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**WORKSHOP ON PROSPECTS FOR FERTILITY
DECLINE IN HIGH FERTILITY COUNTRIES**

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**PROSPECTS FOR FERTILITY DECLINE IN NIGERIA: COMPARATIVE
ANALYSIS OF THE 1990 AND 1999 NDHS DATA***

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The views expressed in this paper are those of the author and do not imply the expression of any opinion on the part of the United Nations Secretariat.

A. INTRODUCTION

1. Background

Nigeria's population is one of the fastest growing populations ranked the tenth largest in 2000. The current population is between 111 and 115 million (National Population Commission (NPC), 2000; United Nations, 1999). The annual rate of natural increase is estimated to be between 2.9% and 2.6% (NPC, 2000; United Nations, 2001). Nigeria has a growth potential to become the fifth largest population (303 million) by 2050 (US Bureau of Census, 2001). Although recent statistics suggest signs of a decline in fertility (NPC, 2000, and United Nations, 2000), this decline is at best slow if not uncertain (Caldwell and others, 1992).

The state of the population is of concern to the Nigeria government, international organizations and non-governmental organizations. The prosperity of the 1970s and 1980s gave way to gloom and despair in the 1990s. In response, the Nigerian government inaugurated the National Population Policy in 1998 to alter the adverse effect that the high population growth rate was having on national development and welfare (Federal Ministry of Health, 1988). Key points of the policy are: to improve standard of living, to prevent premature deaths among high risk groups, to reduce birth rates through voluntary fertility regulation methods, and to promote an even urban-rural population distribution.

Concerned groups are interested in: if fertility trend will consistently decrease and what factors are necessary to make the transition to low fertility in Nigeria. These two topics are the subject of this paper, which also presents the theoretical arguments on fertility decline. This paper describes trends in the indicators of fertility since the 1960s. Data from the Nigeria Demographic and Health Surveys (NDHS) from 1990 and 1999 are used to examine the prospects of a future fertility decline. Three fertility indicators (use of contraception, percentage of women who gave births in five years preceding the surveys, and desire for children) are used to evaluate the prospects for future fertility decline. We hypothesize that if the trends in any of the fertility indicators increased between 1990 and 1999, the prospect for future fertility decline is bright.

B. THEORETICAL ARGUMENTS

1. Socio-cultural Considerations

The link between the belief in life after death, ancestral descent, and fertility is well documented in the literature (Caldwell, 1987). This belief, entrenched in traditional religion, is part of the psyche of many Nigerians. It is unknown to what extent westernization has changed this belief. Male dominance is another aspect of the cultural system that is said to promote high fertility in Nigeria. Recently, much attention is being paid to the role that men play in reproduction and family planning. Evidence suggests that men in most societies in Nigeria (and else where in sub-Saharan Africa) are often pro-natalists who use power to ensure their own reproductive goals, at the detriment of women.

2. Economic Considerations

The Easterlin (1985) framework is often used to explain fertility levels in developing countries. Unlike other theories on population that draws solely from economics, Easterlin's framework is strengthened by its combination of the demand concept from economics and the supply concept on population from sociology (Macunovich, 2000). The argument is that declining infant mortality leads to

an excess supply of children thus decreasing the demand for children and motivating fertility regulation. This is relevant in Nigeria because infant mortality and other indicators of socioeconomic development have made little progress since the recession of the 1980s. Caldwell's (1982) wealth flow theory of the expected social and economic returns to parents from their investment in children seems close to the current economic realities in Nigeria. The high cost of schooling, the dwindling financial support from government, and the increasing unemployment of university graduates may have created the context for the reversal of the wealth flow (National Research Council, 1993).

3. Political and Economic Instability

Political turmoil and economic crises are argued to lead to low aspirations and a crises-led fertility transition (Lesthaeghe, 1989; National Research Council, 1993). In some countries, war has led to famine, nutritional deficiency, psychological stress, and a lack of motivation by a population to reproduce (Lindstrom and Berhanu, 1999). Nigeria's recent political turmoil has led to anxiety and uncertainty about the future long tradition of poor resource management has led to increased hardship. The relevance of a crises led-fertility transition in Nigeria was vividly articulated by the National Research Council (1993), which argued that the introduction of the Structural Adjustment Programs (SAP) made Nigerians reconsider cost of reproduction as a component of their cost of living.

