be determined. They directly influence fertility while all the other variables act through one or a combination of several of the factors that influence women's economic status. Improved economic status for women would guarantee them greater decision-making power, all other things being equal.

The focus of this paper is on the demand side. This is under the assumption that a shift to small family norm requires changes not only in the supply variables but also in the demand variables.

Methodology

Data

Cross sectional data were obtained from a household survey that was conducted in the year 2000 at Anambra State. A total of 1787 respondents were interviewed using questionnaires as survey instrument. Both demographic and socio-economic data were collected. Specifically, the questionnaire contains a total of seventy-nine questions which are grouped into six sections. The questionnaire contained information on place of residence which is classified as either urban or rural, socio-economic characteristics of the respondents such as age, marital status, level of education, religion and occupation, household facilities, number of children ever born, desired family size, sex preference, knowledge, attitude and use of contraceptives, access to productive resources such as land and credit.

Study Population

The target population comprised ever married women within the childbearing age bracket (15-49 years). The reason for limiting the study to the ever married women is to elicit vital and corresponding information about their spouses. The respondents were of Igbo ethnic group, among whom kinship ties are very strong and common cultural norms are widely observed. An example is the parity-ten

norm, which is a custom whereby a woman is initiated into the "guild of matrons" after celebrating the birth of her tenth child. Due to the prevailing harsh economic realities, this norm has greatly waned. However, great euphoria continues to accompany the birth of a first child especially a male child. The extent of the celebrations and presentations of gifts depends on the socio-economic status of the family concerned. Also, in Igbo society, childless women or those without male children may marry wives in order to beget children; hence the concept of female husband (Uchendu, 1965). Certainly, a situation where having many children earns a woman honour and respect in the society would result in higher demand for children.

The study area is limited to Anambra State which is located in the southeastern part of Nigeria. The State is bounded by Delta State in the West, Imo State in the South, Enugu State in the East and Kogi in the North. The state has a landmass of approximately 4,365 square kilometers. It is the second (that is, coming after Lagos) most densely populated state in Nigeria. The state has a population density of 534 per square kilometer (km²) which is well above the national average of 96 per km² (NPC, 1999). The arable land potential of the state is seriously threatened by erosion, thereby aggravating the population pressure on land. The high population density and the consequent pressure on land make Anambra State an interesting case study. Another important factor that makes Anambra State an interesting case study is the relatively higher female literacy.

Tools and Techniques of Data Analysis

The data obtained from the survey was processed using Statistical Package for Social Sciences (SPSS) computer software. The preliminary analysis focused on descriptive statistics mainly frequency distributions, cross tabulations and means while more rigorous multivariate analysis was done using the logistics regression technique. The focus of this paper is on the logit analysis.

Estimation Methods

To ascertain the determinants of demand for children, three logistics regression (Logit) models were estimated. Our appeal to logit is predicated on the fact that it is more robust, that is, less sensitive to

outliers and skewness than the ordinary regression. In order to fit parsimonious logit model and assess the relative effects of our covariates of interest on fertility, the estimation was in three stages. During the first estimation (model 1), only the variables that are related to women’s economic status were included. Models 2 and 3 controlled for other important variables, mainly socio-cultural.

The equation of the logistic regression is written as follows:

$$\text{Prob}_{(\text{event})} = e^z / 1 + e^z \dots\dots\dots(1)$$

Or

$$\text{Prob}_{(\text{event})} = 1 / 1 + e^{-z} \dots\dots\dots(2)$$

$$\text{Prob}_{(\text{no event})} = 1 - \text{Prob}_{(\text{event})} \dots\dots\dots(3) \qquad 0 \leq \text{prob} \leq 1$$

The logistic regression model above can also be re-written in terms of the log of the odds of the event occurring, which is called **logit**. The model is expressed as follows:

$$\text{Log} (\pi / 1 - \pi) = \beta \beta_0 + \beta \beta_1 X_1 + \beta \beta_2 X_2 + \dots + \beta \beta_p X_p \dots\dots\dots(4)$$

where

π = probability that the event occurs

β_0 = constant

β_1 = the coefficients of the variates, X; that is, the vectors of parameters that reflect the impact of changes in X on probability of fertility decisions.

