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Contributions of women workforce to the Nigerian economic growth from 1990 to 2022

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Abstract

The study employs descriptive and econometric methods in examining the contribution of women's participation to the economic growth of Nigeria from 1990 to 2022. Data sources employed were World Bank Development Indicators. Through examination of the data, the study finds that industry remains the largest employer of women in Nigeria, followed by the agricultural sector. Besides, the contribution of female employment in agriculture, services, and manufacturing sectors on Nigerian economic growth was found to be negative although statistically insignificant. Similarly, the female labor participation rate also does not have any significant effect on the economic growth of the nation. In response to these findings, the study recommends that Nigerian policymakers and other stakeholders' direct investment to the industrial, service, and agricultural sectors in order to promote SDG 8—inclusive economic growth—through increased involvement of women in the working population. Gender balance also must take center stage in recruitment exercises in these sectors as a method of reducing discrimination against women in jobs *(Afr J Reprod Health 2026; 30 [4]: 105-114).*

Keywords: Agricultural sector, service sector, industrial sector, GDP

Résumé

Cette étude utilise des méthodes descriptives et économétriques pour examiner la contribution de la participation des femmes à la croissance économique du Nigéria de 1990 à 2022. Les données proviennent des Indicateurs de développement de la Banque mondiale. L'analyse de ces données révèle que l'industrie demeure le principal employeur de femmes au Nigéria, suivie du secteur agricole. Par ailleurs, la contribution de l'emploi féminin dans les secteurs de l'agriculture, des services et de l'industrie manufacturière à la croissance économique nigériane s'avère négative, bien que statistiquement non significative. De même, le taux d'activité féminine n'a pas d'effet significatif sur la croissance économique du pays. Au vu de ces résultats, l'étude recommande aux décideurs politiques nigérians et aux autres parties prenantes d'investir directement dans les secteurs industriel, des services et agricole afin de promouvoir l'ODD 8 – une croissance économique inclusive – grâce à une participation accrue des femmes au marché du travail. L'équilibre entre les sexes doit également être une priorité lors des recrutements dans ces secteurs afin de réduire la discrimination à l'égard des femmes à l'emploi. *(Afr J Reprod Health 2026; 30 [4]: 105-114).*

Mots-clés: Secteur agricole, secteur des services, secteur industriel, PIB

Introduction

One of the major challenges facing the Nigerian economy is the persistent rise in unemployment, a trend that has continued over several years[1, 2]. In the previous decade, the proportion of women in total employment in Nigeria has seen a slight increase. In 2019, approximately 51% of women were employed within the total female labor force, while 59.8% of men were employed as a share of the total male labor force[3]. Meanwhile, in an attempt to investigate the degree to which women participation in the labour market translates to economic development in Nigeria, it is imperative to begin such an investigation with a brief discourse on the state of patriarchy in Nigeria and developed parts of the world. Patriarchy is a socio-economic phenomenon that seeks to explain the somewhat subjugation of

women in the quest for a society to attain economic growth and development[4]. Some crucial questions arise at this juncture: What is the origin of patriarchy? Has the dominance of men over women in economic affairs existed since the dawn of human society, or did it emerge with the advent of private property and the establishment of the state? When did men first come to hold economic power over women in the development of nations? [5].

Most religions of the world posit that men have always been dominant in economic related affairs. Even while rejecting the idea of male superiority, many 'androcentric' sociologists and anthropologists have argued that from the earliest stages of human society, men—cast as "the hunters"—dominated the social realm, establishing cooperative and productive relations, while women, as caretakers, focused on the domestic sphere. According to this view, this division of roles has remained largely unchanged throughout history[4, 5].While countries of the developed world have gradually broken away from their different nuances of patriarchal syndromes, and brought women to the forefront of economic growth, this is not the case with Nigeria and other economically backward countries in Africa[6]. The shift away from patriarchy in economically advanced countries may have been driven by a growing body of empirical research highlighting the strong connection between gender equality and inclusive economic growth[7]. However, from pre-colonial traditional Nigerian society to its present state, women have faced discrimination in labor force participation, which hinders economic development[8]. In contemporary Nigeria, women continue to be excluded from certain job sectors due to both formal and informal barriers to entry[8].

In 2008, Nigeria's real GDP grew at an annual rate of 1.93%, reaching $397.27 billion, which was a notable increase compared to the 0.82% growth rate recorded in 2017. However, reports from the IMF suggest that if Nigeria were to address gender inequality in female employment, the economy could potentially grow by an additional 1.25 percentage points or more on average[7].

The above optimistic posture about female employment in Nigeria's economic growth should only be seen as a hypothetical position. There is the need for researchers to undertake a more robust and rigorous study on the nexus between female employment and economic growth in Nigeria, which accurately mirrors the relations between these two variables, in recent times. That is the main objective of this current study.