4. Cohort and Social Change

The factors affecting social change are said to vary across cohorts (Macunovich, 2000). The argument is that each birth cohort has unique features based on the changing context of education, peer socialization, linguistic dynamics, and historical experience. Experience may be a combination of political, economic, and cultural factors, some of which were presented above. Cohort identity is evident in the Nigerian social organizations traditionally marked by rites of passage and the initiation into adulthood (Lesthaeghe, 1989). The civil war, the economic boom of the 1970s, and bust since the 1980s, the military interregnums, and the continued process of westernization may be important factors affecting cohorts and may have implications for future fertility. This paper borrows from the cohort and social change approach, examining changes in fertility indicators and their determinants across age groups with the objective of providing insight on future fertility in Nigeria.

C. PAST AND PRESENT DEMOGRAPHIC TRENDS

A review of trends in some indicators of fertility suggests a gradual decline in the last few years. The United Nations estimates suggest a gradual decline in the Nigerian population growth rate from 2.74% between 1995 and 2000 to 1.93% between 2020 and 2025 and 1.09% between 2045 and 2050. The United Nations statistics also suggest a gradual decline in total fertility rates from 5.9 for the period 1995 - 2000 to 3.4 for the period 2020 - 2025 and Nigeria is expected to reach replacement levels fertility between 2045 and 2050 (United Nations, 2000). National statistics provide more optimistic trends in total fertility decline, with fertility rates of 6.3 in the early 1980s, 6.3 in 1990, 5.9 in 1991, 5.4 in 1994 and 5.2 in 1999 (NPC, 2000). If the observed trends are real, are trends in factors influencing fertility telling the same story?

Trends in indicators of knowledge and attitudes that influence fertility are examined between 1990 and 1999 using the NDHS data. The data sets are nationally representative samples of women collected using similar sampling designs. The analysis controlled for residence, level of education, religion, and work location. The results (table 1) show that knowledge of any method of contraception and knowledge of modern methods of contraception increased by at least 10% for all age groups between 1990 and 1999. The data also suggest a decline in trends in the support for family planning among both respondents and their spouse. The reason for this decline is not clear from the data

Spousal communication about family planning often leads to a discussion about family size, a necessary step to fertility regulation. Spousal discussion about family planning significantly increased for all age groups combined (28% to 31%). After controlling for age, discussion with one's spouse about family planning was only significant among women aged 30 to 34. Gender equity was measured by a dummy variable of secondary school educated women who discussed family planning with their spouse. Results suggest small but consistent increased trend in gender equity for all ages combined (9% to 13%) and across all age groups except for women younger than 25.

The percentage of women who gave births in the five years preceding the survey is an important indicator of the recent level of fertility (table 1). The percentage of women who gave births in the five years preceding survey declined (70% to 66%), with important declines among women aged 25 to 29 (84% to 81%,) and aged 35 or older (55% to 45%.) The findings show positive trends in the percentage of women who currently use any method and those who currently use modern methods (8% to 15% and 5% to 8% respectively for all ages).

A couple's desire for children is an important determinant of future fertility in most of sub-Saharan Africa. The literature suggest that when husbands and wives have similar desires for children, or husbands want fewer children, fertility may decline since wives' desire for children are usually lower than that of their husbands. The two measures of the desire for children used in this paper are— the couple wants the same or the husband wants fewer children; and the wife does not know her husband's desire for children. Results in table 1 show positive trends in the desire for children between 1990 and 1999. The proportion of women who want the same number of children as their husbands or whose husbands want fewer declined for all age groups (31% to 36%) and for all specific age groups except those aged 35 or older. Findings suggest an increased trend in the husband's desire for more children and decline in the proportion of women who know their husband's desire for children. A decrease in the proportion of women who don't know their husband's desire for children suggest increased knowledge about their spouse's desire for children.

