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**GENDER POLICIES IN ENTREPRENEURSHIP DEVELOPMENT:  
AN INTRA- HOUSEHOLD MARKET ANALYSIS**

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## **GENDER POLICIES IN ENTREPRENEURSHIP DEVELOPMENT: AN INTRA- HOUSEHOLD MARKET ANALYSIS**

### **Abstract**

The universal implementation of women empowerment programmes has received analytical attention within the economic theory context. A two- commodity structure of the customary household economy was conceptualized, and analyzed under the usual assumptions to describe the nature of the intra-household market for women entrepreneurship. The low-income household system produces two hypothetical commodities namely, Women Entrepreneurship (*WE*) and Non-Entrepreneurial Works (*NEW*) which form the main elements of the Stone-Geary type utility function. A system of linear expenditure equation was derived and estimated by regression to yield the empirical parameters of demand curve for *WE*; while the supply curve was derived based on the traditional production function framework. The results of equilibrium analysis indicate that the demand for women's time to work within the household cumulates at about one month per year. Also analysis gives an insight into the nature of substitution between *WE* and *NEW*, It does appear that decision by women to increase their economic output in the household is independent of imputed price of their output, with the implication that gender-segregated policies that promote access of women to land and capital would lead to increased household productivity and income. So also would policies that improve opportunities of women for paid employment help to increase the opportunity cost of their time and consequently to increase the value of their output from entrepreneurial activities in the household.

*Key words: Women entrepreneurship; Non-entrepreneurial works; supply curve; demand curve; equilibrium analysis; gender-segregated policies.*

## **INTRODUCTION**

Over the past three decades, the global policy process has become more gender sensitive and individual countries have endorsed the protocol for integrating women more actively into the development programmes with emphasis on empowerment and equity. Women and poorer households are frequently among the worst affected as policy issues change in specific ways. Within this context, women are viewed as being more vulnerable to poverty in their multiple (ascribed and acquired) roles as mothers, wives, and economic agents (Payne, 1991; Egunjobi et al, 1990). Moreover, women constitute an important source of the potential labor required for sustained growth of national economies in which agriculture plays an important part.

By and large, most intervention programmes concerned with women's economic empowerment in developing countries are premised on the notion that there is untapped entrepreneurial capacity in women. This includes their day-to-day decision-making and implementation of tasks pertaining to the production and consumption activities in low-income households, which accounts for substantial proportion of the gross domestic product of developing countries (Braun et al, 1991; Garcia, 1991; and Chiappori, 1992). However, the market character of the low-income household has not been rigorously investigated with respect to the important role of women in cottage enterprises, particularly in terms of the nature of demand and supply curves for women entrepreneurship as well as their interaction within the household framework.

Thus this study is a follow-up to the previous works by Ayoola and Ayoola (2000) and by Ayoola et. al.(2003), which separately estimated the demand and supply functions respectively, for low income-households in Nigeria. The aim is to

carry the analysis further to the market level, with a view to determining the equilibrium parameters for the evaluation of policies that promote women entrepreneurship in the country. Overall, the research gives considerable scope for strengthening the design and formulation of gender-segregated policies in developing countries.

## 2. ANALYTICAL MODEL.

The analytical model for deriving the demand and supply curves for women entrepreneurship is highlighted as follows:

1. Two outputs are distinguished within the household structure, namely: entrepreneurial work output, or simply, 'women entrepreneurship' (WE), which is a composite product resulting from activities of women aimed at generating income and which forms the focus of the many economic empowerment projects targeted at women;. 'non-entrepreneurial work' (NEW), which encompasses child bearing /rearing, food preparation, household chores, among others not associated with generation of income.
2. In hypothetical developing economy, specifically Nigeria, many low-income households are characterized by a convention that mandates the woman to engage in entrepreneurial activities; based on this convention, the entire household (the woman inclusive) represents the real source of the demand for women to undertake economic work (entrepreneurship) thereby creating two sides (demand and supply) of a hypothetical market for *WE* within the household system wherein the policy intervention and other factors are exogenous variables only.

