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Does women labour force participation contribute to economic growth? Empirical evidence from Nigeria.

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Abstract
This study empirically examines the impact of female labour force on Nigeria's economic growth from 1980 to 2018. Both ADF and PP techniques were employed in order to check for the stationarity of the time series data. From the stationarity result, all the variables were found to be stationary at level. Johansen co integration test was also employed whereby existence of long run relationship among the variables was established. Ordinary least square OLS method was used to estimate the parameters of the model. The OLS results revealed that both male and female labour force participation has positive and significant impact on Nigeria's economic growth over the period of study in both short run and long run, even though our main focus is on the coefficient of female labour force. The study therefore recommends that a policy that will give equal job opportunity as well as equal training and education across genders should be given priority.

Keywords: labour force, economic growth, female, OLS & empirical

1.0 Introduction

Gender differentiation and productivity are critical issues that are central to the socio-economic life of any country. Women contribute half or more of the country's population, but they contribute much less than men towards the value of recorded production both quantitatively in labour force participation and qualitatively in educational achievement and skilled manpower (ILO, 2016). The extent to which these phenomena are discussed varies from country to country. While the developed countries have practically graduated from endemic problems of gender differentiation, their less developed counterparts are still battling with it (ILO, 2016).

A close overview of world economies shows that women have often been looked down upon in terms of their ability to contribute to the economic well-being of their families which invariably has some correlation to their nation's economic growth. The under-utilization of female labour as well has obvious implications for economic welfare and growth. In particular, the participation of women in labour force appears to depend much more on the social environment than is the case for men. In view of the above, several arguments have been raised in favor

or against women in their roles towards economic growth and development.

The issue of low labour force participation rates for women has been of great policy concern in sub-Saharan Africa, especially since the sharp decline in the living standards of most family's consequent to the adverse impact of International Monetary Fund (IMF) and World Bank-driven structural adjustment programs and subsequent economic policy reforms adopted in the last two decades (AES, 2015). A key explanation for the policy concern is the need to address the significant adverse impact of low labour force participation on women's income earning capacity, a development that has exacerbated their poverty status and vulnerability in society.

Increased participation of women in economic activity and the labour force has also been a key policy objective in Nigeria for nearly two decades. Yet, the percentage of women in the total labour force hardly changed between 1970 and 2000, which remains around 45% (World Bank, 2002). This stagnation in women's participation rate must be viewed against the significant shift in the structure of the labour force from the dominance of the agricultural sector to services. Also, of significance are the enormous spatial and cultural diversities in the participation rates (Olusoji, 2004). It is widely recognized that full integration of women into the economy and higher labour supply are central to improving their relative economic conditions and optimal development of the growth potentials of the economy.

In the world today women account for almost half of the world's population, perform lesser of the hours of work, receive one-tenth of the world's income, and have less than one hundredth of the world's property registered in their names (ILO, 2013). In most countries' women contribute much less than men towards the value of recorded production both quantitatively in labour force supply and qualitatively in educational achievement and skilled manpower (Olukemi, 2008). In addition, female deprivation is particularly acute in the developing countries with high levels of poverty, though in affluent nations women also suffer low status due to conservative attitudes. Despite its significance for the development of women and the economy, the Labour Force Participation Rate (LFPR) of women has remained substantially lower than that of men in the world such that there were only 68 women per 100 men participating in wage earning productive activity in the 2001 (UNDP, 2003). The Labour Force Participation Rate (LFPR) of women varies widely from one country to another as well. In 2001, LFPR of women while staying below 30% in countries like Nigeria, Oman, Malta, Ghana, it was above 60% in countries like Iceland, Sweden, and Canada. The situation in some countries is somehow different when looking at the estimates presented by UNDP (2003). Female labour force participation rates in 1998 were about 77% in Canada, 95% in France, 74% in Germany, 67% in Japan, 84% in Sweden and 77% in the United States (Ehrenberg and Smith 2010).

In line with the above discussion, it is evident that female labour force can be effective in speeding up growth; yet it is a different scenario in countries like Nigeria. This study therefore intends to empirically determine the impact of women or Female Labour Force Participation on the economic growth of Nigeria over the period of thirty-eight years (1980-2018).

2.0 literature review

Empirical literatures

Mujahid, (2012) investigated the Economic Growth-Female Labour Force Participation Nexus: An Empirical Evidence for Pakistan. The study used time series data from 1980 to 2010 and applied the ARDL technique to determine the nexus between economic growth and female labour force participation. The result shows that there is a long run relationship between female labor force participation and economic growth in Pakistan.

Psachropoulos and T. Zannatos (1989) pioneered the search for the female labour determinants by examining the definitions and theories of female labour supply, relating them to statistical evidence from 136 countries in the early 1980s. The research finding support the view that, during the transformation from an agrarian subsistence economy, the participation of women in the labour force initially decreases and picks up later after a critical level of development has been achieved. The study noted that education is seen as a potential booster of the officially recorded female labour supply in developing countries.

