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An Empirical Verification of the Fertility Preferences of Urban Women in a Depressed Economy: Evidence from Calabar, Nigeria

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Abstract *This work sets out to investigate the fertility preferences of urban women in a depressed economy, using Calabar, Nigeria as a case study. Using a utilizing questionnaire, empirical data were collected from a spatially stratified random sample of urban women and analyzed, using simple correlation techniques. Family income was made to predict fertility levels, number of children alive, the ideal number of children per family, the number of children desired per family, and so on. Although the analyses produced both negative and positive relationships, some are significant while others are not. Therefore, this work has suggested areas in which future researches need be intensified.*

Keywords: *fertility preferences; urban women; depressed economy; empirical verification; Calabar; Nigeria*

1. Introduction

The quest for an understanding of the factors governing population change, specifically fertility, has been the pre-occupation of a number of demographic studies (Szreter, 1993; Brentanto, 1992; Caldwell et al, 1992; Jones 1990). In all these studies could be found a common persuasion anchored in the demographic transition theory, which holds that ultimately, fertility will decline due to a number of mutually reinforcing checks and balances produced by forces of modernization and industrialization. The demographic transition theory itself draws empirical evidence from the demographic history of the Western World and northern Europe in particular, between the 15th and 19th centuries. This trend continues even into the present. However, it is still being doubted whether one can talk of the general applicability of this theory with respect to the process of fertility change in the developing world. For instance, Benefo and Schuttz (1996) noted that in Cote d'Ivoire and Ghana high levels of child mortality was responsible for the decision of parents to have large numbers of births.

2. Trends in Fertility Decline

The pattern of fertility decline in various countries of the developing world is rapidly changing. In China and most of South-east Asia, remarkable fertility decline has been experienced in response to factors of modernization and industrialization (Greenhalgh, et.al. 1994). In some other countries including Sri Lanka and India, decline in fertility has been recorded despite poor economic performance at the turn of the last century. In some of the developing countries of Africa and Asia, fertility has failed to decline even though there is ample evidence that modernizing forces are operating actively (Jones, 1990).

Despite seeming contradictions in the theory's application, evidence across the developing world in Africa, Asia and Latin America reaffirms the transition theory. This is reflected in the works of Kocher (1976) in Northeastern Tanzania, Carvajal, and et.al. (1976), in Costa Rica, and Visaria (1976) in parts of

India. Considerable social, cultural, health, educational, income and economic changes are the driving force behind the reported fertility decline in the above-referred countries. Although fertility decline may always correspond to the assumptions of the demographic transition theory, that it responds to modernizing forces, it may as well respond to depressing economic conditions and the desire to maintain and/or attain a decent life style at the level of the household budget.

The divergence of opinions over the relative merits of demographic transition theory in predicting the future course of fertility change is critical to population policy considerations. While the developmentalists prefer to invest developmental resource or capital on socio-economic improvements, which is concomitantly expected to bring about fertility decline at its trail, family planners are more inclined to channel development resource to family planning programs with the hope of inducing fertility decline in order to stimulate economic development.

Inspite of the fact that serious debates have raged on for centuries within the academia and policy circles as to the nature of the relationship between population growth and economic development, fertility decline via family planning programmes still lies at the heart beat of population policy. This persuasion is hinged on the assumption that slowing down population growth is a pre-condition for economic and social development (Fischer, et.al. 1990; McNamara, 1992).

Although this paper does not intend to join issues with any side of the divide in the population-development debate, it attempts to provide rational perspectives on the factors governing fertility decline, taking recent empirical evidence from a city in Nigeria. While it may be observed that the rate of fertility increase is still high in Nigeria's urban centres relative to the world average, going by survey results which yielded a crude natural increase of 3 to 6 per cent per annum for some Nigerian towns (Ainsworth, et. al. 1996), recent surveys indicate that fertility has begun to decline in South-western Nigeria as well as in other African countries such as Botswana, Zimbabwe and Kenya (Caldwell, et.al. 1992) and even South Africa (Timaeus, et. al, 2008). The Nigerian fertility decline is thought to be predicated on the attainment of relatively low levels of infant and child mortality, substantial extension of female secondary education and a strong family planning policy aimed at controlling family size (Caldwell, et. al., 1992). An economic angle to fertility transition at the level of the household decision making is central to this study.

Broadly, this study intends to demonstrate that economic factors are critical in compelling urban women to regulate fertility, and that building this into the transition theory may present a fuller account of the forces driving fertility change. More specifically, the objective of this study is to establish the fertility preferences and responses of urban women under conditions of economic stress, as well as determine the influence of educational levels and income on family fertility behaviour.