3. The demand curve derives from the Klein–Rubin or Stone-Geary type utility function of the form  $U = \alpha_1 \ln (WE - WE_1) + \alpha_2 \ln (NEW - NEW_1)$ , which captures the key features of two-commodity consumer behaviour that allows for some minimum subsistence quantities that are positive (Henderson and Quandt, 1980); the maximization of this utility produces a system of linear expenditure equations, which can be subjected to regression analysis to obtain the parameter estimates thereby avoiding the “inaccuracies” associated with direct estimation from the original utility function itself.
4. The supply curve is consequent upon the traditional production function of the form  $Q_{WE} = f ( X_1, X_2, X_3, X_4, X_5)$ , such that cost of production is a function of the quantity of  $WE$ ; then the partial differential of the cost function gives the marginal cost function, which represents the supply function under competitive market situation (Henderson and Quant op. cit.).
5. Thus the intra-household market equilibrium is obtained from interaction of the demand and supply functions, i.e.:  $S_{WE} = D_{WE} = Q^E_{WE}$  at  $P^E$ .

## **DATA, ANALYSIS AND RESULTS**

A multi-stage sampling was conducted from seven out of the twenty- one Local Government Areas of Benue state, Nigeria. Ten villages were randomly selected from each LGA followed by a random selection of ten households from each village. The sampling frame comprised one married woman per household. The LGAs surveyed were Makurdi, Tarka, Kwande, Guma, Otukpo, Ogbadibo and Ado, using a structured questionnaire as the main data collection instrument. A sample of 550 women provided the data for the study.

The production function,  $Q_{WE} = f(X)$  was fitted first wherein the quadratic functional form performed best, followed by generation of predicted values of  $Q_{WE}$  at the mean values of the explanatory variables. The cost function,  $C_{WE} = f(Q_{WE})$  was also fitted with the linear function performing best as presented in Table 1. The variables included in the analyses are defined as follows:

$Q_{WE}$  – Output from women’s economic activities in the household valued in monetary terms.

$X_1$  - Farm land at the disposal of women in hectare.

$X_2$  – Rent on land or accommodation for the non-farm enterprises in Naira

$X_3$  – Labour of household members or hired workers into farm and non-farm enterprises in man-days..

$X_4$  – Capital items in value terms

$X_5$  – Time spent by women per day on economic activities expressed in hours.

$X_6$  - Time spent by women per day on non-economic activities

$X_7$  – Opportunity cost of a day’s work of 8 hours in terms of prevailing minimum wage offered for public or private sector employment (whichever is higher).

The regression analysis produced parameter estimates that were statistically significant for land and capital, while the parameter estimates associated with accommodation and time were not statistically significant at 1% probability level (Table1). About 53% of the variability of  $WE$  was explained by all variables while non-use of the specified inputs was associated with negative value of  $WE$ . Similarly, the linear form of the cost function produced the best fit, bringing about the following lead equation.

$$C_{WE} = -467.336 + 3.0396Q_{WE}$$

Thus the marginal cost is 3.30396 Naira which characterize the supply curve for *WE* lineally as:

$$MC_{WE} = 3.0396 = P$$

A linear supply function connotes that the optimum quantity of *WE* that can be supplied is indeterminate, and the woman is not motivated by the price that the household is offering for *WE*, but rather by other non-price factors. That is, the woman's supply of *WE* is perfectly elastic implying that she is willing to offer any amount of her time required by the household to work, notwithstanding the price level.

The results obtained from the linear expenditure model were significant for the parameter estimates (1% probability level) as presented below:

$$E_{WE} = 346.8249 + 0.0032: \quad R^2 = 0.93 \\ (0.000031)$$

Thus empirical utility function monotonically transformed is:

$$U^1 = 0.0032 \ln(WE - WE_1) + 0.9968 \ln(NEW - NEW_1)$$

Upon maximization, this yields a rate of commodity substitution (RCS) amounting to 0.003. Substituting the parameter estimate and the mean values of the relevant variables in the demand model, the resulting empirical demand function for women entrepreneurship is:

$$D_{WE} = 714.62 + 300.91 (1/P)$$

At equilibrium,  $D_{WE} = S_{WE}$ ,

Given that,

$$S_{WE} = P = 3.0396,$$

$$D_{WE} = 714.62 + 300.91 / P$$

Then,

$$D_{WE} = 813.62, \text{ at equilibrium.}$$



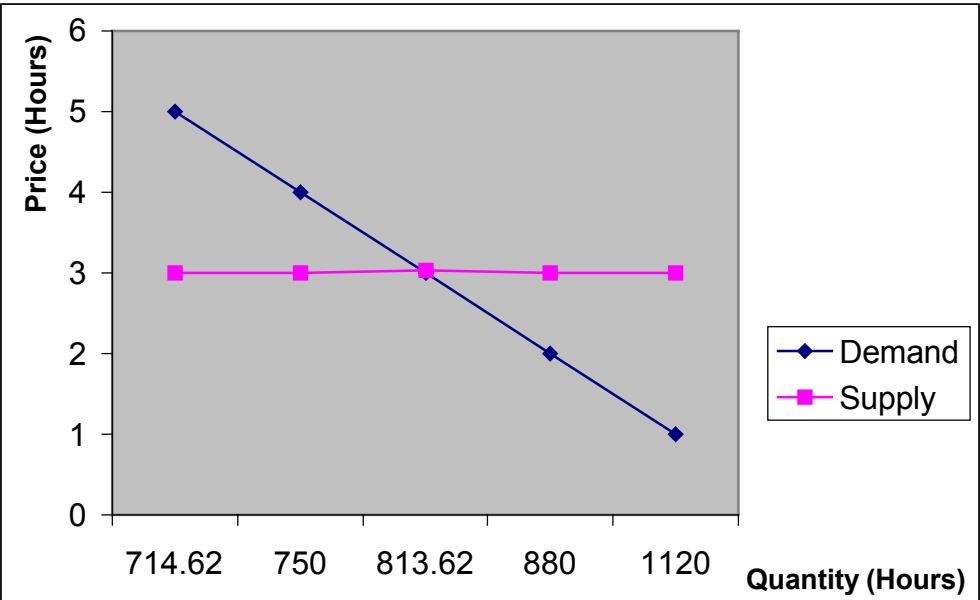
The substitution rate indicated that the low-income households show greater preference for *NEW* rather than *WE*. Consequently, an abnormal empirical demand curve result which indicates that households would desire 714.62 hours or about 30 days per year for women to engage in entrepreneurial work, without giving consideration to the time cost. This 'natural demand' for women to work reflects a minimum tendency beyond which incremental demand for *WE* results at a positive but decreasing rate of 300.91 hours or about 13 days unit time cost (hour). The incremental desire as indicated might be called "circumstantial demand' since it reflects the current opportunity cost of women's labour in the area. Finally, at the current price level the equilibrium demand for *WE* is about 813 hours or 34 days in the year. These results are graphically illustrated in Figure 1.

Table 1 Summary of Regression Results for Production, Cost and Linear Expenditure Functions

Variables	Estimate	t-Value ( $t_{0.05,548}=1.645$ )
<b>Production function</b>		
Land ( $X_1$ )	1136.1668	15.0980*
Accommodation ( $X_2$ )	0.3743503	1.5900
Capital ( $X_4$ )	0.0947439	198.8868*
Time ( $X_7$ )	0.0653236	0.2051
Square terms:		
$X_1^2$	-276.1414	20.9297*
$X_2^2$	-0.0000085	0.7402
$X_4^2$	-0.0000010	6.2809*
$X_7^2$	-0.0000095	2.3581*
Interaction terms:		
$X_1X_2$	0.0801707	1.3512
$X_1X_4$	-0.0082709	2.0601*
$X_1X_7$	0.1750300	41.4397*
$X_2X_4$	-0.0000048	53.6057*
$X_2X_7$	-0.0001906	6.0851*
Constant term: $\alpha$	-277.83865	-
( $R^2$ )	0.53	-
F-value	45.93*	-
<b>Linear cost function</b>		
Price (P)	3.0395721	60.9256***
Constant term: $\alpha$	-467.336	
( $R^2$ )	0.32	
F-value	60.93*	
<b>Linear expenditure function</b>		
Disposable time income	0.0031834	7508.082***
Constant term: $\alpha$	3467.8249	
( $R^2$ )	0.93	
F-value		

\*values are significant at 0.05 level .

- not applicable or unnecessary



**Figure1. Intra-household Equilibrium for WE**

## **DISCUSSION**

The intra-household market model helps us to determine the parameters of critical policy decisions about the appropriate public investment for achieving the goal of women empowerment. The results of the demand side analysis indicated that entrepreneurial work substitutes for non- entrepreneurial work at rather low rate, which implies women do not have much free time to undertake small- scale enterprises. For instance, family planning and other interventions that could reduce household size would invariably lead to an increase in ‘free’ time for women.

The household demand curve for women entrepreneurship is abnormal. This is probably due to the fact that the low-income household and the larger society attach some positive weight to the opportunity given to women to work. This predisposition of the society provides an opportunity to expand public investment projects that target women.

