OPEN ACCESS JOURNALS
Indiana Journal of Economics and Business Management
*Abbriviate Tittle- Ind J Econ Bus Manag*
ISSN *(Online)*- 2583-3758
Journal Homepage Link- https://indianapublications.com/journal/IJEBM
DOI: https://doi.org/10.5281/zenodo.15692751

INDIANA PUBLICATIONS
PRODUCTIVE AND QUALITY RESEARCH

Research Article

Volume-05|Issue03|2025

# Female Labour Force Participation and Its Impact on Economic Growth in Nigeria

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**Article History**
Received: 29.05.2025
Accepted: 15.06.2025
Published: 19.06.2025

**Citation**
Anyanwu, U. N. (2025). Female Labour Force Participation and Its Impact on Economic Growth in Nigeria. *Indiana Journal of Economics and Business Management, 5*(3), 31-43.

**Abstract:** Women are the bed rock of most economy in the world, women active participation in labour force is of utmost important, this study examines the consequences of not exploiting the potentials in the strength of the woman in the economic advancement of Nigeria, the study applied ordinary least squares(OLS) in connecting the relationships The study utilizes secondary data sourced from the World Development Indicators (WDI), National Bureau of Statistics (NBS), and International Monetary Fund (IMF) databases. The data span from 1981 to 2020, capturing key variables such as GDP, fertility rate, mortality rate, net migration rate, and labour force participation rates for both males and females. the study discovered that women participation in the work force is very low and accounts for the low performance of the Nigeria economy, it recommended among others that government should take deliberate polices to encourage women to give birth to only one or two children to enable them have time to work and remove other cultural hindrances

**Keywords:** Women Labour Force Participation, Economic Growth, Nigeria, Fertility Rate, Gender Disparity, Ordinary Least Squares (OLS)



## INTRODUCTION

Dynamics of populations studies the fluctuations of a population's size over time, as observed through rates of birth, death, immigration, and emigration.

Population of a nation is mostly made of male and female whose productive capacity are channelled to cause economic growth of an nation . Most developing nations like Nigeria tend to underutilize the potentials of the makeup of the strength of the nation. This could contribute to less than optimal performance of these counties. Women given the same traing and opportunities will contribute to the national wealth as much as men .In Nigeria and most of the developing nations have many hindrance towards women effective optimum contribution to the GDP. Most commonly among these hindrance are cultural practises that regards women as home makers, another issue is the nature, women are meant to give birth and nurture the young ones to certain age, during these period women tend to underutilize the potentials in other productive ventures that contribute directly to the GDP. If woman start giving birth from the age of 23 with an average of 4 children, that woman would only be available for active workforce at the age of 35 when the last child would have of school age, within this period her participation in labour force will be less than optimal all things being equal unlike the male. Women are known to be the engine of productivity of any nation and their contribution to the GDP tend to be more given that they are always more in population in most countries, these potentials must be harness if Africa must achieve the desired output. Women full participation in labour force must be of great priority. Studies on population growth are relevant given its implication to economic growth. In 2012, world population was just about 7 billion people (Martin *et al.*, 2021; New York Times, 2012); but recent records show that world population has increased 8.23 billion wuth approximately 4.05 billion being men and 4.18 being women (World Population Clock, 2025).

In the past, many countries of the world have regarded population growth and explosion as detrimental and a hindrance to economic growth and inimical to the improvement in the overall life of a people. In fact, many policy reviews on population have identified the negative influence of population dynamics on economic development of some countries of the world. However, recent studies reveal that population explosion can be a blessing rather than a curse as great benefits can be obtained from population growth if harnessed properly (Wesley and Peterson, 2017; Bloom *et al.*, 2003).

In Nigeria, Most women between the ages of 18 to 50 years are not contributing to their potentials to the total productivity of the economy. In 2023 the labour force participation rate for the female population in Nigeria was estimated at slightly over 52 percent. Since 2010, the rate has generally declined. For the last few decades, the significance of women to economic growth and development has been increasingly acknowledged in both academia and policy circles. This growing awareness represents the active involvement of women in various aspects of development, both through formal and informal production in recent years (Akyeampong &

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Fofack, 2012). A number of researchers have drawn on neoclassical and overlapping generation models to show that the potential contribution of women to growth would be even more significant in the absence of household occupational constraints, often exacerbated by the absence of or poor state of infrastructure in low-income countries like Nigeria (Agénor, Canuto and Pereira da Silva 2010; Fofack 2012; Shahid, 2014).

In 2015, in the population of Nigeria, women constitute 49.5 percent and men 50.5 percent of the population, and the labour force participation rate (LFPR) was 65.1 percent for women and 71.4 percent for men. In 2013, men constituted the bulk of employment in federal and state MDAs, and for the period, 2010-2015, on the average, 72.3 percent of senior positions in State Civil Service were occupied by men compared to 27.7 percent occupied by women (NBS, 2016). This is a pure indication that the number of males employed far outweighs the number of females.

Hence, the decline in women's economic activity is cause for concern to those who are interested in women's wellbeing as well as those who believe that women are valuable resources and must be utilised efficiently. Women's employment is a critical factor in their progression towards economic independence and is also considered as an indicator of their overall status in the society (Mammen and Paxson, 2000).