D. PROSPECTS FOR FUTURE FERTILITY DECLINE

Use of contraception, percentage of women who gave birth in the five years before each the survey and desire for more children are used to evaluate prospects for future fertility decline. The hypothesis is that if trends in use of contraception increased or the other indicators decreased between 1990 and 1999, fertility decline is likely in the future. Sixteen logistic regressions are presented in tables 2 and 3 for married women by age groups— less than 25, 25 - 29, 30 - 34, and 35 and older.

1. Fertility Indicator One: use of any method of contraception

The findings in table 2 show a significant positive trend in the use of any method of contraception between 1990 and 1999. In 1999 married women were more likely (at least 1.9 times) to use contraception than in 1990. The effect of age at first marriage on use of contraception is not as expected. Women who married late are expected to have higher levels of contraception use since delayed marriage suggests the intention not to have children at early ages. Women aged 25 – 29 are 0.4 times as likely to use contraception as the reference category (0.6 times as likely for 30 – 34). Urban women in each age group, except 25 – 29, are more likely to use a method of contraception than rural women. Women who have at least a primary education, older than 24 (also primary educated in 30 – 34) are more likely to use a method of contraception than those not educated. Women who are Catholic or Protestant are more likely to use a method of contraception than those who are Muslim.

Other determinants of fertility having a positive effect on use of contraception are husband/partner's approval and the discussion of family planning with spouse. Respondent's approval of family planning has a positive effect on contraception, except for women age 24 or less. Women ages less than 29 who work away from home are more likely to use a method of contraception than those not working. The findings on the effect of material possession on use of contraception were not clear. Women in the youngest and oldest age groups (less than 25, and 35 or more) who had some material possessions were more likely to use a method of contraception than other age groups. The findings suggest positive trends across age groups in the use of contraception between 1990 and 1999, they also suggest that most determinants of fertility have positive effects on the use of contraception.

2. Fertility Indicator Two: births in the last five years

There was no significant difference reported in births from the five years preceding the 1990 to the five years preceding the 1999 surveys, except for women in the oldest age groups. The effects that age at first marriage, a proximate determinant of fertility (Bongaarts, 1978), has on reported births in the last five years differs by age group. While younger women who first married at age 20 or later were less likely (0.5 times), women aged 30 or older who married at age 20 or later were (at least 1.4 times) more likely to have had births in the five years prior to the survey when compared to the reference category. This suggests that delayed marriage was more effective for younger than older age groups. Differences in the odds of having given birth in the last five years were also observed for women who worked away from home. These differences varied significantly by age groups (age groups < 25 vs. 35+). The findings in table 2 suggest that Catholic women age 25 –29 were 0.5 times as likely to have had births in the five years preceding the survey, as compared to the reference category. Older Catholic women (35 or older) were 0.8 times as likely to have had births in the five years before the survey. The effects that knowledge of modern methods of contraception, husband's approval, and the discussion of family planning with a spouse had on births in the five years preceding the survey were in the expected direction. However, the degree of the effect varied by across age groups.

3. Fertility Indicator Three: desire for children

The findings suggest that younger women in 1999 were (1.5 times) more likely to want the same number of children as their spouse or that their spouse wanted fewer, as compared to 1990 (1.3 times for 25 – 29 and 30 –34). This suggests that younger women are more likely to have smaller family size. The level of education, religion, type of marriage, approval of family planning, and the discussion of family planning with husband/partner all had positive effect when women want the same number of children as husbands or husbands want fewer. These effects were significant across age groups. Older women who married between the ages of 20 – 24 were more likely to want the same number of children as their husbands or have a husband who wanted fewer. Working away from home had a positive affect on younger women who had the same desire for children as their husbands or have a husband who wanted fewer. Material possession and exposure to family planning on radio had similar positive effects on women in aged 25 – 29 and the oldest age groups who had the same desire for children as their husband or whose husband wanted fewer. Women in the youngest age group whose husband approved of family planning were 1.5 times more likely to desire the same number of children as their husband or whose husband wanted less compared to the reference category (0.7 times for women in the oldest age groups).