3. Calabar's Socio-Demographic Characteristics

Calabar is a fast-growing medium-size urbanized state capital in southeastern Nigeria. The demographic, social and economic characteristics of this urban centre make it an ideal environment for testing the hypothesis posited above. The Nigerian National Population Commission gives an estimate of the population of Calabar as 375,196 in 2006. This population consists of 51 and 49 percent males and females respectively. Therefore, the sex ratio can be said to be balanced even though there is a slight male dominance. Family size varies according to the age of households. Old and established families whose heads are 50 years and above, sometimes polygamous, consist of between five and twenty or more members. Large families are consequences of the importance which existing social institution of marriage placed on a man who is married to several wives.

Families whose heads are between 35 and 50 years old have fewer children, often between four and eight. Younger families even have fewer children, usually four and below. Middle age and young families seem to react to the economic realities of their age. Large family sizes have become an economic burden nowadays in the face of mass unemployment and rising cost of living.

Variations in family size indicate the declining importance of children in the socio-economic system. In the traditional urban society, children were an asset to their parents, helping not only in domestic services but in socioeconomic activities such as keeping the shop, hawking on the streets, offering themselves as paid house-helps to the elite, and in other ventures from which they earned money to augment family income and thus, pay partly for their own upkeep. Therefore, large families were really encouraged by these economic opportunities. Parents with a large number of children within this social system stood a good chance of enjoying great returns and remittances from their children while those with fewer children were made miserable.

There was also the social practice in which a family could send some of the children to live freely

with relatively prosperous, or even childless relatives. These relatives then assume the role and function of the natural parents, thereby, relieving the natural parents of their financial commitments to the children. Such a transfer of responsibilities which is effected through mutual understanding directly and positively influences fertility level of women by encouraging them to have more children.

4. Recent Trends in Child Care

However, as such opportunities dwindle, there comes also the need to regulate family sizes. Both young and middle-age families tend to raise few children by way of adjusting to the realities of their time. Nowadays, public policy makes it mandatory for parents to send their children to school and stipulates some sanction against defaulting parents. As most children are now compulsorily in school, they can no longer be available in the homes to perform their traditional economic roles. This new social order imposes additional severe economic constraints on the parents who must pay school fees, buy relevant books and provide other necessary materials alongside with catering for other necessities that the children may require.

Regrettably with all this done, employment after leaving school is not guaranteed, and many university graduates are seen joining the pool of hopeless job seekers. Invariably, parental financial support for the children continues without a foreseeable end. In the ensuring financial crisis of the family, women are compelled to abandon their traditional roles of child bearing to seek menial jobs which most often, take them out of the home for most part of the day. Therefore, child care becomes an irksome but unavoidable burden for most women on wage or other forms of employment.

5. Economic Depression

Child abandonment, child trafficking, child-enslavement, improper child education and similar treatments being meted to the child in most cities of the developing countries have their root causes in economic depression. The traditional economy of both male and female native Efiks, Quas and Efuts in Calabar urban is artisanal fishing and subsistence cultivation of cassava, vegetables and banana in the immediate hinterland. From these enterprises, very little is earned and virtually nothing is saved for re-investment.

Industrial plantations of rubber and oil palm are found in the rural-urban fringe. These plantations owe their origin to colonial administration, but they are now wholly public enterprises which employ few hundreds of labour for a pittance. These plantations do not discriminate against the sexes in their employment policies. But today, not only is the real value of the wages paid so low because of hyper-inflationary trends in the economy, but workers are sometimes owed up to six months salary. Hence, retrenchment or downsizing of labour input has become the order of the day in these plantations and has made life tough in general terms for their employees.

Manufacturing industries are very few in Calabar and they operate on very small scales, employing between 10 and 200 persons. They include cement manufacture, flour milling, veneer and plywood manufacture, match making and the manufacture of toiletries. Total industrial employment is negligible and hence, the rate of unemployment and disguised unemployment is very high.

The public sector is the major employer of labour. Here, also income is generally poor, varying between N5,000.00 and N100,000.00 per month ($1.0 = # 150.00). It is, therefore, not difficult to establish the fact that a thick cloud of economic uncertainty hovers around the lives of both the employed and the unemployed, since the former must of necessity, cater for the latter.

6. A Model of Fertility Change

Johnson (1994) provided a simple model of fertility determination. Borrowing from the concept of economic rationality, he assumed that families are in the like manner, rational in their decision affecting fertility. Actual fertility becomes a function of the number of children desired by a family and the cost of achieving the desired number. A family arrives at a decision on the number of children desired by equating the expected costs and benefits of an additional child. When the expected costs of an additional child equal or exceed the expected benefits, then the family can go ahead to have an additional child.