The percentage of female labour force participation rate (FLFPR) to the Total Female Population in Nigeria in 2014 was 42.4 % leaving the balance of 57.6% of Female Labour force Idle or simply not contributing to economic growth (World Bank, 2016). In Nigeria, poverty is prevalent among females, especially female heads of households. Female participation in economic activities is one of the existing means of alleviating poverty because it raises peoples' incomes through wages and related earnings. Hence, FLFP has to be promoted and the promotion requires the requisite knowledge and facts concerning the determinants of FLFP (Gift, 2013).

It is against this backlog that this study intend to empirically investigate the effect of women labour force participation in economic growth of developing countries evidence from Nigeria

Female labor force participation in Nigeria is lower than that of males, which limits the country's economic growth potential. Cultural practices, gender inequality, and societal expectations, such as women being primary caregivers, hinder women's workforce involvement. Gender discrimination in the workplace, including unequal pay, stereotypes, and fewer promotion opportunities, further exacerbate the issue. These barriers, combined with the pressure of unpaid domestic labor, prevent women from advancing in their careers or contributing fully to the economy. This study aims to explore how these challenges affect Nigeria's economic growth amidst a growing population.

**Statement of Problem**

Female and male labour force participation in Nigeria has a great role to play in the economic growth of Nigeria even as the population is increasing. Unfortunately, the percentage of female labour force participation in Nigeria is low compared to other countries of the world unlike male labour force participation. A greater percentage of women who are within the ages of 18 and 50 years are not contributing substantially to the productivity of the economy. Some of the reasons range from religion, cultural background, child-bearing and rearing, gender inequality etc. A religious and social practice of gender partition (purdah) prevalent among some Muslim and communities where females are secluded from the sight of men or strangers is one of the major ways of limiting women from labour force participation.

Cultural norms and societal expectations hinder women's empowerment and labour force participation. One easy and obvious way is that when women marry and have children, it's expected that the woman will be the major care giver for the children, and will be the one who stays home to look after them or works part-time so that she can pick them up from school/day care. Naturally, this halts her progress up the career ladder.

This study set out to investigate the effect of women labour force participate in the Nigeria Economy,

## THE REVIEW OF RELATED LITERATURE

This session is structured to provide a comprehensive overview of the key theoretical, conceptual, and empirical foundations that inform the study, as well as to justify the relevance of the research within the broader field of economic development.

**Malthusian Theory of Population**

In his book "An Essay on the Principle of Population" (1798) Thomas Malthus first articulated the Malthusian Theory. The theory postulates that population growth is always greater than the growth of the food supply which results in the occurrence of famine, disease, and mortality that act as natural limitations on the population growth. He relied on mathematics arguing that population increases geometrically while food production increases arithmetically creating a situation whereby the size of the population eventually meets the ceiling value of the major resources available leading to famine and starvation.

**Endogenous Growth Theory**

Endogenous Growth Theory, primarily developed by Paul Romer and Robert Lucas in 1986,

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posits that economic growth is primarily driven by factors within the economy, such as human capital, innovation, and knowledge. Unlike exogenous growth models, it emphasizes the role of policies, institutions, and incentives in fostering long-term growth.

**Productivity and Economic Growth**

In measuring of the productivity of a country, the amount of labour force participation is an integral and trajectory to the strength of such an economy A robust and active labour force is essential for driving economic activities, increasing productivity, fostering innovation and economic growth Numerous studies have examined the impact of labour force participation on economic growth, with a particular focus on gender differences. For instance, Okeke *et al.* (2020) explore the role of female labour force participation in Nigeria, finding that increased female involvement in the labour market significantly contributes to economic growth by enhancing overall productivity and reducing poverty. Similarly, Akinyemi and Isiugo-Abanihe (2019) emphasize that higher participation rates among both men and women can boost economic growth by expanding the active workforce and improving household incomes.

Elborgh-Woytek *et al.* (2013) extend this analysis globally, showing that gender equity in labour force participation can lead to substantial macroeconomic gains. Their findings are relevant for Nigeria, where socio-cultural barriers still limit women's economic contributions. Policies promoting gender equality in education and employment are therefore crucial for unlocking Nigeria's economic potential.

**Empirical Evidence of labour participation and the economy**

Ajakaiye and Adeyeye (2021) highlights that the labour force participation rate, especially among women, has significant implications for economic growth in Nigeria. They found that higher female labour force participation is associated with increased household incomes and better economic outcomes. However, they also noted that structural barriers, such as inadequate childcare services, gender discrimination, and limited access to quality education, restrict women's full participation in the labour market.

Fapohunda (2019) examined the role of youth employment in Nigeria's economic growth, emphasizing that youth unemployment remains a significant challenge. The study showed that despite Nigeria's large and youthful population, economic growth has been hindered by the mismatch between the skills of the labour force and the demands of the labour market. This highlights the need for targeted policies to enhance skills development and align education with market needs.

