# FEMALE EMPLOYMENT AND FERTILITY DECISIONS; IS THERE AN IMPLICATION FOR HOUSEHOLD CONSUMPTION IN SOUTH-WEST NIGERIA?

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## ABSTRACT

*This study examined the impact of female employment and fertility decisions on household consumption in a working life cycle of South-West Nigeria. Survey method was used to collect data and multistage sampling technique was used to select a sample of 600 households in South-West Nigeria. 514 questionnaires were analysed after removing the incomplete. Linear Structural Relations Models was use to analyse the data. The result showed that household consumption is caused by fertility decision, female employment, income and female education. Fertility decisions had a positive and statistically significant relationship with household consumption while female employment has a negative but significant relationship with household consumption. The study concluded that the presence of children in households increases consumption in a working life cycle.*

**Keywords:** Household consumption, Female employment, Fertility decisions, Children

## Contribution/ Originality

This study contributes to the existing literature by examining the impact of fertility decisions and female employment on consumption of households in a microeconomic framework. This work is rare in developing countries and studies on South-west Nigeria is not yet existing.

## 1. INTRODUCTION

There is a widespread agreement in the literature that household consumption over a working life-cycle displays an inverted U-shape (Browning and Ejrnaes, 2002). Life cycle hypothesis can be grouped into four periods; allocation between the periods of human capital formation and late, allocation within the work life, allocation between pre-retirement and retirement period and planning for bequest. Household consumption is said to exhibit an inverted U-shape during the working period (second period). Some studies have tried to explain the reason for this; Deaton (1991) and Nagatani (1972) showed that instead of being liquidity-constrained, households are "prudent." Prudence leads households to treat future uncertain income cautiously and not to spend as much currently as they would if future income were certain (that is, if future income is sure to have a value equal to its mathematical mean). Thus, prudence is the precautionary motive for saving. Both the liquidity constraint and prudence explanations offer a reason for consumption to track income in early life, and induce a high correlation between consumption and income over simple simulated life-cycle.

Furthermore, another explanation for this is incorporating demography into microeconomic estimation of inter-temporal consumption over a life-cycle. It has been argued that without any liquidity constraint, the presence

of children in household increases consumption in relation to income (Blundell *et al.*, 1994). This period is assumed to be a period in which consumption exceeds household income and households either draw on their past savings or borrow. If households wants to smooth their marginal utility of their consumption and reduce the amount that they would borrow; they would postpone the birth of children in order to accumulate enough savings that can deal with the financial cost of having children (Kalwij, 1998). Household also derives utility in the number of children and their quality (Adda *et al.*, 1991). The number of children each household would be willing to have is subject to some constraint like income, consumption preference, etc. Some studies have identified increase in household consumption especially for new born. Since children care is assumed to be the primary responsibility of a woman (Adieri and Vinci, 2012). In Nigeria, the culture and norms of the people also supports these assertion; women are saddled with the responsibility of taking care of children and taking most household's consumption decisions. This study envisages that consumption decision is also dependent on household income; therefore, household income will play a crucial role in both female employment and fertility decisions.

If household consumption increases in relation to income due to the presence of children, it can induce female employment (if voluntarily unemployed) or make a woman aspire a better paid job. This action will lead to increase in the financial wealth of the household but increase the number of working hours per day, reduce the number of hours for domestic services and increase (the desire for) improved human capital through better education, years of experience, attendance of workshop and seminars, skill acquisition etc. Consequently, this may affect the female fertility decision positively through higher household financial wealth, ability to employ the services of baby sitters, nannies or day care etc. or negatively through pressure on the time of the woman since she is responsible for the raising of the children. Also, increased household consumption can make a woman to increase birth (especially in agrarian societies and societies where child labour are predominant or societies where there are subsidies from the government for having some specific number of children) or delay birth (because of financial constraint). This in turn will lead to female employment or quest for a better paid job. The study therefore assumed simultaneity in decision making among household consumption, female employment and fertility decisions.

The demographic composition of the Nigerian population is peculiar. Approximately, 75% of the population comprises of women and children (International Institute of Tropical Agriculture, 2004). This suggests that the consumption pattern of an average Nigerian household may be high especially when purchasing food and other basic necessities. Hence, the demographic composition of Nigeria would have a lot of implication on household consumption.