Johnson (1994) provided a list of the costs of an additional child to the family as including the following : (i) costs of parents' time, (ii) cost of schooling, (iii) cost of health care not borne by government (iv) cost of food, clothing and housing. The time cost to the family is itself a function of the existing wage rate, level of education of the parents, type of parents' employment and to the woman, of

pregnancy and birth.

The benefits of an additional child to the family might be said to include the following:

(i) The contributions of the child to household activities through cooking, caring for a sibling, cleaning, etc;
(ii) Provision of security of income and care for old age or illness, especially if a male child,
(iii) Income or capital transfers that may result from having an additional child, and,
(iv) Consumption or satisfaction benefits obtained.

The final outcome of family decision to have an additional child even when the costs and benefits have been so analyzed is based on fecundity. Three major factors are said to affect fecundity, namely, (i) availability, reliability, quality and costs of contraceptive devices (ii) willingness to resort to abortion, and (iii) the level of education of both parents, especially, the mother.

Even though the model of fertility change thus described is logically consistent, its assumption of rationality on the part of the family is evidently weak and may not be expected to represent the behaviour of families in general. Do families always go through the processes of computation of costs and benefits as assumed in the model? How do families estimate the costs and benefits of non-quantifiable factors, such as the time cost of pregnancy to the woman or the satisfaction benefits obtained from an additional child?

In real practice, pregnancy may not involve any serious time cost to a gainfully employed woman. Provision is always made, for instance, in Nigeria in existing public service regulations for pregnant women to go on maternity leave during which period their salaries continue to run. Even the self-employed market woman can continue her business of buying and selling without any serious impairment to her time. In the same vein, non-quantifiable socio-cultural benefits may override any other cost implication of an additional child to the family. Socio-cultural benefits especially in the context of most Third World countries sometimes are evaluated by social norms and religion which are outside the domain of economic rationality.

In spite of these observations, it could still be established that family income plays a significant role in the determination of family fertility levels, especially in a depressed economy. Therefore, it could be assumed that changes in fertility level, or in the desired fertility level are consequent on the economic characteristics of urban families. And since urban families tend to be segregated into residential neighbourhoods on the basis of affluence, fertility changes may also have a spatial expression in the city.

7. The Data

The city of Calabar was spatially stratified into five in accordance with the socio-economic attributes of districts earlier identified and mapped out by Animashaun (2008). From within each stratum, a district was randomly selected such that the five districts included in this study broadly typify Calabar's socio-demographic and economic space. They are as follows:

(i) The Housing Estate, a residential district for the elite, the affluent and the highly educated social group;
(ii) Akim Town/Big Qua Town, a fast modernizing district with a high mixture of ethnic groups;
(iii) Henshaw Town/Duke Town, the traditional core area of the city which is almost exclusively the residential area of the native population;
(iv) The down-town consisting of the major commercial activities, spreading through Barracks Road, Chamley Street, Target and Calabar Roads; and
(v) Efut-Anantigha district, a district of most recent sprawl.

Using a questionnaire, samples were drawn systematically from residential houses within each district. From the samples, information was collected from house-wives on the social and economic characteristics of households such as age of the household head, family income per month, the fertility profile of the family, the ideal number of children per family during periods of economic stress and economic affluence. Most of the dwellings, except those in the Housing Estate (District 1) were multiple family dwellings. From each of such multiple dwellings, only one family was sampled because it was thought that all the resident families would certainly have broadly similar socio-economic characteristics and fertility patterns.

The mean age of the respondents across the five residential districts varied between 37.4 and 40.0, while the modal age is 40 except in Henshaw Town where it is 30. The variation in age ranges between 6.81 and 10.19. By implication, the respondents spread through ages 30 and 50 years, a critical period in marital life during which important decisions must have to be taken on family size (Table 1).

The mean family income of the respondents varies from N7,129.3 in the Downtown district to N11,000.00 in Efut, Mbukpa and Anantigha in the outskirts of the city. Other demographic characteristics shown in Table 1 include the fertility profile of the sample and the level of education of the respondents. Level of education was measured by a surrogate, the number of school years completed. The computation shows that the Housing Estate has a high concentration of highly educated people.

8. Data Analysis

Series of simple correlation analysis were carried out in turn, first between the various dimensions of fertility shown in Table 1 and income, and subsequently, between education and fertility levels. A simple correlation of the actual fertility and income levels in the Housing Estate district indicated the existence of a positive and significant correlation of the magnitude of .411 as shown in Table 2. In districts 2 and 3, even though the correlation was positive, it was not significant. However, rather low negative correlations were observed in the Duke and Henshaw Towns district as well as the Downtown. But these correlations were not significant.