Anyanwu *et al.* (2021) examines the impact of youth unemployment on the economic growth of Nigeria. The study deployed time series data analysis whereby, some variables were regressed using theAuto Regressive Distributed LagARDL and Error Correction Mechanism ECM to assess the implication of youth unemployment in Nigeria, it found that youth unemployment has a significant negative impact in Nigeria economic growth.

Olaniyan and Okemakinde (2018) demonstrated that countries with higher human capital indices tend to have higher economic growth rates. In Nigeria, however, inadequate funding of the education sector, low literacy rates, and high dropout rates have impeded the development of human capital, thus constraining economic growth.

**Demographic Transition theory**

The demographic transition model explains how countries transition from high birth and death rates to lower birth and death rates as they develop. This transition has significant implications for economic growth, as changes in population structure can affect labor supply, savings rates, and investment patterns. The concept of the demographic dividend highlights the potential economic benefits of demographic transitions, where a decline in fertility and mortality rates leads to a larger working-age population relative to dependents. Bloom *et al.* (2015) provide evidence that countries experiencing a demographic dividend can see substantial economic growth if they invest in education, health, and job creation.

Nigeria, with its young population, is poised to benefit from such a demographic transition. However, realizing this potential requires targeted policies that address barriers to education and employment, particularly for women and youth. Akinyemi and Isiugo-Abanihe (2019) emphasize that without these investments, Nigeria risks missing out on the economic benefits of its demographic dividend.

**Empirical Evidence of demographic transition**

Bongaarts and Casterline (2019) examined the impact of demographic transition on economic growth in sub-Saharan Africa, including Nigeria. They found that countries that have made significant progress in reducing fertility rates tend to experience faster economic growth due to a lower dependency ratio and higher savings and investment rates.

In Nigeria, however, the demographic transition has been slow, with high fertility rates persisting despite declines in mortality rates. This has resulted in a high dependency ratio, which poses challenges for economic growth and poverty reduction (Ajaero & Onokala, 2022).

**Fertility Rates and Economic Growth Concept**

Fertility rates which significantly affect women population dynamics, influencing the age structure of the population, the dependency ratio, and labour market

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participation. Fertility rates are a key aspect of population dynamics with profound implications for economic growth. High fertility rates can strain resources, hinder educational attainment, and reduce labour market participation, especially among women. Studies such as Bloom *et al.* (2015) have demonstrated that reducing fertility rates through improved access to family planning and education can lead to a demographic dividend, where the working-age population grows relative to dependents, thus fostering economic growth.

In the context of Nigeria, where fertility rates remain high, these findings suggest that policies aimed at lowering fertility through reproductive health services and education could significantly enhance economic growth prospects. Akinyemi and Isiugo-Abanihe (2019) support this view, noting that demographic transitions characterized by declining fertility rates can create favourable conditions for economic development

**Empirical Evidence of fertility rate on working population**

Basu and Basu (2019) explored the impact of high fertility rates on economic growth, arguing that high fertility often leads to a higher dependency ratio, which can slow down economic growth due to increased costs for education and healthcare. In Nigeria, high fertility rates continue to pose a challenge for economic development, with large families often unable to invest adequately in the education and health of their children (Adedokun & Akinyemi, 2021).

Efforts to reduce fertility rates through family planning programs, female education, and improved reproductive health services have been shown to positively impact economic growth by enabling families to invest more in each child's education and health, thereby enhancing human capital development.

**Gender Inequality concept**

The impact of gender inequality on economic growth is well-documented, with studies showing that gender disparities in education, health, and employment can significantly hinder economic performance. Okeke *et al.* (2020) find that in Nigeria, reducing gender inequality could unlock significant economic gains by allowing more women to participate fully in the economy.

Global evidence from Elborgh-Woytek *et al.* (2013) supports this view, showing that gender equality in the labour market not only boosts growth but also enhances economic resilience. These findings justify the need for gender-sensitive policies that promote equal opportunities for all, thereby driving inclusive and sustainable economic growth in Nigeria.

**Boosting Female Labour Force Participation**

The major focus in this study is the role of female labour force participation in economic growth. Historically, women in Nigeria have been underrepresented in the labour market due to socio-cultural barriers, limited access to education, and restrictive gender norms (Okeke *et al.*, 2020). Enhancing women's economic participation is not only a matter of social justice but also an economic imperative. Research indicates that increasing female labour force participation can significantly boost GDP, reduce poverty, and improve overall economic resilience (Elborgh-Woytek *et al.*, 2013).

This study is justified in its emphasis on female labour force participation as a crucial determinant of economic growth. By examining the barriers that women face and exploring potential policy interventions, this research contributes valuable insights that can help close the gender gap in the labour market. This, in turn, aligns with Nigeria's commitments to gender equality as outlined in its national gender policy and international frameworks such as CEDAW (Committee on the Elimination of Discrimination against Women, 2017).

## RESEARCH METHODOLOGY

This study is grounded in the Endogenous Growth Theory, which emphasizes the role of human capital, innovation, and knowledge in driving economic growth. The theory posits that investments in human capital, such as female labour force participation, can significantly enhance productivity and, consequently, economic growth (Lucas, 1988).