Denton and Spencer (1997), investigated population, labour force and long-term economic growth. Using trend analysis technique, it was established that the major proportion of the Canadian population is aging. While the average age of the population was above 65 years, population growth rate was also declining. The labour force participation of Canadian population was also declining. It was established that the Canadian economy mostly depended on immigrants for its labour needs.

Jaumotte (2003), employed econometric analysis using a panel data of 17 OECD countries over the period 1985-1999 to investigate the determinants of female labour force participation. Findings suggest that there was a positive impact of neutral tax treatment of second earners on female participation. Unlike childcare subsidies, child benefits reduce female participation due to an income effect and their lump-sum character. The study concluded that, female education, the general labour market conditions, and cultural attitudes remain major determinants of female labor force participation in the Canadian economy. Duval, Eris & Furceri (2010) found that labour force participation hysteria, challenges or mental agitation is mostly less in the industrially advanced countries. The study used impulse-response function approach to establish the magnitude of the effect of labour force participation on industrial sector. A sample data of 30-countries from the time period of 1960 to 2008 was used. However, their result shows that adverse economic shocks have persistent effects on aggregate labour force participation. Verena et al. (2011) investigated the factors that encourage and discourage women from working, using household survey data and logistic regression modeling for Mauritius, 2006-2008. The results corroborated previous findings for developing countries and indicates that the higher a woman's educational level, the better her ability to supply her skills for productive services; and that older woman participate more, though the rate of growth of this effect decreases. In addition, secondary education proves to be a significant determinant of female labour force participation rate in Mauritius. Their results also reveal that married women are less likely to participate in the labour market. In fact, marital status is one of the most important factors averting them from work. It should be noted that, this study is based on the feminist theory which emphasizes on the gender biased of most of

the production theories where they are labelled as male-biased theories.

3.0 Methodology

The data for this study were obtained or sourced from National bureau of statistics and Central Bank statistical bulletin (2018-2019). Data on the male and female labour force (MLE and FLE) were sourced or obtained from national bureau of statistics (NBS) 2019, while data on GDP which proxies economic growth were sourced from Central Bank of Nigeria (CBN) statistical bulletin of 2019. All the data on the variables used in this research work were annual data in Nature. The data used were on the GDP, Female labour force employment (FLE) and Male labour force employment (MLE). With respect to the method of data analysis, this study employed unit root or stationarity test to check for the stationarity of the time series data and was based on the famous Augmented Dickey-Fuller (ADF) and Philps-Peron (PP) methods, however due to space constraint result of ADF will be presented in result and discussion section of the paper. Johansson Juselius co integration method was also employed to check for the long run co integration or equilibrium among the variables of the study. Finally, the Ordinary Least square technique was used to estimate the parameters of the model and to examine the nature of the relationship existing between the dependent variable and the explanatory variables.

4.0 Model Specifications

The study intends to examine the impact of women labour force Participation on GDP in Nigeria. This impact will be established with the inclusion of other factors such as male labour force participation to make the model multivariate one. To determine the relationship between women labour force and output, we specify the model in a functional form thus:

GDP= f (FLE, MLE)

The regression model for the purpose of testing our hypotheses will now be specified in the following econometric form.

$$GDP_t = \beta_0 + \beta_1 FLE_t + \beta_2 MLE_t + \mu_t$$

Where, GDP_t = Gross Domestic Product at time t

FLE_t = Female Labour Force Employment at time t;

MLE_t = Male Labour Force Employment at time t;

μ_t = Stochastic error term.

In this case, the growth rate of the Gross Domestic Product is the dependent variable while the female labour force and male labour force are the independent variables. Both independent variables are expected to have a positive impact on economic growth.

4.0 Results and discussions

Table 1.0 Unit Root Test Results (ADF)

Var.	Level		First Difference	
	Constant	**Constant and Trend**	**Constant**	**Constant and Trend**
GDP	-4.198** (0.003)	-4.255* (0.012)	-7.854*** (0.000)	-7.703*** (0.000)
FLE	-2.817* (0.062)	-2.869* (0.039)	-4.399** (0.001)	-4.007** (0.009)
MLE	-2.883* (0.016)	-2.298* (0.019)	-4.840** (0.003)	-4.553** (0.007)

Note ***, **, * denotes significance at 1%, 5% and 10% respectively.

The results from Table 1.0 show that when expressed in levels using ADF test, all the variables were found to be stationary. That is to say all the variables are stationary at level at both constant and trend. Thus, the null hypothesis of the unit root can be rejected for the given variables under study

namely; GDP, FLE & MLE, at both level and First difference values with both trend and without trend.

Table 2.0: Johansen-Juselius (JJ) Co integration Test Result

Null Hypothesis	Test Statistics		Critical values	
	Trace	Max-Eigen	Trace	Max-Eigen
None*	159.2094	92.78751	29.79707	21.13162
At most 1*	66.42184	57.23284	15.49471	14.26460
At most 2*	9.189004	9.189004	3.841466	3.841466

From Table 2.0, it can be observed that there is evidence of long run relationship between the dependent and all the independent variables (GDP, FLE and MLE). This is due to presence of co integration equations in the JJ test. This indicates that there is long-run relationship between economic growth, female labour employment and male labour employment in Nigeria over the period of study. Having obtain the long run relationship from cointegration result we can safely move ahead to estimate our OLS model.