Table 1 *Profile of the sample in five districts of Calabar, Nigeria.*

Districts	**Mean age**	**Mean income per month (N)**	**Fertility profile Average no. of children**			**Ideal no. of children**		**No. of children considered too large in a family**	**Average level of education of mothers**
			Ever-born	Dead	Alive	Under constrained circumstances	Under economic stress		
District 1: Housing Estate	40	10,575.0	4.12	0.10	4.02	5.25	4.46	6.13	12.8
District II: Ediba,Akim and Biq Qua Towns	38.6	7,612.5	4.75	0.78	3.98	6.65	4.13	8.60	8.85
District III: Duke-Henshaw Town	37.6	7,794.9	4.03	0.36	3.67	5.95	4.49	7.18	9.10
District IV: The Downtown	37.4	7,129.3	4.27	0.51	3.76	5.32	3.98	6.05	9.61
District V: Efut,Mbukpa andAnantigha Area	38.8	11,000.00	4.18	0.3	3.88	6.48	4.30	7.55	9.40

Source: *Authors' fieldwork, 2008*

Table 2. *Simple correlation between actual fertility and income of family*

Index	**Districts**					**Overall**
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient (r)	.411**	.43	.161	-.184	-.217	.109
Significance	.008	.792	.328	.250	.179	.200

** Significant at the .01 level
Source: Authors' fieldwork, 2008

Table 3: *Simple correlation matrix by district between children alive and income of family*

Index	Districts					Overall
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient	.402*	.059	-.118	-.101	-.245	.115
Significance	.010	.720	.475	.532	.127	.200

*Significant at the .05 level
Source: *Authors' fieldwork, 2008*

Table 4. *Simple correlation matrix (by district) between ideal number of children and income of family*

Index	Districts					Overall
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient	.063	.132	.227	-.070	-.238	.088
Significance	.698	.415	.165	.664	.140	.213

Source: *Authors' fieldwork, 2008*

The number of children alive and income were also correlated and the result is as shown in Table 3. In this case also, there is evidence of a significant positive correlation between the number of children alive and income in the Housing Estate district. Except in Ediba, Akim and Big Qua Towns district where there existed a very weak positive correlation between the number of children alive and income, the analysis depicted low and insignificant negative relationships in the remaining three districts.

The relationship between the ideal number of children and income (Table 4) was not significant in any of the five districts. But whereas this relationship was positive in the Housing Estate, Ediba, Akim and Big Qua Towns as well as the Duke and Henshaw Towns districts, it was negative in the Downtown, Efut, Mbukpa and Anantigha districts. However the positive and negative relationships between the ideal number of children and income were very negligible in the Housing Estate and the Down town districts. Infact, it could be inferred from the very low value of the correlation coefficients that such a relationship between ideal number of children and income did not exist in these two districts.

The correlation between the number of children desired under constrained economic conditions and income was low but positive in all the districts sampled, but extremely low and negligible in two of the districts: the Downtown and Efut, Mbukpa and Anantigha (Table 5). However, through out the five districts studied the correlation coefficients were not significant.

With respect to the number of children desired per family during affluence and income (Table 6) almost all districts, except Duke and Henshaw Towns exhibited negative relationships, even though the relationships were not well-established because of the low values of correlation coefficient, and because they were not statistically significant.

In the Downtown and Efut, Mbukpa and Anantigha districts, the number of children per family considered too large and income have very negligible positive correlations. In the remaining three districts, the coefficient of correlation was negative but, of course, also not statistically significant. In the Housing Estate district, this negative correlation was not only low but could be regarded as non-existent (Table 7).

Table 5. *Simple correlation matrix (by district) between number of children desired per family under constrained economic condition and income.*

Index	Districts					Overall
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient	.147	.192	.195	-.066	-.071	.088
Significance	.365	.236	.234	.683	.662	.213

Source: *Authors' fieldwork, 2008*

Table 6. *Simple correlation matrix (by district) between number of children desired per family during affluence and income*

Index	Districts					Overall
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient	-.064	-.023	.195	-.227	-.072	-.088
Significance	.694	.887	.233	.153	.660	.097

Source: *Authors' fieldwork, 2008*

Table 7. *Simple correlation matrix (by district) between family income and the number of children per family considered too large*

Index	Districts					Overall
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient	-.018	-.117	-.242	.040	.099	-.133
Significance	.911	.473	.138	.804	.543	.200

Source: Authors' fieldwork, 2008

Table 8. *Simple correlation matrix (by district) between family income and the level of mother's education*