X_i are the explanatory variables.

$i = 1, 2, 3, \dots, p$

The dependent variable (DFS) is dichotomized. The two categories are those who desire more than four children (encoded 1) and those who desire four or less children, encoded as 0. This dichotomization is based on the national population policy of four children per woman. The measures and definitions of important variables used in the logistic regression analysis are shown as Appendix 1.

Discussion of Results

Descriptive Analysis

A brief summary of the descriptive results are presented here while the details are contained in Nwakeze (2006b). The socio-economic characteristics of the respondents revealed that marriage is universal such that 85.6% of the respondents are currently married.

Ngozi M. Nwakeze : The Demand for Children in Anambra State of Nigeria: A Logit Analysis

The data reveal that early marriage is becoming unpopular among the Igbo, especially in the urban areas. This is possibly due to higher female literacy. The mean age at first marriage is 20.6 years. The mean level of education attained by the respondents is secondary while that of their spouses is primary. It can therefore be inferred that, in Anambra State, female literacy is relatively higher than male literacy. The majority of the respondents are Christians and about half (50.2%) belong to the Roman Catholic denomination. The mean number of children desired by the respondents is 5.5 and this is well above the 4 children per woman suggested in the 1988 National Population Policy. The average number of children ever born is 3.78 while the average number of surviving children per woman is 3.48. The average number of children ever born or desired was found to be higher among women in the rural or informal economy. As regards knowledge and use of contraceptive, the results indicate that some 35.5% of the respondents had never used contraceptive. Among those who have ever used contraceptive, 32.4% are currently using one form of contraceptive or the other.

It rather interesting that despite the relatively higher female literacy in the state, men are the dominant decision makers and exercise control over their wives. The low economic status of women arising from their limited access to productive resources, may account for this. Women's economic activities are more in the informal sector. They earn very low income and often depend on their husbands and relatives for financial support. About one-third of the respondents earn less than ₦5,000.00 per month which is about \$38.98 dollars at the exchange rate of N128.27 per dollar (Central Bank of Nigeria, 2007).

Logistic Regression Results

This section uses logistic techniques to explore the factors that would influence household's decisions on whether to have many or a few number of children.

The results are shown in Table 1.

Wife's Relative Contribution

The results of the logit analysis, shown in Table 1, indicate that there are some economic factors that could influence fertility outcomes. In the first logistic model (model 1), the women who contribute equally with their spouse in household expenditure are less likely (0.85) to desire more than four children when compared with those who contribute less than 50%. This result is, however, not statistically significant. But for those women who contribute more than 50% of household expenditure, the result is highly significant with an odds ratio of 0.57. This implies that the women who contribute more than 50% to household expenditure are less likely (relative to those women who contribute less than 50%) to desire more than four children. This finding supports the hypothesis (Nwakeze, 2006a) that women who contribute more to household expenditure tend to have more power over decisions on number of children to have. Obviously, a woman's relative contribution would largely depend on her economic status. This in turn would depend on her access to productive resources hence the need to also find out the effect of productive resource indicators on desired family size.

Table 1: Logistics Regression for Desired Family Size

VARIABLE	Model 1		Model 2		Model 3	
	B	Exp (B)	B	Exp(B)	B	Exp(B)
Wife's Relative Contribution (WRC)						
Less than 50% (ref)		1	-	-	-	-
50% (EQUAL)	-.160	.852	-.099	.906	.088	1.092
More Than 50%	-.557	.573***	-.485	.615***	-.660	.517***
Land/landed Property						
LAND (ref)	-	1	-	1	-	1
NOLAND	.609	1.839***	.602	1.827***	.037	1.038
Collateral						
HVTHSEL (ref)	-	1	-	1	-	1
HVNTHSEL	-.291	.748**	-.310	.734**	-.222	.801*
Participation in Decision-making						
PDECIDE (ref)	n.a	n.a	-	1	-	1
NPDEC	n.a	n.a	.305	1.357**	.337	1.400**
Receives Gift from Husband						
RECVGIF (ref)	n.a	n.a	-	1	-	1
NOGIFT	n.a	n.a	.239	1.269	.126	1.134
Depend on Husband Financially						
DEPHUS (ref)	n.a	n.a	-	1	-	1
NDEPHUS	n.a	n.a	-.217	.805*	-.391	.677**
Role Incompatibility						
CHLDDINC (ref)	n.a	n.a	-	1	-	1
CHLDNDIS	n.a	n.a	.176	1.193*	.243	1.276**
Income						
N20,000 & above (ref)	n.a	n.a	n.a	n.a	-	1