Literature review

So many related works have been undertaken in various parts of the world especially in Nigeria on employment related issues and economic growth. Onwachukwu[9] investigated the factors influencing Nigeria's unemployment rate between 1980 and 2016. Using the Ordinary Least Squares (OLS) method of estimation, the study revealed that government expenditure, inflation, and population growth had a major influence on changes in unemployment in Nigeria during the study period. However, the first lag in unemployment and Real GDP did not exhibit any statistically significant effect on unemployment. Based on these findings, the research recommended that the government should ensure a rise in the share of capital expenditure in the national budget and merge mechanisms for tracking projects in order to enhance implementation efficiency. Ebulonu and Eleonu[10] explored how gender inequality affected economic growth in Nigeria between 1990 and 2016. Using standard least squares regression, they found that male school enrollment and female employment directly affected Nigeria's economic growth. It was inferred from their study that gender inequality needs to be overcome in achieving sustainable economic growth and recommended policies that improve education, access to the labor market for women, and bringing employment opportunities. Young[11] applied the autoregressive distributed lag in studying the dynamics of labour force and its effects on economic growth between 1970 and 2015 in Nigeria. There were positive influences of great magnitude of labour force dynamics on economic growth in both the short and long periods, according to the study. Based on this observation, the study recommended that the implementation of policies that will spur employment so that real GDP grows steadily should be embraced by the country`s policymakers.

Adofu and Okwanya[12] explored the role of economic growth towards the female labor force growth in Nigeria from 1985 to 2016. Utilizing dynamic OLS and autoregressive distributed lag techniques, they submitted that the female labor force growth had an effect on the nation`s economic

prosperity negatively. The authors suggested interventions to improve the productivity of the female labor force in Nigeria. Yakubu et al.[13] tested the influence of participation of labour on Nigeria's economic growth between 1990 and 2017 using an error correction model. They found that both economic growth and labor force participation experienced long run convergence, and recommended policy interventions to manage gender inequality and unemployment in Nigeria. Kalu et al.[14], in their work on the gender moderating relationship between economic development and unemployment in Nigeria between 1981 and 2017 applying an ARDL model. The study found that women's unemployment positively impacted GDP growth while youth unemployment negatively affected GDP growth. The authors recommended widening investment in capital towards productive sectors to stimulate job creation. Anyawu et al.[15] assessed the linkage between women's labor market participation and economic growth in Nigeria between 1981 and 2015. The authors opined that female labor market participation had an adverse effect on economic growth. They submitted that the implementation of active labor market policies to promote women's labor participation, advancing Nigeria's entire economic growth and prosperity should embarked upon.

Hjazeen et al.[16] analyzed the impact of unemployment on Jordan's economy between 1991 and 2019 using ARDL model in an investigation of the interplay among unemployment and other variables. Empirical evidence from their research proved that a long-run relationship between unemployment, economic growth, female population, education, and urbanization in Jordan. The research identified relationships among unemployment and economic growth, education, female population, and urbanization. Thaddeus et al.[17] analyzed the role of women's labor force participation in economic growth for sub-Saharan Africa between 1991-2019. Using autoregressive distributed lag analysis for 42 sub-Saharan African nations, authors found that while the long-run impacts were significant and negative, the short-run impacts were not significant, suggesting female labor force participation in sub-Saharan Africa could have a depressive impact on economic growth. The research recommended increasing women's economic empowerment to increase the female labor force participation and trigger economic growth in SSA.

Methods

Research Design

An ex post facto research strategy was deemed the most suitable approach for this study due to its technical alignment with the research objectives. The study utilized secondary data spanning from 1990 to 2022, sourced from the World Development Indicators (WDI) database published by the World Bank[18]. The analysis focuses on the relationship between female employment and economic growth. Economic growth serves as the dependent variable, while the independent variables include female employment in the agricultural, service, and industrial sectors, female labor force participation rate, inflation rate, and gross fixed capital formation.

Model Specification

Developing a model for investigating the relationship between female labor and economic development in Nigeria needs to draw on previous empirical research evidence. In accordance with this, this research model draws on earlier research by Olowookere *et al*.[19] and Aderemi *et al.*[1] as follows.
Gross Domestic Product = f (Female Employment)The labor force participation rate, inflation rate, and gross fixed capital formation are introduced as control variables to equation (1) in order to enhance the model's robustness. As a result, the equation was expanded as;

$$GDP = f(FEMPA, FEMPS, FEMPI, FLFPR, INF, GFCF) \quad (2)$$

Change of equation (2) into an econometrics function leads to the following equation.

$$GDP_{it} = \alpha_0 + \beta_1 FEMPS_{it} + \beta_2 FEMPS_{it} + \beta_3 FEMPI_{it} + \beta_4 FLFPR_{it} + \beta_5 INF_{it} + \beta_6 GFCF_{it} + \mu_{it} \quad (3)$$

Where;
GDP = Economic growth.
FEMPA = Female Employment in Agriculture.
FEMPS= Female Employment in Service.
FEMPI = Female Employment in Industry.
FLFPR = Female Labor Force Participation Rate.
INF = Inflation Rate.
GFCF = Gross Fixed Capital Formation.
α_0= Intercept.
$\beta_1 - \beta_6$= Coefficients of independent variables.
μ_i= Stochastic or error term and,t = 1990- 2022.