Further, the ‘natural demand’ for women entrepreneurship, estimated at 30 days serves as an important baseline for policy makers to guarantee the cooperation and participation of the households in economic empowerment programmes. However, the ‘circumstantial demand’ for women entrepreneurship is a function of (time) price. The (time) price is measured as the opportunity costs of women’s engagement in wage labour. Thus, in order to increase entrepreneurial activities in the low- income household, policies must target the reduction of women in wage labour. One possible means of achieving this goal is to substitute for women in the labour supply for construction work and other attractive menial jobs.

The results reinforce the importance attached to land and capital in the economic activities of the poor households. With specific reference to women these factors are associated with limited availability and accessibility in rural Nigeria where

culture and tradition pose severe constraints. In general Nigerian women do not own their own land so their farms are established on portions of land bequeathed to or held in trust by their husbands. Thus widows and single mothers are specially constrained to undertake farm ventures in their vulnerable positions. The role of capital is obvious which determines the degree to which women are able to put land to use in term of purchase of farm inputs and payment for labour. The non-significance of accommodation probably derives from the ability of poor communities to provide some form of space for the women to undertake economic ventures on the small scales. The non-significance of time factor suggests that women have much of this at their disposal that can be harnessed for productive purposes.

Results of the supply side analysis indicated low productivity of the important inputs. The observations of positive marginal products are indicative of efficient utilization of the inputs, but rising returns is typical of agricultural enterprises operation in “stage II” of production curve. The implication of this is that women could still expand their production by utilizing more of the inputs, namely land, and capital, at the present capacity levels. However, the values attached to elasticity of production are low suggesting that incremental use of land and capital would lead to small incremental outputs of *WE*. The policy concern should therefore, be how to increase the access of women to adequate amounts of land and capital while the presence of opportunities for private and public employment would increase the competitiveness of accommodation and women’s time.

Given that the horizontal supply curve for *WE* applies, this suggests that price is inconsequential, and the woman, viewing entrepreneurial activities as a mandatory role in the household, is willing to supply as much as the household requires regardless of price offered. So, the household demand for *WE* determines the

women's supply of *WE*, implying that policies that would shift the demand of the household for *WE* to the right would also encourage the women to supply more of *WE*.

The analysis indicated that the equilibrium quantity of *WE* is about 34 days equivalent in the year, which as found before, is less than the observed average *output* of women entrepreneurial work in the household (Ayoola 1999). This implies that the household economy is technically unstable, whereby the excess supply of *WE* is being demanded at a lower price as implicit in Figure 1. Also the equilibrium price is lower than the minimum wage for unskilled labour in the public sector employment (Ayoola op. cit), which implies that there is a strong tendency for women to prefer unskilled labour services to women entrepreneurial work in the household. The overall implication of these findings is that the outcomes of women empowerment programmes, or poverty alleviation programmes that target women from low-income households for cottage enterprises, such as the "Better Life for Rural Women", and the "Family Economy Advancement Programme" in Nigeria, would be constrained by the observed low household equilibrium quantity for *WE* that presently exists, coupled with the low household equilibrium price for *WE*. Hence the frequent instances of non-cooperation of the household members for women to participate in such programmes, and consequently the failure of such public programmes in terms of wrong flow of the policy benefits to unintended targets. In Nigeria, the group of such unintended beneficiaries as identified by Idachaba (1987) and others include the powerful urban elites, public servants and other women in positions of influence.

## **SUMMARY AND CONCLUSION**

The analysis provides useful insights into the nature of substitution between entrepreneurial and other household activities of women. It was found that the estimated parameters of the demand and supply functions have relevance to the effectiveness of intervention policies towards women empowerment and profitability from women entrepreneurship in Nigeria. Specifically, based on the empirical demonstration of the model, the present demand for married women's work from low-income households cumulates at about 30 days per year, which could increase if the time available for such enterprises increases. Furthermore the demand for small-scale household enterprises is directly related to the opportunity cost of women's time as well as to the demand for women's labour in the larger economy, while the crucial roles of land and capital were empirically confirmed as proximate determinants of women economic activity and productivity.

In conclusion, it does appear that decision by women to increase their economic output in the household is independent of imputed price of the output, with the implication that gender-segregated policies that promote access of women to land and capital would lead to increased household productivity and income. So also would policies that improve opportunities of women for paid employment help to increase the opportunity cost of their time and consequently to increase the value of their output from entrepreneurial activities in the household.

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