Table 3.0:
OLS estimated result of the impact of women labour force participation on economic growth.

Dependent Variable GDP		
Regressor	**Coefficient**	**t-statistic (p-value)**
FLE	37.437***	4.362 (0.000)
MLE	7.073***	4.362 (0.000)
C	1877.946***	4.352 (0.000)
R^2	0.542	
F- statistics	9.540 (0.000)	
Durbin Watson stat (DW)	2.295	
Akaike info criterion (AIC)	6.209	
Schwarz Criterion	6.353	
N=38observations		

From table 3.0 the constant is 1877.946 which is the value of economic growth when the independent variables are held constant. The coefficient of female labour employment has a positive and significant impact on economic growth of Nigeria at 1% significance level. To be specific an increase in the unit of female labour force employment will increase economic growth by 37.437. This is actually not surprising because more labour force means increased productivity. Therefore increase in the female labour employment will surely increase productivity in an economy and hence economic growth and development.

The coefficient of male labour force employment also exhibits a positive and significant impact on economic growth at 1% significance level. A unit increase in male labour force will increase economic growth by7.073. The R^2 of 0.542 implies that, 54.2% of the total variation in the model can be explained by the independent variables as shown by the coefficient of determination R^2, the remaining 46% not being explained by the variables is contained in the error term. From the diagnostic tests or checks, Durbin Watson test as shown in the analysis is (2.295) which indicate that there is no positive serial correlation in the model; because the value is greater than two. The reported F-statistics suggest that the model is well fitted.

Table 4.0: Diagnostic Test results

Diagnostic test	F-statistics	p-value
Breusch-Godfrey Serial Correlation LM Test	0.387161	0.683

Ramsey RESET Test	0.177023	0.6795
Jaque Bera	2.446	0.294
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.85519	0.457
CUSUM	Stable	
CUSUM of squares	Stable	

From table 4.0 it can be observed that there is no serial correlation, Model is correctly specified, no heteroskedasticity and that data is normally distributed. This is because the reported p-values of all the diagnostic test suggest the acceptance of null hypothesis. The result for CUSUM and CUSUM of squares is presented as figures below.

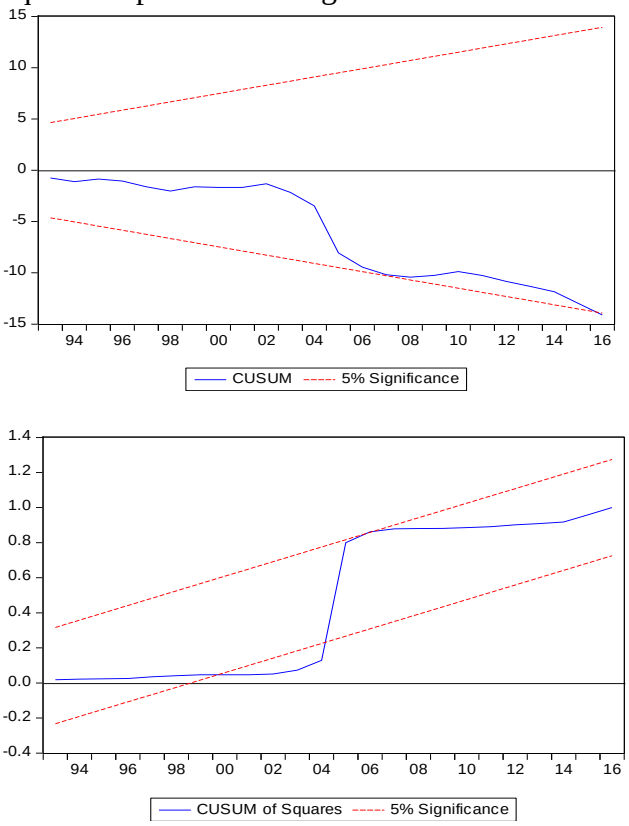

Figure 1.0
CUSUM and CUSUMQ Test results

The results for CUSUM and CUSUMQ also suggest that the model is stable and a good fit.

5.0 Summary and conclusion

This study empirically examines the impact of female labour force participation on economic growth of Nigeria. From the results obtained, female labour force Paticipation is positively related with the GDP and it's a priory sign conforms to economic growth of the economy. The result from the p-value shows that, the female labour force employment has a positive and significant impact on the GDP. Also, the regression result shows that male labour force employment has a positive relationship with the GDP of the country. The co-efficient of determination R^2 amounted to 0.542 which shows that the independent variables explain about 54.2 % of the variations in the dependent variable. The result from the f- test shows that the overall model is significant. In view of the above results, we can safely conclude that, both female and male labour force employment has a positive and significant impact on the economic growth of Nigeria. It should however be noted that, the main concern of this study is on the impact of female labour force on economic growth in Nigeria which was found to be positive and significant. The study therefore recommends that a policy that will give equal job opportunity as well as equal training and education should be embarked upon to match with the saying that 'what a man can do woman can do even better'.

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