The study employs a quantitative research design, specifically using time-series data to explore the relationship between women workforce and economic growth in Nigeria. This design is suitable for identifying patterns and relationships over time, allowing for an understanding of how changes in population variables influence economic outcomes (Gujarati & Porter, 2009). The quantitative approach facilitates empirical analysis through statistical methods, which enhances the reliability and validity of the findings (Wooldridge, 2015).

**Model Specification of the study**

The study employs an Ordinary Least Squares (OLS) regression model to estimate the effects of the independent variables on economic growth. The choice of OLS is based on its suitability for examining relationships between variables when the data meet certain assumptions such as linearity, independence, and homoscedasticity (Wooldridge, 2015). The model is expressed as follows:

$$GDP_t = \beta_0 + \beta_1 PopGrowth_t + \beta_2$$

Where:
$GDP_t$: Gross Domestic Product at time $t$
$PopGrowth_t$: Population Growth Rate at time $t$
$Fertility_t$: Fertility Rate at time $t$
$Mortality_t$: Mortality Rate at time $t$
$Net\ Migration_t$: Net Migration Rate at time $t$

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$FemaleLFP_t$: Female Labour Force Participation Rate at time *t*
$MaleLFP_t$: Male Labour Force Participation at time *t*
$\epsilon_t$: Error term

# RESULT PRESENTATION ANALYSIS AND DISCUSSION OF RESULTS

**Result Presentation and Analysis**

This sub-section presents the descriptive statistics of the population dynamics indicators that determine the economic growth in Nigeria. It shows their respective mean, median, maximum/minimum value, standard deviation and the Jarque-Bera normality test which is a goodness-of-fit test to ascertain if the sample data have the skewness and kurtosis that show normal distribution and Covariance analysis ordinary. This is a precondition for fitting the panel regression model. Table 1 below shows the descriptive statistics of all the variables in the study.

**Table 1: Descriptive Statistics**

| | LGDP | LPOP | LMR | LFLFP | FR01 |
|---|---|---|---|---|---|
| Mean | 11.78006 | 5.066799 | 4.548220 | 3.841890 | 5.940697 |
| Median | 12.25704 | 5.065566 | 4.522875 | 3.848650 | 6.078000 |
| Maximum | 13.73861 | 5.481000 | 4.823502 | 3.952243 | 6.459000 |
| Minimum | 8.555463 | 4.649595 | 4.226834 | 3.779777 | 5.143000 |
| Std. Dev. | 1.545734 | 0.254604 | 0.197333 | 0.030695 | 0.360446 |
| Skewness | -0.585490 | 0.000331 | 0.062038 | 0.558748 | -0.683203 |
| Kurtosis | 2.174419 | 1.759497 | 1.572158 | 7.173115 | 2.442474 |
| Jarque-Bera | 2.822570 | 2.115917 | 2.824427 | 25.66257 | 2.994610 |
| Observations | 33 | 33 | 33 | 33 | 33 |
| **Covariance Analysis: Ordinary** | | | | | |
| LGDP | 1.000000 | | | | |
| LPOP | 0.973866 | 1.000000 | | | |
| LMR | -0.968444 | -0.992618 | 1.000000 | | |
| LFLFP | -0.236223 | -0.305152 | 0.278649 | 1.000000 | |
| FR | -0.875228 | -0.947055 | 0.913372 | 0.318955 | 1.000000 |

**Source:** Author's computation

LGDP (log of gross domestic product) is the dependent which has a mean of 11.78 and a standard deviation of 1.54, indicating moderate variation in economic performance over the sample period (1990–2022). It has values which ranges from a minimum of 8.56 to a maximum of (13.74), with a median of (12.26). The LGDP is showing slight negative skewness (−0.59) which suggest that lower economic growth values are less frequent while the kurtosis (2.17) is close to normal distribution levels. It is observed that LPOP (log of population growth) mean is (5.07) with a standard deviation of (25%) shows relatively low variability which indicates that it is more stable and a predictable factor of economic growth (i.e increase in population growth will also increase GDP implying that there is strong and direct relationship between both variables) while the minimum and maximum values fall between (4.65) and (5.48). The value for skewness is close to zero (0.0003) which shows that the data is symmetrical, in other words, it is a balanced data for economic growth and kurtosis (1.76) of the population growth have a slightly flat distribution over the period. While the LMR (log of mortality rate) has a mean of 4.55, a standard deviation of 0.20, which ranges from 4.23 to 4.82, the skewness (0.06) and kurtosis (1.57) suggest the data is nearly symmetrical and slightly flatter than a normal distribution with a strong negative correlation (-0.968444) which indicates the higher the mortality rates the lower the GDP, reflecting an inverse relationship.