**Table-1.** Indicators by Geo-Political Zones

| Indicators | Geo-Political Zone | | | | | |
|---|---|---|---|---|---|---|
| | North-East | North-West | North-Central | South-East | Southwest | South-South |
| Primary School Net Enrolment Rate (Female) | 41.5 | 38.6 | 72.1 | 80.0 | 81.2 | 76.1 |
| Secondary School Net Enrolment Rate (Female) | 24.7 | 22.5 | 43.8 | 61.4 | 64.3 | 60.9 |
| Literacy Rate-English (Female) | 30.4 | 28.4 | 66.0 | 93.3 | 90.6 | 89.6 |
| Household Dependency Ratio | 0.9 | 0.9 | 0.7 | 0.7 | 0.7 | 0.6 |
| Total Fertility Rate | 7 | 6.7 | 5.7 | 5.3 | 4.8 | 5.5 |
| Number of Children per woman | 7.8 | 8.6 | 6.2 | 5.3 | 4.8 | 5.5 |
| % of currently married women presently using any contraceptive method | 4 | 5 | 13 | 23 | 33 | 25 |
| Household Consumption: % of Total Expenditure | 11.16 | 22.26 | 14.57 | 12.04 | 25.31 | 14.67 |

**Source:** National Bureau of Statistics (2012)

Available data on Nigeria shows the levels of fertility decisions, household consumption and female employment differs in each geo-political zones. As evidenced from table 1, total household consumption in southwest is the highest with 25.31 compared with 11.16 in North-east and 12.04 in the south-east. If household consumption is high, the woman in the household might be compelled to work or increase working hours and this in turn will have effect on fertility decision.

Furthermore, narrowing down the country into geo-political zones might be necessary as a result of peculiarities in household decisions streaming from the diversities arising from their cultural and environmental set-up. From table 1 above, Southwest have the highest female primary and secondary school enrolment as well as the second highest female youth literacy rate but the lowest fertility rate and number of children per woman. This may suggest that there may have been increasing participation of women in the labour force in the Southwest than other geopolitical zones of the country. Also, female labour force participation might have effect on household fertility decisions in each geopolitical zone when considering both education and fertility variables of each. In addition, the consumption pattern of households (for both food and non-food products) may have a relationship with the decision of women to work, increase working hours or have higher order of births.

This work is particularly interested in Southwest Nigeria because it has the highest consumption pattern, highest level of education but lowest level of children per woman and total fertility rate; such composition is unique when compared to other geo-political zones. Hence this study investigates household consumption, female employment and fertility decision in Southwest Nigeria, from a microeconomic framework. Section one introduces the work while section two reviews literature section three discusses data and analysis while section four discusses the conclusion.

## 2. LITERATURE REVIEW

Browning and Ejrnaes (2002) tested if precautionary saving motive explains lifetime path of household consumption. They used System Generalised Method of Moment to analyse household survey. They concluded that if proper account of numbers of children is taken into consideration, family composition not precautionary saving motive explains the lifetime path of household consumption.

Carrasco and Zamora (2010) examined the effect of female labour participation on household consumption of couples within a collective choice framework in which bargaining plays a role in Spain. They used two stage estimators to analyse panel data and found that female participation causes an increase in consumption of most household commodities. They concluded that female leisure is a substitute for consumption. In addition, besides substitution effects, the bargaining between the spouses in the household's decision process accounts for part of this effect.

Gete and Porchia (2011) examined the joint consumption and fertility decisions of a household who faces uninsurable shocks to both income and the cost of raising a child. They used panel data to analyse their model. They found that higher child risks diminish fertility and consumption while risk aversion speeds up fertility as households use the safe utility derived from a child as insurance against fluctuations in consumption. Also, they found that fertility is increasing in the correlation between income and child cost shocks. The household is reluctant to have children when positive cost shocks come together with bad income shocks. The opposite result happens when children hedge income shocks. Bhalotra and Umaña-Aponte (2012) investigated whether cyclical variation in women's labour supply in Africa contributes to smoothing household consumption. The scholars used linear probability model (LPM) to analyse Household data (cross country data) form Demographic Health Survey (NDHS) for 75 countries. They found that women's participation in the labour force is significantly pro-cyclical. Beguy (2009) investigated the impact of female employment on fertility in two urban contexts in sub-Saharan Africa:

Dakar (Senegal) and Lomé (Togo). He used Cox model and Regression to analyse 397 household sample from IRD–Equipe Jeremiin Dakar and 1060 samples from Survey on Migrations and Urban Integration in Lomé. He found that in Dakar neither female employment nor human capital has a significant effect on the likelihood of giving birth. Greater involvement of women in the labour force is not the main reason for fertility decline in Dakar. Contrarily, Education and Employment hinder fertility significantly in Lomé. Being involved in economic activity is a real option and can therefore impact upon their reproductive life. Solomon and Kimmel (2009) tested the inverse relationship between fertility and labour force participation of women in Ethiopia. They analysed Demographic and Health Statistics Data using Two Stage Least Squares. They found that inverse relationship does not exist between fertility and labour force participation of women in the country. Fehr and Ujhelyiova (2010) developed a general equilibrium model with overlapping generations and endogenous fertility in order to analyze the interaction between public policy, household labour supply and fertility decisions in Germany. They used simulations to analyse panel data. They found that higher direct or indirect family benefits financed by consumption taxation mainly increase fertility and welfare of low-skilled families while high-skilled families are hurt in the long run. Ibáñez (2010) examined the effect of institution, reconciliation policy, and female labour force participation on fertility decisions in households in Spain. She estimated a multivariate model of proportional hazard using micro data. The result is inconclusive because the Hypothesis of Fertility Positive Turn was not confirmed directly for cases with a steadier work status. However, educational level does have a continuous effect, that is, women with university degrees, and especially employed ones, are more likely to become parents. Huttunen and Kellokumpu (2012) analysed the effects of job displacement (both male and female) on fertility using Finnish longitudinal employer-employee data (FLEED). They found that woman's own job loss decreases fertility mainly for highly educated women. For every 100 displaced females there are approximately 4 less children born. Male job loss has no significant impact on completed fertility. Okpala (1989) examined the relationship between labour force participation and fertility in an urban centre (Lagos, Nigeria). Primary data were collected from three categories of women (civil servants, self-employed and house wives). Both descriptive statistics and ordinary least square were used to test the data. When chi-squared was used, he found that the fertility level of civil servants is lower than that of businesswomen and housewives. Also, not much difference exists between the fertility level of businesswomen and that of housewives. When OLS was used, he found a significant negative relationship between fertility and female labour force participation among civil servants. Among self-employed women, a negative relationship still exists but it is insignificant. Babalola and Akor (2013) examined the factors affecting labour force participation of married women within the working age (18-60) in Adamawa state. The Probit model was used to analyse observation for 120 women. It was found that education has positive effect on female labour force participation while husband's employment and household size has a negative effect on female labour force participation.

## 3. DATA AND ANALYSIS

### 3.1. Data

The target population are married or co-habiting women who are within the reproductive ages in the last 12 months. Reproductive age is defined as ages 15 to 49 years following the classification of NBS (2009). These women are residing in households located in Southwest Nigeria. Questionnaires were administered to 600 households through multistage sampling technique. After removing the incomplete, we were able to recover 514 questionnaires which were used for the analysis.

### 3.2. Data Analyses

In order to model the simultaneity among household consumption, female employment and fertility decisions, the study adapted the work of Ahmed and Mosley (1997) which employed Linear Structural Relations models (LISREL) in line with the work of Joreskog and Sorbom (1989) using latent endogenous and exogenous variables. In this study, we hypothesized three outcome variables, household consumption (C), female employment (P) and fertility decisions ($D_i$), are interrelated and simultaneously determined (simultaneity). The study therefore postulated that the three variables are simultaneously determined by certain exogenous variables (covariates) as specified in the model below:

$$E(C) = \alpha_{11} + \alpha_{12}P + \alpha_{13}N + \alpha_{14}Z_i + \varepsilon_{11} \qquad 1$$

$$E(N) = \alpha_{21} + \alpha_{22}C + \alpha_{23}P + \alpha_{24}Z_i + v_{21} \qquad 2$$

$$E(P) = \alpha_{31} + \alpha_{23}N + \alpha_{33}C + \alpha_{34}Z_i + u_{31} \qquad 3$$