≤ N2,500	n.a	n.a	n.a	n.a	.247	1.281
N2,500-4,999	n.a	n.a	n.a	n.a	.362	1.436**
N5,000-7,499	n.a	n.a	n.a	n.a	.423	1.526**
N7,500-9,999	n.a	n.a	n.a	n.a	.690	1.994***
N10,000-14,499	n.a	n.a	n.a	n.a	.164	1.178
N15,000-19,999	n.a	n.a	n.a	n.a	-.579	.560
Occupation						
FORMAL (ref)	n.a	n.a	n.a	n.a	-	1
INFORMAL	n.a	n.a	n.a	n.a	.488	1.629***
Wife's Education						
NONE (ref)	n.a	n.a	n.a	n.a	-	1
PRY	n.a	n.a	n.a	n.a	.332	1.394*
SEC	n.a	n.a	n.a	n.a	.240	1.271
HEDNDG	n.a	n.a	n.a	n.a	.090	1.094
POSTGR	n.a	n.a	n.a	n.a	.115	1.122
Residence						
RURAL (ref)	n.a	n.a	n.a	n.a	-	1
URBAN	n.a	n.a	n.a	n.a	-1.001	.368***
Age						
AGE	n.a	n.a	n.a	n.a	1.00	1.00
Religion						
CATHOLICS (ref)	n.a	n.a	n.a	n.a	-	1
PROTEST	n.a	n.a	n.a	n.a	-.277	.758**
MUSLIM	n.a	n.a	n.a	n.a	-.992	.371**
TRAD	n.a	n.a	n.a	n.a	.170	1.185
OTHRELG	n.a	n.a	n.a	n.a	.382	1.465
Type of Marriage						
POLYG (ref)	n.a	n.a	n.a	n.a	-	1
MONOG	n.a	n.a	n.a	n.a	.207	1.230

Husband's Education						
NONE (ref)	n.a	n.a	n.a	n.a	-	1
HPRY	n.a	n.a	n.a	n.a	.058	1.060
HSEC	n.a	n.a	n.a	n.a	.100	1.105
HHEDNDG	n.a	n.a	n.a	n.a	-.341	.711
HPOSTGR	n.a	n.a	n.a	n.a	-.555	.574**
Constant	.683	1.979***	.594	1.811***	.990	2.691**
-2 log likelihood (df)	2134.55 (4)		2121.42 (8)		1952.75 (30)	
Model chi-square	39.97***		53.10***		221.77***	
N	1787		1787		1787	

Notes: (***, **, * Significant at 1%, 5% and 10% respectively)

ref = reference category.

n.a = not applicable.

Ownership of Land/landed Property

Women who do not have any land/landed property are more likely (1.83) to desire more than 4 children, relative to those who own land/landed property. Although ownership of land/landed property is an important indicator of productive resources, there is still gender inequality in access to land/land properties. Therefore, having something to sell or mortgage (e.g. jewelries, live stock, tools of trade etc.) is also used as an indicator of productive resources. The women who have nothing to sell or mortgage, if need arises, are less likely (0.75) to desire more than four children.

Wife's Decision-making Power

Model 2, includes three additional variables. The variables reflect wife's level of participation in decision-making regarding the number of children and the extent to which they are economically independent. The result shows that women who do not participate in decision-making are more likely (1.36) to desire more than four children. Furthermore, the women who claimed that they receive no gift/loan from spouse are more likely (1.27) to desire more than four children, relative to those who claimed to receive. This, however, is marginally significant. Also, the women who claimed that they can take care of themselves without financial support from their husband are less likely (0.81) to desire more than four children, relative to those who claimed they can not. This result is statistically significant and we therefore infer that women's economic dependence on men adversely affects their decision-making power in the household, particularly with respect to number of children to have

Reproductive and Productive Roles Incompatibility

Women's perception of possible conflict between their economic activity and childbearing and caring indicates that the women who claimed that having many children will not disturb their income earning activities are more likely (1.19 in model 2 and 1.28 in model 3) to desire more than four children, relative to those who feel otherwise. Using a descriptive analysis, Nwakeze (2006b) found that the women who do not perceive having many children as impediment to their income earning activities are mainly those in the rural or informal economy.