The findings across age groups suggest that women were 0.4 times as likely to say they do not know their husband's desire for children in 1999 than in 1990. In general, women in the 1999 survey seem to have moved from a lack of information or interest about their partner's reproductive goals to some knowledge either perceived (through non-verbal communications) or thorough discussions. Knowledge about a partner's reproductive goals may lead to a discussion about discrepancy among partners. Discrepancy in information may be helpful to the women who would like to use contraception

without husband's consent. Women who do not have any opinion about family planning were (at least 3.9 times) more likely not to know their husband's desire for children compared to those who disapprove of family planning. The women in this category are likely to have unwanted births and high fertility since they are less likely to have any reproductive goals or control over their fertility. Level of education, religion, and location of work all had a positive effect when women had the same desire for children as their husband or their husband wanted fewer children. However, these effects were not significant at all ages.

E. CONCLUSION

The findings in this paper suggest that the prospects for fertility decline in Nigeria are bright. Trends in the use of contraception between 1990 and 1999 increased. The proportion of women who had births in the five years before survey declined. More women think that they have the same reproductive goals as their husband. These are favorable indicators for future fertility decline. In addition, young women who work away from home are more likely to use contraception, they are more likely to not have had births in the five years before data collection and are more likely to have the same desire for children as their husbands. Young women who married at later ages are likely not to have births in recent years (at the time of survey). In general, the response of young women to working away from home and age at first marriage suggest some in-built inertia for fertility decline in the future.

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TABLE 1: TRENDS IN INFLUENTIAL FACTORS AND THE INDICATORS OF FERTILITY OF WOMEN CURRENTLY MARRIED OR LIVING WITH PARTNER (adjusted percentages)*

<i>Determinants</i>	<i>Age Range of Women Currently Married or Living With Partner</i>														
	<i>All ages</i>			<i>Less than 25</i>			<i>25 - 29</i>			<i>30 - 34</i>			<i>35 and older</i>		
	'90	'99	<i>Sig.</i>	'90	'99	<i>Sig.</i>	'90	'99	<i>Sig.</i>	'90	'99	<i>Sig.</i>	'90	'99	<i>Sig.</i>
Heard family planning on radio	30	34	+++	28	28	⊖	32	37	++	32	39	+++	29	35	+++
Know any method of contraception	49	63	+++	42	54	+++	55	67	+++	52	68	+++	49	65	+++
Know a modern method of contraception	47	60	+++	40	53	+++	53	65	+++	50	99	+++	46	61	+++
Respondent approves family planning	54	39	+++	47	30	+++	57	41	+++	58	45	+++	55	40	+++
Husband approves family planning	33	29	+++	28	21	+++	36	30	++	37	36	⊖	33	30	+
Discuss family planning with spouse	28	31	+++	22	22	⊖	30	32	⊖	33	38	++	30	32	⊖
Secondary school educated married women who discussed family planning with spouse	9	13	+++	9	10	⊖	13	17	+++	10	19	+++	6	11	+++
<i>Indicators of fertility</i>															
Currently using any method of contraception	8	15	+++	5	7	++	8	13	+++	11	19	+++	12	18	+++
Currently using a modern method of contraception	5	8	+++	3	2	⊖	4	7	++	7	12	+++	8	12	+++
Births in the last five years	70	66	+++	73	75	⊖	84	81	+	79	77	⊖	51	45	+++
Both want the same number of children or husband wants fewer	31	36	+++	29	34	++	32	37	++	32	40	+++	33	36	⊖
Husband wants more	19	28	+++	20	28	+++	18	26	+++	20	27	+++	20	30	+++
Don't know husband's desire for children	49	36	+++	51	39	+++	49	36	+++	48	33	+++	47	34	+++

*Analysis combined 1990 and 1999 NDHS data sets, total number of cases = 12711. Percentages are adjusted for sample differences in residence, level of education, religion and work location; Sig. = significance level, + = p < .05, ++ = p < .01, +++ p < 0.001 and ⊖ = not significant at any level

TABLE 2: RELATIVE ODDS THAT WOMEN CURRENTLY MARRIED/LIVING WITH PARTNER USE MODERN CONTRACEPTION & HAD BIRTHS IN THE LAST FIVE YEARS BY INDICATORS