As for the Female labour force participation (LFLFP), it is relatively stable, with a mean of 3.84 and a very small standard deviation of 3%. However, the high kurtosis value (7.17) and a Jarque-Bera probability of nearly zero indicate significant deviations from normality, which could affect the analysis and may need adjustment. The final variable which is FR (fertility rate) has a mean of 5.94, with moderate variability (standard deviation of 0.36) while Its range spans from 5.14 to 6.46, with a skewness of −0.68 suggesting a slightly negatively skewed distribution. The kurtosis (2.44) is below the benchmark for normality, but the Jarque-Bera probability (0.22) indicates no significant departure from normal distribution. In summary, the variables exhibit varying degrees of variability and distribution patterns. The correlation matrix table under presents the correlation coefficient for the variables on the effect of the complete set of four prudential indicators and the economic growth in Nigeria as considered in this study. Pearson Correlation as a statistical method is employed to evaluate the strength of relationship among various variables and extent of linearity. The strong correlations between LPOP, LMR, and FR indicates these variables are significant factors influencing GDP while LFLFP may not be a significant factor because it has a weak correlations. Their directions (positive or negative) align with theoretical expectations about the impacts of population dynamics, mortality rates, female labour force and fertility on economic growth. As observed,

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there exists a negative relationship between LGDP and LMR, LGDP and LFLFP, LGDP and FR which implies that the larger one gets to the smaller the other and the same applies to other negative relationship variables. It is also noted that there is a positive relationship between LGDP and LPOP which implies that as one grows the other equally grows and the same applies to other positive relationship variables. Though high correlations among some independent variables (e.g., LPOP and LMR; LMR and FR) indicate potential multicollinearity, which could affect the reliability of regression estimates. That's why other diagnostic tests were run to address this issue.

**Evaluation of Estimates**

Unit root test is a test for stationarity in a time series data. Stationarity is present in a time series if a shift in time does not cause a change in the shape of the distribution and on the other hand, there is no stationarity if a shift in time causes a change in shape of the distribution. Unit root is a cause for non-stationarity.

**Table 2: Unit Root Tests**

| Variables | Elliott-Rothenberg-Stock DF-GLS | |
|---|---|---|
| | Level | First Diff. |
| **LGDP** | 0.203417 | -2.520578** |
| **LPOP** | -0.526294 | -2.283306** |
| **LMR** | 0.752123 | -2.261794** |
| **LFLFP** | -6.946506*** | 1.219237 |
| **FR** | 1.168680 | -2.660301*** |

Note: *, ** and *** stands for 10%, 5% and 1% level of significance.

**Source:** Authors computations

The Elliott-Rothenberg-Stock DF-GLS method of unit root test was used to determine the stationarity of the variables. The reason for this stationarity is to ensure valid regression results. The outcome of this unit root test using the Elliott-Rothenberg-Stock DF-GLS method for time series data shows that only LFLFP stationary at level and all other variables are stationary at first difference as seen in the unit root test table above.

**LGDP** (Log of GDP): Non-stationary at level (0.203417) but becomes stationary after first differencing (-2.520578**), significant at 5% level. **LPOP** (Log of Population Growth): Non-stationary at level (-0.526294) but stationary at first difference (-2.283306**), significant at 5% level. **LMR** (Log of Mortality Rate): Non-stationary at level (0.752123) but stationary at first difference (-2.261794**), significant at 5% level. **LFLFP** (Log of Female Labour Force Participation): Stationary at level (-6.946506*) at 1% significance level, indicating no need for differencing. **FR** (Fertility Rate): Non-stationary at level (1.168680) but stationary at first difference (-2.660301*), significant at 1% level. The mix stationarity of the variables at different levels I(0) and I(1) justifies the use of the ARDL model, as it is suitable for variables with different orders of integration. This confirms the appropriateness of the chosen methodology for this study.

**ARDL Bound Test**

The bounds test determines whether there exists a long-run equilibrium relationship (cointegration) between the dependent variable (GDP) and the independent variables (population growth, mortality rate, female labour force participation, and fertility rate). The ARDL bound test is presented in Table 3 which shows a significant long-run relationship for LGDP in Nigeria and the interest explanatory variables in the study. This is glaring with the **F-statistic** of 6.487202*** (significant at 1% level) which is greater than the upper bound of the critical value at 1% (4.37), 5% (3.49), and 10% (3.09) at levels of significance. The k, which is 4, indicates the number of regressors used in the model estimation. The optimal lag of the ARDL regression model is shown as (1,2, 1, 2, 3) which ensures an adequate representation of short-run and long-run dynamics; based on akaike information criteria (AIC).

**Table 3: ARDL Bounds Test**

| Specification | | Optimal lag | F-statistics |
|---|---|---|---|
| $\boldsymbol{LGDP = f}$(LPOP, LMR, LFLFP, FR) | | ARDL (1, 2, 1, 2, 3) | 6.487202*** |
| **Critical value bounds** | **1%** | **5%** | **10%** |
| 1(0) bound (k=4) | 3.29 | 2.56 | 2.2 |
| 1(1) bound (k=4) | 4.37 | 3.49 | 3.09 |

**Source:** Authors computation

There is a strong long-run equilibrium relationship between GDP, population growth, mortality rate, female labour force participation, and fertility rate. This result also confirms that population growth, mortality rate, female labour force participation, and fertility rate collectively influence GDP in the long run, even if some may have limited short-term effects. This long-run equilibrium suggests that the variables adjust to maintain a steady relationship over time. For instance: Policies targeting population growth or female labor participation may not yield immediate results but will impact GDP in the long term. The presence of cointegration justifies estimating both short-run and long-run dynamics, which is why ARDL is appropriate for the study.