Income

Income as a covariate (model 3) yields inconclusive results. The income categories less than N2,500 per month, N2,5000-N4,9999 ... N10,000-N14,999 have elevated odds (1.28, 1.44, ...1.18 respectively) of desiring more than four children. On the other hand, women who earn between N15,000.00 and N19,000.00 per month are less likely (0.56) to desire more than four children, relative to those who earn N20,000.00 and above. The inconsistency in this result is not very surprising because it is not always easy to get reliable income estimates, especially among women.

As noted in Nwakeze (2006b), most women do not keep accurate record of their income and those that do often grossly under estimate their income. This is common among uneducated women and those who work in the informal sector. Another important explanation is that some women who work in the formal sector and earn fixed income also have ancillary or supplementary sources of income. This may include petty trading and subsistence farming. The additional income or the products consumed by their families are often not computed. At the other extreme, a few women may earn income and spend a larger proportion in maintaining their corporate outlook, thereby contributing little or nothing to the household expenditure. For these reasons, we prefer to use “women’s relative contribution to household expenditure”, and “whether they depend on husband for financial support”, as proxies for their relative income or more precisely a measure of their economic independence.

Occupation and Place of Residence

The logistics results for occupation and residence in model 3 show that women who work in the informal sector (relative to those who work in the formal sector) are more likely (1.63) to desire more than 4 children. On the other hand, urban women are less likely (0.37) to desire more than 4 children, relative to those in the rural area. It can therefore be deduced that fertility behaviour of rural women approximates that of women in the urban informal sector. Rural women and women who work in the informal sector do not perceive their economic activities as an attractive alternative to childbearing,

hence their higher demand for children. This is because their productive activities do not conflict with their reproductive activities.

Education

Wife's education has positive effect on demand for children, although not statistically significant. This means that the predicting power of female education in the context of Anambra State is very weak. Little wonder that despite relatively high female literacy, the State is not experiencing demographic transition. We therefore argue that female education is necessary but not sufficient condition for fertility decline in the case of Anambra State. This is consistent with the view of Tfamily (2004) that beyond postponing age at marriage, the effect of education on fertility is largely insignificant. In the opinion of Govindasamy and Malhotra (1996) without autonomy, female education and employment will not have the desired effect.

Husband's education has a negative effect but the threshold level is at the post secondary level. Women who have more educated husbands (graduate or postgraduate levels) are less likely (0.71 for graduate level and 0.57 for postgraduate level) to desire more than four children. Implicitly, husband's desire has positive influence on wife's desire. Therefore, it could be argued that women often condition (set) their minds to what their husbands want. The challenge of meeting up with religious and/or other cultural expectations from women could possibly explain such behaviour.

Religion

As per religion, the women who are affiliated to traditional or other religion are more likely (1.19 and 1.47 respectively) to desire more than four children, relative to the Roman Catholics. On the other hand, those affiliated to Islam and the Protestants are less likely to desire more than four children when compared with the Roman Catholics. These differentials may be more significant when contraceptive use is considered. Another interesting way of examining the influence of religion on reproductive behaviour is to look at the effect of religion on women's autonomy in decision-making. This should be explored in another study.

Age

Age as a predictor has marginal positive impact on the number of children desired which could mean that older women are relatively more likely (1.003) to desire more than four children. However, the result is not statistically significant. Notwithstanding, it is important to note that because of modernization and consequent harsh economic realities, younger women may be under more serious pressure than their mothers. This would imply higher opportunity cost for their time and thus lower demand for children.

The above results are compared with the odds ratios from logistics regression using children ever born as dependent variables. The results indicate that while DFS performs better with some variables, CEB performs better with some other variables. In majority of the cases, the differences are insignificant. Therefore, we could not logically conclude that DFS performed better than CEB as a measure of fertility outcome, contrary to our a priori expectation. The result is shown in Table 2.