Index	Districts					Overall
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient	.634**	.420**	.304	.586**	.612**	.525**
Significance	.000	.007	.060	.000	.000	.000

**Significant at the .01 level
Source: *Authors' fieldwork, 2008*

It was speculated that the mother's level of education could influence family income. Because of this reason, these two variables were correlated and the result of the analysis depicted in Table 8. is that except in the Duke and Henshaw Towns district, mother's level of education and family income are significantly positively correlated. In other words, women take up jobs so as to increase family income. The result depicted in Table 8 encouraged further investigation into the relationship between the mother's level of education and the ideal number of children per family. Throughout all the districts included in the sample, the ideal number of children per family and the level of the mother's education exhibited negative functional relationship, albeit, statistically significant only in two districts, Duke and Henshaw Towns and

the Down town. (Table 9)

Furthermore, the actual fertility level and the mother's level of education were similarly correlated. It was discovered that in the Housing Estate there existed a low positive, but statistically insignificant correlation between the two variables. However in all the remaining districts, the two variables correlated negatively and significantly. (Table 10).

Table 9. *Simple correlation matrix (by district) between the ideal number of children per family and the level of mother's education*

Index	Districts					Overall
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient	-.250	-.189	-.666**	-.479**	-.110	-.304*
Significance	..119	.242	.000	.002	.499	.000

**Significant at the .01 level
Source: *Authors' fieldwork, 2008*

Table 10. *Simple correlation matrix (by district) between actual fertility level and the mother's level of education*

Index	Districts					Overall
	1 Housing Estate	2 Ediba, Akim and Big Qua Towns	3 Duke and Henshaw Towns	4 The Downtown	5 Efut, Mbukpa and Anantigha	
Correlation coefficient	.143	-.441**	-.716**	-.586**	-.398*	-.447**
Significance	.380	.004	.000	.000	.011	.000

** Significant at the .01 level
* Significant at the .05 level
Source: *Authors' fieldwork, 2008*

9. Summary of Findings

For the entire study area, the analysis shows that there is a very low positive but insignificant correlation between actual fertility and family income. However, the Housing Estate district stands unique in that actual fertility and family income are significantly correlated here. This finding could be justified by the fact that the Housing Estate is the residential district of the highly educated, the elite and the affluent social group.

The relationship between the number of children alive and family income is not clearly established by the analyses. There is generally a low, positive but not significant correlation between the two variables. In the Housing Estate district, the number of children alive and family income correlate positive and significantly whereas in most of the remaining districts, the correlation is low, negative and not significant.

The true relationships between the following pairs of variables could also not be ascertained from the analysis:

(1) The ideal number of children and family income,
(2) Family income and the number of children desired per family under constrained economic condition;
(3) Family income and the number of children desired per family during affluence; and
(4) Family income and the number of children considered too large per family.

While in some of the districts, these variables correlate positively, in others they exhibit negative trends. In all, the correlations are low and not significant. Although the correlation coefficients indicate directions of the relationships, their low values and insignificance are a pointer to the fact that family income may not be expected to completely explain variations in fertility levels.

In general, family income and the level of mother's education correlate positively and significantly.

This proves the hypothesis that women are now in wage employment so as to augment family income. But the influence of mother's education on family size is yet to be satisfactorily proven in the study area. It is only in Districts 2 and 3 that there exists highly significant negative correlation between the ideal number of children per family and the level of mother's education. In other districts, the correlation is low, negative and not significant.

However, the actual fertility level and mother's level of education exhibit significant negative relationships in all districts but one. In other words, female education has the ability to reduce fertility levels because it makes it possible for the females to spend less time at home and reduces the risk of pregnancy. This finding corroborates that of Ainsworth et. al (1996) in their study of fourteen African countries, including Nigeria.

10. Recommendation

To enhance the development of a nation, it is vital that the fertility pattern of the female gender be constantly evaluated as an increased fertility in a depressed economy may not ultimately result in an improved standard of living for the citizenry. Opportunities should therefore be made available for an improved educational training and skills development through access to basic education. In addition the socio-cultural and economic barriers that have long marginalized women from the corridors of development should be over-comed in order to ensure the cooperation and sustenance of women in promoting national development.

11. Conclusion

The fore-going analysis has helped to point out areas in which researchers need to intensify their activities so as to clearly understand the forces behind fertility decline in the developing countries. Even though experience proves that economic constraints have significantly reduced fertility levels in most families, the data used in the analysis have not been able to convincingly establish this trend. Therefore, it is suggested that more empirical work be done in this area so as to arrive at a satisfactory conclusion.

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