Where, $E$ is the expectation operator, C is consumption (measured by household allocation to consumer goods), $N$ represents fertility decision proxy by number of children ever born, $P$ is the employment status of the woman, $Z_i$ is a set of control variables like household income, education status of women and age of the woman

## 4. RESULT

The result is displayed in table 2 below. As evidenced by the Z-statistic, household consumption is caused by fertility decision, female employment, income and education; age of the woman does not determine the level of household consumption. Fertility decision had a positive and statistically significant relationship with household consumption decision; the higher the number of children ever born the higher the household spends on consumer goods. Contrarily, female employment decreases household consumption and it is statistically significant at 5%. Income of the woman had a positive and statistically significant effect on household consumption; the higher the woman's income, the higher the household consumption. Educational attainment of the woman increases household consumption and it is statistically significant at 5%.

**Table-2.** Structural Equation Model Result.

|  | Coefficient | Standard Error | Z-statistic | Z- Prob. |
|---|---|---|---|---|
| **Model 1: Consumption ← Fertility, Female Employment, Income, Education, Age** | | | | |
| N | 12105.24 | 3513.023 | 3.45* | 0.001 |
| P | -22962.75 | 5138.337 | -4.47* | 0.000 |
| incom | 0.6668913 | 0.611898 | 10.90* | 0.000 |
| educ | 9027.596 | 1440.914 | 6.27* | 0.000 |
| age | -168.8024 | 357.5823 | -0.47 | 0.637 |
| c | 244428.56 | 13127.24 | 1.86 | 0.063 |

**Source:** Author's computation (2015)

**Table-3.** Correlation and Covariance Matrices

| Correlation Coefficient Matrix | | | | Covariance Matrix | | | |
|---|---|---|---|---|---|---|---|
|  | consump | fertl | fempl |  | consump | fertl | fempl |
| consump | 1.0000 | | | consump | 3.15e+09 | | |
| Fertl | -0.0175 | 1.0000 | | fertl | 6739.239 | 1.39215 | |
| Fempl | 0.3377 | 0.4475 | 1.0000 | fempl | 18781.21 | 0.21775 | 1.097064 |

**Source:** Author's Computation (2015)

The latent endogenous variables fertility decision and female employment both influences household consumption. Fertility decisions increases household consumption in South western Nigeria; this is in conformity with the Life cycle theory. The presence of children or higher order of birth could increase household consumption in relation to income Blundell *et al.* (1994). At the same time, female employment has a negative effect on household consumption; this is in conformity with the work of Ueda (2004). Female employment causes a reduction in hours spent on leisure; therefore, household spending on such goods will be reduced. In reality, households with working women spends lesser time on activities like watching television, visiting and receiving visitors, social media etc. This in turn saves household spending (though at times it may be minimal) on electricity and telecommunication bills, fuel for generator, food items etc.  Also, a rise in female income increases consumption of the household in south western Nigeria, this is in conformity with the findings of Carrasco and Zamora (2010). The higher the income of a woman, the higher will be the allocation of household on consumer goods (especially on quality rather than quantity). Furthermore, households that have women with better educational attainment spend more on consumer goods than households with less educated women in south western Nigeria. Education can be a driver for quality rather than quantity spending in households. For example, households with better educated women warily choose their children schools (not minding expensive fees), buys quality clothing and footwear etc.

The correlation and covariance matrix is displayed in table 3 below. Household consumption and fertility decisions vary together positively with the value of 6739.239 and they are linearly associated. This is in conformity with the theory; household consumption is expected to rise as fertility decision rises. Contrarily, the correlation coefficient (-0.0175) revealed a negative association between household consumption and fertility decision.

## 5. CONCLUSION

In South-West Nigeria, it is evident that presence of children in households increase consumption while female employment reduces it reduces consumption in households. Also, household income and consumption has a direct relationship in South-West Nigeria.

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