**ARDL Normalized Long Run Estimate**

The normalized ARDL long-run regression estimate was used to investigate the determinants of population dynamics on economic growth in Nigeria as presented in Table 4 which shows that female labour force participation has no significant impact on economic

growth in Nigeria in the long run at the 5% level of significance. Although population, mortality rate and fertility rate has a positive impact on economic growth, as expected, this is because it is meant to cause an increase in economic growth.

**DepVar(LGDP) Table 4** Normalised Long Run ARDL Results

| Regressors | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LPOP | 24.06655 | 4.832060 | 4.980597 | 0.0001 |
| LMR | 14.63563 | 4.442756 | 3.294268 | 0.0046 |
| LFLFP | -6.412898 | 6.557510 | -0.977947 | 0.3427 |
| FR | 5.959365 | 1.356918 | 4.391840 | 0.0005 |
| C | -187.2796 | 39.22875 | -4.774040 | 0.0002 |

**Source:** Authors computations

There are several factors that can influence the economic growth of Nigeria but this research chose to cover limited number of them while being interested on how far female labour participation can impact the economic growth in Nigeria in the long-run which is one of the finding gaps in today's academic research. As observed in the table above, it is seen that **LPOP** (Population Growth) is Positive and significant (Coefficient: 24.06655, Prob: 0.0001) which suggests that an increase in population growth significantly impacts economic growth in the long-run. This means that as the population growth increases, it creates opportunities for a larger labour force and increased consumer demand that births potential economic expansion. This aligns with theories that suggest a growing population, when supported by proper infrastructure and policies, can be a significant driver of economic growth. In the other hand, **LMR** (Mortality Rate) is Positive and significant as well (Coefficient: 14.63563, Prob: 0.0046), indicating that higher mortality rates positively impact GDP in the long term, possibly reflecting reduced dependency ratios. This may seem counterintuitive, but it could be explained by the fact that lower mortality over time often reflects better health conditions and higher productivity of the labor force. While **LFLFP** (Female Labor Force Participation) is Negative and insignificant (Coefficient: -6.412898, Prob: 0.3427), showing a weak inverse relationship with GDP. This suggests that, while female economic participation is essential, structural barriers such as unequal access to education, skills gaps, and workplace discrimination etc may hinder their overall contribution to GDP. Finally, **FR** (Fertility Rate) is Positive and significant (Coefficient: 5.959365, Prob: 0.0005), indicating that higher fertility rates positively affect GDP, likely due to long-term labour force expansion in the long run. Higher fertility rates can contribute to a growing population, which eventually grows into a larger labour force and greater economic activity. The **Constant (C)** is Negative and significant (Coefficient: -187.2796, Prob: 0.0002) which represents other factors that can affect GDP that is not captured by the model in the long-run. The result implies that Population growth and fertility rates are the key drivers of GDP in the long run, while female labour force participation is not of important impact element of GDP in the long-run.

**DepVar (LGDP) Table 5:** Normalised Short Run ARDL Results

| Variables | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(LPOP) | -180.2828 | 54.79729 | -3.289995 | 0.0046 |
| D(LMR) | -7.070976 | 2.534980 | -2.789362 | 0.0131 |
| D(LFLFP) | 2.230667 | 0.487020 | 4.580240 | 0.0003 |
| D(FR) | 2.613562 | 0.642507 | 4.067754 | 0.0009 |
| ECM(-1) | -0.661616 | 0.092566 | -7.147497 | 0.0000 |

**Source:** Author computation

The short-run ARDL model captures the immediate effects of independent variables on GDP. **D(LPOP)** is Negative and significant (Coefficient: -180.2828, Prob: 0.0046) which indicates a short-term decrease in GDP with an increase in population growth. The effect of population growth on GDP is negative and significant. This indicates that a sudden increase in population can strain existing resources, infrastructure, and public services, potentially slowing down economic performance temporarily. For instance, rapid population growth might lead to higher unemployment rates or underutilization of the labour force in the short term. While population growth can drive economic growth in the long run, it requires strategic planning and investments in education, health, and job creation to manage short-term pressures. **D(LMR)** is Negative and significant (Coefficient: -7.070976, Prob: 0.0131) which suggests that higher mortality rates reduce GDP in the short run. The mortality rate has a negative and significant effect on GDP. This indicates that higher mortality can reduce economic output by reducing the size and productivity of the workforce, particularly in labour-dependent economies like Nigeria. Policies aimed at reducing mortality, such as investments in healthcare and social welfare programs, will benefit the economy both in the short term and long term. **D(LFLFP)** is Positive and significant (Coefficient: 2.230667, Prob: 0.0003), implying that an increase in female labor force