<i>Indicators</i>	<i>Any Method of Contraception</i>				<i>Births in the Last Five Years</i>			
	<25	25 – 29	30 – 34	35 +	< 25	25 – 29	30 – 34	35 +
Survey year								
1990 (r)								
1999	2.1***	1.9***	2.1***	2.5***	1.2	0.8	0.9	0.7***
Age at first marriage								
Less than 20 (r)								
20 – 24	0.8	0.8	0.8	1.0	0.5***	1.1	1.8***	1.4***
25 +	-	0.4**	0.6*	0.8	-	0.3***	1.3	2.0***
Residence								
Rural (r)								
Urban	1.8**	1.2	1.9***	1.5**	0.9	0.8	0.9	0.7***
Level of education								
No education (r)								
Primary	0.7	1.7*	1.3	1.9***	1.0	1.4	1.5*	1.0
Secondary or higher	1.5	3.0***	1.9*	2.7***	0.7*	0.7	0.7	0.9
Religion								
Islam (r)								
Protestantism/others	1.8*	1.6*	1.4	1.4*	1.0	0.9	0.8	1.0
Catholicism	1.8*	2.0**	2.2***	1.9***	0.9	0.5***	0.9	0.8*
Type of marriage								
Polygamous (r)								
Monogamous	1.0	1.0	1.2	1.2	0.9	1.1	1.1	1.1
Location of work								
Not working (r)								
At home	1.0	1.7*	1.2	1.5*	1.6***	0.9	1.0	0.8**
Away	1.9**	1.8**	1.2	1.4	1.7***	1.1	0.9	0.6***
Material possessions								
At most one (r)								
Two or three	1.0	0.9	1.1	1.3*	0.9	1.1	0.9	1.1
Four or higher	1.9*	1.1	1.5	1.6**	1.3	1.2	0.6*	0.8*
Heard FP message on radio								
No (r)								
Yes	1.0	1.2	1.3	1.2	1.0	0.8	1.0	0.9
Knows a modern method								
No (r)								
Yes	-	-	-	-	1.7***	1.2	1.6**	1.6***
Respondent approves FP								
Disapproves (r)								
Approves	1.5	2.1**	1.7*	1.9***	1.3	1.0	1.2	0.8*
Don't know	0.4*	0.7	0.5*	0.8	0.8	1.2	1.3*	1.1
Husband approves FP								
Disapproves (r)								
Approves	3.7***	2.8***	3.6***	4.7***	1.1	1.7***	1.9***	1.3*
Don't know	0.9	2.6*	1.3	1.6	1.1	1.4	1.2	1.2
Discussed FP with husband								
No (r)								
Yes	3.5***	2.2***	2.9***	2.7***	1.2	1.6**	1.2	1.5***

Note: Analysis included 1990 and 1999 NDHS, r = reference category, * = p < 0.05, ** = p < 0.01 and *** = p < 0.001