Table 2: Odds Ratios from Logistics Regression for Desired Family Size and Children Ever Born Compared

VARIABLE	DFS		CEB	
	B	Exp(B)	B	Exp(B)
Wife's Relative Contribution (WRC)				
Less than 50% (ref)	-	1	-	1
50% (EQUAL)	.088	1.092	.136	1.146
More Than 50%	-.660	.517***	-.182	.834
Land/landed Property				
LAND (ref)	-	1	-	1
NOLAND	.037	1.038	.090	1.095
Collateral				
HVTHSEL (ref)	-	1	-	1
HVNTHSEL	-.222	.801*	-.407	.666**
Participation in Decision-making				
PDECIDE (ref)	-	1	-	1
NPDEC	.337	1.400**	.259	1.296

Receives Gift from Husband				
RECVGIF (ref)	-	1	-	1
NOGIFT	.126	1.134	.023	1.023
Depend on Husband Financially				
DEPHUS (ref)	-	1	-	1
NDEPHUS	-.391	.677**	-.057	.944
Role Incompatibility				
CHLDDINC (ref)	-	1	-	1
CHLDNDIS	.243	1.276**	.035	1.036
Income				
N20,000 & above (ref)	-	1	-	1
≤ N2,500	.247	1.281	.789	2.201***
N2,500-4,999	.362	1.436**	.671	1.957***
N5,000-7,499	.423	1.526**	.486	1.626**
N7,500-9,999	.690	1.994***	.559	1.749**
N10,000-14,499	.164	1.178	.269	1.309
N15,000-19,999	-.579	.560	-.594	.552
Occupation				
FORMAL (ref)	-	1	-	1
INFORMAL	.488	1.629***	.759	2.136***
Wife's Education				
NONE (ref)	-	1	-	1
PRY	.332	1.394*	.277	1.319
SEC	.240	1.271	-.369	.691
HEDNDG	.090	1.094	-.256	.774
POSTGR	.115	1.122	.099	1.104
Residence				
RURAL (ref)	-	1	-	1
URBAN	-1.001	.368***	-.475	.622**
Age				
AGE	.003	1.003	.162	1.176***
Religion				
CATHOLICS (ref)	-	1	-	1
PROTEST	-.277	.758**	-.233	.792*
MUSLIM	-.992	.371**	-1.270	.281**
TRAD	.170	1.185	.728	2.070**
OTHRELG	.382	1.465	.162	1.176
Type of Marriage				
POLYG (ref)	-	1	-	1

MONOG	.207	1.230	-.065	.937
Husband's Education				
NONE (ref)	-	1	-	1
HPRY	.058	1.060	-.094	.911
HSEC	.100	1.105	-.404	.668**
HHEDNDG	-.341	.711	-.631	.532**
HPOSTGR	-.555	.574**	-1.324	.266***
Constant	.990	2.691**	-6.302	.002***
-2 log likelihood (df)	1952.75 (30)		1591.959	
Model chi-square	221.77***		747.560***	
N	1787		1787	

Notes: (***, **, * Significant at 1%, 5% and 10% respectively)

ref = reference category.

n.a = not applicable.

Summary and Conclusions

This study has clearly shown that there exists a complex interrelationship between women's reproductive and productive roles. Specifically, the study explored the process through which women's economic and decision-making power in the household could influence the demand for children. In summary, the factors identified as strong predictors for number of children desired by a typical household in Anambra State include wife's relative contribution to household expenditure, ownership of land/landed property, wife's level of participation in household decision, dependent on husband for financial support, occupation, place of residence, roles compatibility and husband's education. On the other hand, income, receiving gift/loan from husbands and relatives, having something to sell or mortgage, religion and wife's education are weak predictors for number of children desired. Female education was found to be a necessary but not sufficient condition to guarantee fertility decline. Cultural inertia could account for this, considering its adverse consequence on women's access to productive resources and level of participation in decision-making. The paper, therefore, concludes that a fall in demand for children is possible only if women are economically independent and autonomous in household's decision-making.