participation boosts GDP in the short run. Female labour force participation has a positive and significant effect on GDP. This indicates that when more women enter the workforce, it boosts productivity and economic output immediately, highlighting the potential of gender-inclusive economic policies. Empowering women through education, skill development, and inclusive workplace policies can unlock significant economic potential, particularly in the short term. **D(FR)** is Positive and significant (Coefficient: 2.613562, Prob: 0.0009), indicating that fertility rates positively impact GDP in the short term. The fertility rate also has a positive and significant impact on GDP. This indicates that an increase in fertility rate may provide immediate benefits, such as higher family consumption and demand for goods and services. While high fertility rates can benefit the economy, it is critical to manage population growth to avoid overburdening resources. Investments in family planning, maternal healthcare, and education are essential to ensure sustainable growth. **ECM (-1):** Negative and significant (Coefficient: -0.661616, Prob: 0.0000), confirming the model's stability and that 66.16% of disequilibrium in GDP is corrected annually. The error correction term (ECM) is negative and significant, confirming that the model adjusts to long-term equilibrium whenever there is a short-term disequilibrium. Specifically, about 66% of the short-term imbalances in GDP are corrected annually. This suggests that Nigeria's economy adjusts relatively quickly to shocks or changes in the factors under study. This finding demonstrates that any disruptions in GDP caused by changes in population dynamics, mortality, labour force participation, or fertility rates are corrected over time, ensuring long-term stability. Short-run dynamics differ from long-run results, with female labour force participation and fertility rates having positive impacts, while population growth and mortality rates negatively affect GDP.

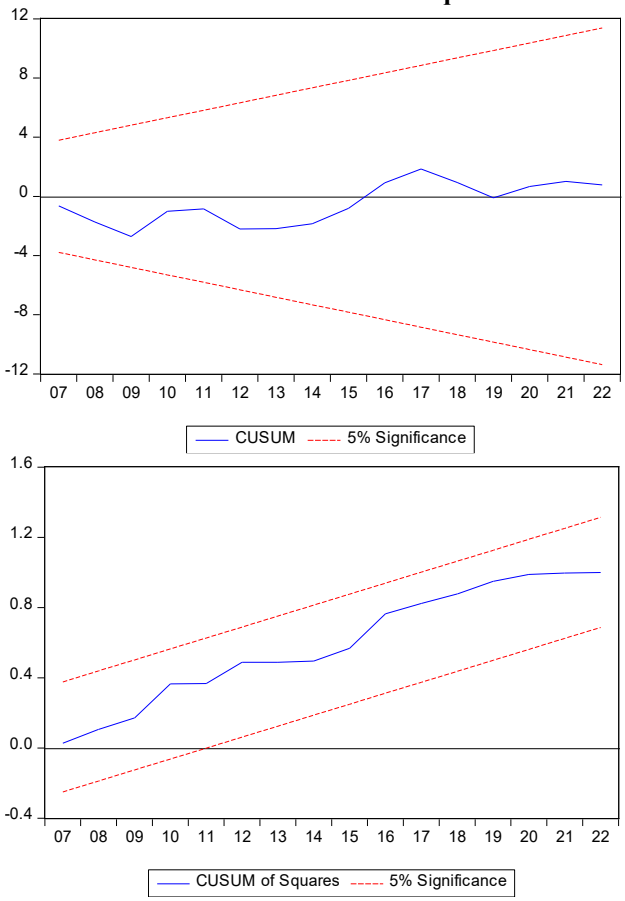
**Table 6: Diagnostic Tests**

| Specifications | LGDP |
|---|---|
| **$R^2$** | 0.818209 |
| **Durbin Watson** | 2.547025 |
| **Bruesch Godfrey** | 1.596829/0.2373 |
| **Bruesch Pagan** | 0.909650/0.5626 |
| **ARCH LM** | 0.002370/0.9615 |
| **RAMSEY** | 2.672766/0.1040 |
| **JARQUE BERA** | 0.238482/0.887594 |

**Source:** Researcher`s compilations from Eviews 10

The diagnostic tests evaluate the reliability and robustness of the ARDL model. The results of the diagnostic test in Table 6 show that there is no serial correlation in the model of this study according to the Durbin Watson and Bresuch Godfrey tests. The value of **$R^2$** is 0.998977 which indicates that 99.9% of the variation in GDP is explained by the independent variables. As **Durbin-Watson:** 2.547025 is close to 2, it implies that there is no autocorrelation. In the table above, **Breusch-Godfrey** (Serial Correlation) Prob (0.2373), **ARCH LM Test:** Prob (0.9615) and **Breusch-Pagan** (Heteroscedasticity) Prob (0.5626) results is greater 0.05 indicating that there is absence of serial correlation and heteroskdasticity in the model. **The J.B.** test Prob (0.887594) > 0.05 shows that the model GDP is normality of residuals, while the **Ramsey-Bisect** Prob (0.1040) > 0.05 test indicates that the model is correctly specified and that it has no issues of omitted variables. The model passes all diagnostic tests, confirming its reliability, validity, and robustness for policy recommendations.

**Table 7: Cusum and Cusum Squared**




The CUSUM (Cumulative Sum) and CUSUM of Squares tests are graphical techniques used to assess the stability of the coefficients in the estimated model over time. These tests are particularly important for ensuring that the model's parameters remain consistent during the sample period. In the Table 7 above, the blue line (CUSUM) lies entirely within the red dashed lines, which represent the 5% significance boundaries. Since the blue line does not cross the red boundaries, the null hypothesis of parameter stability cannot be rejected. This implies that the regression coefficients of the model are stable over time and fit for policy purposes. This means that the relationship between the dependent and independent variables does not change significantly throughout the sample period. While the blue line (CUSUM of Squares) remains within the red dashed lines, indicating that the residual variance is stable at the

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5% significance level. The model does not exhibit heteroskedasticity or structural breaks in the residual variance over time. This confirms that the error terms are homoscedastic and stable.