TABLE 3: RELATIVE ODDS THAT WOMEN CURRENTLY MARRIED/LIVING WITH PARTNER DESIRE CHILDREN BY INDICATORS

<i>Indicators</i>	<i>Both Want Same/Husband Wants Fewer</i>				<i>Don't Know Husband's Desire for Children</i>			
	<25	25 –29	30 –34	35 +	< 25	25 – 29	30 – 34	35 +
Survey year								
1990 (r)								
1999	1.5***	1.3*	1.3*	1.1	0.4***	0.4***	0.4***	0.4***
Age at first marriage								
Less than 20 (r)								
20 – 24	1.3	1.2	1.6***	1.2*	1.0	1.1	0.9	1.0
25 +	-	1.4	1.3	1.3		1.2	1.0	1.0
Residence								
Rural (r)								
Urban	1.1	1.0	1.0	1.1	1.1	1.2	0.9	1.1
Level of education								
No education (r)								
Primary	1.3	1.4*	1.1	1.3*	0.9	0.7	1.1	1.0
Secondary or higher	1.7***	1.8***	1.7**	1.6***	0.8	0.5**	0.8	0.6***
Religion								
Islam (r)								
Protestantism/others	1.5***	1.6***	1.5**	1.4**	0.9	0.8	0.6***	0.9
Catholicism	2.1***	1.5*	1.5*	1.6***	0.6***	0.8	0.6**	0.7*
Type of marriage								
Polygamous (r)								
Monogamous	1.3*	1.4***	1.7***	1.6***	1.2	1.1	0.9	1.0
Location of work								
Not working (r)								
At home	1.1	1.3	1.2	1.1	0.8*	0.8	0.8	0.7***
Away	1.3*	1.3	1.1	1.1	0.9	0.8	0.9	0.8*
Material possessions								
At most one (r)								
Two or three	1.1	1.2	1.3	1.2*	0.9	0.9	0.8	1.0
Four or higher	1.0	1.4*	1.1	1.4*	1.3	0.7*	0.8	1.0
Heard FP message on radio								
No (r)								
Yes	1.2	1.3*	1.3	1.3*	0.8**	0.6***	0.8	0.8*
Knows a modern method								
No (r)								
Yes	1.1	1.1	1.1	1.2	0.7***	1.0	1.0	0.7***
Respondent approves FP								
Disapproves (r)								
Approves	1.6***	2.3***	2.3***	2.8***	0.8	0.6***	0.8	0.8*
Don't know	0.5***	0.6***	0.5***	0.6***	3.9***	4.0***	5.3***	4.0***
Husband approves FP								
Disapproves (r)								
Approves	1.5**	0.8	1.0	0.7**	0.7**	0.9	0.7*	0.8
Don't know	1.4	0.9	1.3	1.2	0.9	1.0	0.7	0.9
Discussed FP with husband								
No (r)								
Yes	1.6***	1.9***	1.3*	1.5***	-	-	-	-

Note: Analysis included 1990 and 1999 NDHS, r = reference category, * = p < 0.05, ** = p < 0.01 and *** = p < 0.001

ANNEX I: RELATIVE ODDS THAT WOMEN CURRENTLY MARRIED/LIVING WITH PARTNER
USE MODERN CONTRACEPTION, HAD BIRTHS IN THE LAST FIVE YEARS AND DESIRE
FOR CHILDREN BY INDICATORS (all age groups combined)

<i>Indicators</i>	<i>Modern Method Of contraception</i>	<i>Births in last Five Years</i>	<i>Desire Same/Husband Wants Fewer</i>	<i>Don't Know Husband's Desire</i>
Survey year				
1990 (r)				
1999	2.3***	0.7***	1.3***	0.4***
Age at first marriage				
Less than 20 (r)				
20 – 24	0.9	1.0	1.3***	1.0
25 +	0.8	0.8	1.3*	1.0
Residence				
Rural (r)				
Urban	1.6***	0.8***	1.1	1.1
Level of education				
No education (r)				
Primary	1.3**	1.4***	1.3***	0.9
Secondary or higher	1.7***	1.2***	1.7***	0.7***
Religion				
Islam (r)				
Protestantism/others	1.6***	0.8***	1.5***	0.8***
Catholicism	2.1***	0.7***	1.7***	0.7***
Type of marriage				
Polygamous (r)				
Monogamous	1.0	1.1**	1.5***	1.0
Location of work				
Not working (r)				
At home	1.7***	0.9	1.2*	0.8***
Away	1.9***	0.8***	1.2**	0.8***
Material possessions				
At most one (r)				
Two or three	1.1	1.0	1.2***	0.9*
Four or higher	1.4**	0.8**	1.2*	0.9
Heard FP message on radio				
No (r)				
Yes	1.2*	0.9	1.2***	0.8***
Knows a modern method				
No (r)				
Yes	-	1.5***	1.1*	0.8***
Respondent approves FP				
Disapproves (r)				
Approves	1.8***	1.0	2.2***	0.7***
Don't know	0.7**	1.0	0.5***	4.1***
Husband approves FP				
Disapproves (r)				
Approves	3.7***	1.3***	0.9	0.8***
Don't know	1.6*	1.2*	1.2*	0.9
Discussed FP with husband				
No (r)				
Yes	2.9***	1.3***	1.6***	-

Note: Analysis included 1990 and 1999 NDHS, r = reference category, * = p < 0.05, ** = p < 0.01 and *** = p < 0.001