REFERENCES

Al-Qudsi S. (1998), "The Demand for Children in Arab Countries: Evidence from Panel and Count Data Models", *Journal of Population Economics*, 11(3) 435-452.

Bongarrt, J. (1998) "Fertility and Reproductive Preferences in Post Transitional Societies", *Working Paper No. 114*, Population Council Policy Research Division.

Caldwell, J.C. (1987) "The Cultural Context of High fertility in Sub-Saharan Africa", *Population and Development Review*, 13 (3) 409 - 437.

Central Bank of Nigeria, (2007) *Annual Report and Statement Account for the Year Ended 31st December, 2006*, pp260.

Cleland, J. (2001), "Education and future fertility trends, with special reference to mid-transitional countries", *Report of the Expert Group Meeting on Completing the Fertility Transition* held at the United Nations Headquarters in New York from 11-14 March.

Colien, B. (1998) The emerging fertility transition in sub-Saharan Africa. *World Development*, 26 (8) 1431-1461.

Cosio-Zavala, M.E. (2001), "Examining Changes in the Status of Women and Gender as Predictors of Fertility Change Issues in Intermediate-Fertility Countries", *Report of the Expert Group Meeting on Completing the Fertility Transition* held at the United Nations Headquarters in New York from 11-14 March.

Davis, B. J. and Zhang, J. (1997), "The Effect of Gender Control on Fertility and Children's Consumption", *Journal of Population Economics*, 10 (1) 67-85.

Desai, S. (1994) *Gender Inequalities and Demographic Behaviour in India*. New York, USA: The Population Council.

Fapohunda M. B. (1998), "Levels, Trends and Correlates of Demand for Children in Kenya", *Population Council APHRC Working Paper #6*.

Ngozi M. Nwakeze : *The Demand for Children in Anambra State of Nigeria: A Logit Analysis*

Fapohunda, O. & Ojo, F. (1985), *The Costs of Children in Lagos*, Heinemann Educational Books Nigeria Limited, Nigeria.

Federal Office of Statistics, Nigeria (FOS) and IRD/Macro International (1992), *Nigeria Demographic and Health Survey, 1990*. Lagos: NPC

Federal Office of Statistics, Nigeria (FOS) and IRD/Macro International (2004), *Nigeria Demographic and Health Survey, 2003*. Abuja: NPC

Govindasamy P. & Malhotra A. (1996) "Women's Position and Family Planning in Egypt", *Studies in Family Planning*, 27 (6) 328-340: November/December.

Isiugo-Abanihe, U. (1994), "Reproductive Motivation and Family size Preferences among Nigerian men, *Studies in Family Planning*, May-June; 25 (3) 149-161.

Isiugo-Abanihe, U. (2003), *Male Role and Responsibility in Fertility and Reproductive Health in Nigeria*, CEPAED/ Ababa Press, Lagos.

Jejeebhoy, S. J. (1991) "Women's Status and Fertility: Successive Cross-Sectional Evidence from Tamil Nadu, India, 1970-80", *Studies in Family Planning* 22 (4) 217-230

Kritz, M. & Makinwa-Adebusoye, P. (1993), "Women's Resource Control and Demand for Children in Africa", *Seminar on Women and Demographic Change in Sub-Saharan Africa*, Senegal, 3-6 March.

Lehrer, E. (2004), "Religion as a Determinant of economic and Demographic behaviour", *Population and Development Review*. Vol. 30 (4) December, pp 707-726.

Lim, L. L (2001), "Female Labour Force Participation", *Report of the Expert Group Meeting on Completing the Fertility Transition* held at the United Nations Headquarters in New York from 11-14 March.

McDonald, P. (2000) "Gender Equity in Theories of Fertility", *Population and Development Review*. Vol.26 (3) pp.427-439.

McQuillan, K. (2004), "When Does Religion Influence Fertility?" *Population and Development Review*. Vol.30 (1) March pp.25-56.

National Population Commission (NPC), (1999), *Nigeria Population Data Sheet, 1991 - 2010*. Abuja, Nigeria.

National Population Commission (NPC), Nigeria (2004), *Nigeria Demographic and Health Survey 2003*, Calverton, Maryland: NPC and ORC/Macro.