## SUMMARY

There is an evidential strong relationship between the basic variables as seen from the correlation matrix result. It is an ideal that anything that has strong positive relationship are determinants of each other, 'that is, this cannot do with the other one' and this can be seen singularly between LPOP and GDP, indicating that increase in population growth contributes to the expansion of economic growth. The reverse is the case in LMR and GDP which have a negative relationship due to poor healthcare that increases mortality rates but if there can be improvement in healthcare, it will enhance economic growth. Fertility rates also impacts GDP positively, noting that increase in fertility rates will increase survival of the population which will bring about increase in labour force participation that will enhance productivity in the economic, while female labour force participation shows a weak correlation which can be as a result of several factors such as gender diversity and gender inequality etc.

The unit root test results shows that only female labour force participation (LFLFP) is stationary at level while Population rate, mortality rate and fertility rate is non-stationary at level but stationary at first difference. The Autoregressive Distributed Lag (ARDL) model is the approved model to use whenever there is mixed stationarity as seen in the result and it is suitable for handling variables with different orders of integration.

The ARDL bounds test shows a long-run equal relationship between GDP and the independent variables, with an F-statistic of 6.487, which is statistically significant at the 1% level including other levels. While there is limitations of some of these independent variables on how it affects the economic growth at the short run relationship but they adjust over time to maintain a stable long run relationship.

The normalized long-run ARDL results show that population growth (LPOP), mortality rate (LMR), and fertility rate (FR) significantly has an impact on economic growth, while female labour force participation does not have a significant effect. This result implies that policies targeting population growth and health improvements could play an important role in sustaining Nigeria's economic growth if well carried out.

The short-run ARDL results shows that population growth (LPOP) have insignificant effects on the economic growth, which may be due to constraints of resources and inadequate infrastructures to maintain the need of a rapidly growing population. Mortality rate also have a negative impact on economic growth in the short term which may be as a result of reduction in labour force participation caused by mortality rate. But female labour force participation (LFLFP) and fertility rate (FR) have positive impact on economic growth, which implies that there is increase in short-term economic benefits when more women participate in the workforce and when population growth is in equal growth with consumer demand.

The error correction model (ECM) shows that there is approximately 66.16% of short-term disequilibrium in GDP which is corrected annually, meaning that economic growth in Nigeria adjusts relatively quickly to changes in demographic trends.

The diagnostic tests shows that the ARDL model is robust. The Breusch-Godfrey test shows there is no serial correlation, the ARCH LM test shows the presence of homoscedasticity, and the Jarque-Bera test validates the normality of residuals. Additionally, the CUSUM stability test shows that there is long-term reliability among the estimated model.

## CONCLUSION

The results of this finding provides a strong empirical evidence that female labour force participation play a vital role in shaping the economic growth of Nigeria. Other findings include

**Management of population:**

Population should be controlled and monitored to the desired level in such a way to encourage more women in productive ventures

**Improving Healthcare:**

Mortality rate have a negative effect on economic growth, proving that there is need for policies that improve healthcare systems in other to enhance workforce productivity.

**Gender inclusiveness:**

Female labour force participation does not have significant impact on GDP in the long run, which may be due to structural barriers/challenges such as limited access to education, workplace discrimination, and cultural restrictions. This could also be explained by the long period women spend in raising their children for instance a young lady of 20 years may not be able to return to labour force fully till she is 35 of age assuring that is to have 4 children and the time when the last child will be 6 year age of primary school , so during this period FLFP will be less than optimal While short run gains more from the increase of female participation provided that there is compelling case for policies aimed at removing these structural barriers.

**Managing the level of fertility:**

Fertility rates have positive influence on GDP, suggesting that a growing population can be beneficial if the limited resources are managed effectively.

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In conclusion, the need for female, labour force participation is an important role in shaping economics outcomes. The long-run benefits of a growing and healthier population shows the need for population management policies in fostering sustainable economic growth/expansion, while addressing short-term constraints related to hindering female labour force participation in Nigeria

## RECOMMENDATIONS

1. The government should deliberately discourages those cultural practises that intend to limit women achieving fully their potentials.
2. Government should deliberately women to spend less time raising children by giving incentive to women that give birth only one or two children. This enable women have enough youthful time work
3. There should be Policies that will focus on maternal and child healthcare programs to improve life expectancy and long-term economic contributions
4. Balanced population growth with economic development requires good policies geared towards ensuring adequate investments in education particularly for the girl child
5. The population growing force should be monitored through data analysis collection so that the future of population can be predicted and be used to make adequate planning to keep the GDP steadily improving both in the short run and long run period.
6. The government should introduce policies that promote gender equality in the workforce, including access to education, skills training that can serve as paid internship, and financial support for female entrepreneurs like grants, low-interest loans and free mentorship programs.
7. Workplace policies for female participation should be reformed to eliminate barriers such as; wage gaps and discrimination, barriers that limits the female from participating in some political positions/offices.

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