Nwakeze, N.M (2006a), The Paradox of Women's Empowerment, *UNILAG Sociological Review*, Volume VII, December.

Nwakeze, N.M (2006b), "An Economic Analysis of Demand for Children in Anambra State of Nigeria" unpublished PhD thesis submitted for the award of degree of Doctor of Philosophy in Economics, University of Lagos.

Okojie, C. E. (1992), "Women's Status and Fertility in Bendel State of Nigeria," *GENUS*, Vol. XIVIII (3-4) 173-192.

Schultz, P. T. (2001), "The Fertility Transition: An Economic Explanations", *Center Discussion Paper No. 833*, Economic Growth Center, Yale University.

Schultz, P. T. (1973), "A preliminary Survey of Economic Analyses of Fertility. *The American Economic Review*", vol. LXIII, no. 2, pp 71-78 : March.

Sen, A. (1997), "Population Policy: Authoritarianism Versus Cooperation", *Journal of Population Economics*, 10 (1) 3-22.

Shapiro, D. & Tamashe, O. (1992) "Fertility and the Status of Women in Kinshasa, *Population Research Institute Working Paper*, no 24, The Pennsylvania State University.

Smith, D.J. (2004), "Contradictions in Nigeria's Fertility Transition: The Burden and Benefits of having Children", *Population and Development Review*. 30 (2) 221-238: June.

Ngozi M. Nwakeze : *The Demand for Children in Anambra State of Nigeria: A Logit Analysis*

Tfaily, R. (2004) "Do Women with higher autonomy have lower fertility? Evidence from Malaysia, Philippines and Thailand". *Genus* Vol. LX, No. 2, April-June pp. 7-32.

Uchendu, V.C. (1965), *The Igbo of Southeast Nigeria*. Holt, Rinehart and Winston, Inc, USA.

Appendix 1: Variables, Measurements and Definitions

Explanatory Variable	Categories	Definition
Wife's Relative Contribution (WRC)	LT 50%	Less than 50%
	50% (EQUAL)	50% (EQUAL)
	MT 50%	More Than 50%
Land/landed Property	LAND	Own Land
	NOLAND	Own no Land
Collateral	HVTHSEL	Have something to sell
	HVNTHSEL	Have nothing to sell
Participation in Decision-making	PDECIDE	Participate in decision-making
	NPDEC	Do not participate in decision-making
Receives Gift from Husband	RECVGIF	Receives gift/loan regularly from husbands/relatives
	NOGIFT	Do not receives gift/loan regularly from husbands/relatives
Economic Depend on Husband	DEPHUS	Depend on husband financially
	NDEPHUS	Do not depend on husband financially
Roles Incompatibility	CHLDDINC	Having many children do not disturb income earning activities
	CHLDNDIS	Having many children disturb income earning activities
Income	INC 1	≤ N2,500
	INC 2	N2,500-4,999
	INC 3	N5,000-7,499
	INC 4	N7,500-9,999
	INC 5	N10,000-14,499
	INC 6	N15,000-19,999
	INC 7	N20,000 & above
Occupation	FORMAL	Work in the formal sector
	INFORMAL	Work in the informal sector
Wife's Education	NONE	No schooling

Ngozi M. Nwakeze : *The Demand for Children in Anambra State of Nigeria: A Logit Analysis*

	PRY	Primary education
	SEC	Secondary education
	HEDNDG	Higher education (Higher Dip/Degree)
	POSTGR	Postgraduate level
Residence	RURAL	Reside in rural area
	URBAN	
Age	AGE	Age in years
Religion	CATHOLICS	Affiliation to Catholic
	PROTEST	Protestants
	MUSLIM	Affiliation to Islam
	TRAD	Traditional religion's adherents
	OTHRELG	Other religion
Type of Marriage	POLYG	Polygamy
	MONOG	Monogamy
Husband's Education	NONE	No schooling
	HPRY	Primary education for husband
	HSEC	Secondary education for husband
	HHEDNDG	Higher education (Higher Dip/Degree for husband)
	HPOSTGR	Postgraduate for husband
Dependent Variables	DFS	DFS = 1 if the respondent desired more than 4 children and 0 otherwise.
	CEB	CEB = 1 if the respondent has more than 4 children and 0 otherwise.