Direction of causality between female employment and economic growth

To estimate the causality between female employment and economic growth in Nigeria, the principle adopted in the works of Lawal *et al*.[20] and Opele *et al*.[21] was followed in this study. The specification of the principle is included in model 4-7 as follows.

$$GDP_{it} = \alpha_0 + \sum_{i=1}^{n} \alpha_i GDP_{2it-i} + \sum_{j=1}^{n} \beta_j FEMPA_{it-j} + \sum_{k=1}^{n} \delta_k FEMPS_{it-k} + \sum_{l=1}^{n} \delta_l FEMPI_{it-k} + U_{1it} \quad (4)$$

$$FEMPA = \alpha_0 + \sum_{i=1}^{n} \alpha_i FEMPA_{2it-i} + \sum_{j=1}^{n} \beta_j FEMPS + \sum_{k=1}^{n} \delta_k FEMPI_{it-k} + \sum_{l=1}^{n} \delta_l GDP_{it-k} + U_{2it} \quad (5)$$

$$FEMPS_{it} = \alpha_0 + \sum_{i=1}^{n} \alpha_i FEMPS_{2it-i} + \sum_{j=1}^{n} \beta_j FEMPI_{it-j} + \sum_{k=1}^{n} \delta_k GDP_{it-k} + \sum_{l=1}^{n} \delta_l FEMPA_{it-k} + U_{1it} \quad (6)$$

$$FEMPI_{it} = \alpha_0 + \sum_{i=1}^{n} \alpha_i FEMPI_{2it-i} + \sum_{j=1}^{n} \beta_j GDP_{it-j} + \sum_{k=1}^{n} \delta_k FEMPA_{it-k} + \sum_{l=1}^{n} \delta_l FEMPS_{it-k} + U_{1it} \quad (7)$$

Estimation Technique

A fully modified least squares is a preferred method of estimation in the study. This technique is employed since it is an analytical instrument employed for estimating unknown parameters in the study. The regression model includes deterministic variables, integrated processes, and powers thereof as regressors, allowing the error terms to be correlated between equations, over time, and with the explanatory variables. Furthermore, the model is structured to ensure that applying the standard least squares method results in estimators that are asymptotically efficient. This technique was used to determine the association between women's workforce and economic growth. The dependent variable is economic growth which is proxied by gross domestic products, and the independent variable which is women work force proxied by the following set of variables, female employment in agriculture, female employment in service, female employment in industry and female labor force participation rate.

Ethical consideration

Appropriate ethical procedures and guidelines were used to obtain data from the WDI. As a result of this, further ethical issues were minimal. Therefore, additional ethical clearance was not sought for this study.

Results

The descriptive characteristics of the employed data were displayed in the above Table in order to provide comprehensive information about the description of the various variables in this study. Firstly, GDP in a logged form in Nigeria from 1990 to 2022 possesses an average value of 5.27%. The values vary between a high of 8.95% and a low of 2.02%. Employment in agriculture of females (FEMPA) is 35.18% on average. However, the value of FEMPA ranges between 43.48% and 24.63% during the period of the analysis. In the same vein, the mean value of female employment in service sector, FEMPS is 14.53%. FEMPS possesses 17% as its maximum value and 10.55% as its minimum value simultaneously. Female employment in industry, FEMPI records an average value of 44.48% alongside 52.28% and 36.72% its maximum and minimum values at same time. In addition, female labor force participation rate, LFPR has a mean value of 55.15%, in which its maximum value and minimum value register 56.9% and 51.45% respectively over the period of the analysis.In Table 4, it has become clearer that non-stationary time series data represents a serious threat to empirical research, increasing the likelihood of erroneous or pointless regressions. In terms of its applicability and consequences for policy, this problem calls into question the legitimacy of empirical research. In order to solve this issue, this work does a pre-estimation analysis of the stationarity properties of the data utilizing pertinent unit root tests, especially the Augmented Dickey Fuller and Phillips Perron tests. Based on the findings in Table 5, it could be shown that the unit roots of GDP, FEMPA, FEMPS, and FEMPI are found in the second differencing. On the other hand, FLFPR, INF, and GFCF have their unit origins in the first differencing. These results suggest that these variables have both I (1) and I (2) stationary features, which might lead to short-term divergences among the variables. Accordingly, an additional step was undertaken to examine the potential long-run relationship among these variables using the Johansen Cointegration Test, with the results presented in Table 6.

Table 1: A-priori expectations

Abbreviation	Variables	Parameters	Expected Value
FEMPA	Female Employment Agriculture	β_1	Positive (+)
FEMPS	Female Employment Service	β_2	Positive (+)
FEMPI	Female Employment	β_3	Positive (+)
FLFPR	Female Labor Force Participation Rate	β_4	Positive (+)
INF	Inflation Rate	β_5	Negative (-)
GFCF	Gross Fixed Capital Formation	β_6	Positive (+)

Source: Authors` (2025)

The apriori expectation of the study has been stated in table 1 to determine whether this current empirical inquiry conducted in Nigeria is consistent with the existing theory or past studies.

Table 2: Measurement and definitions of variables

Abbreviation	Description of variables
GDP	Economic growth. This is proxied by gross domestic products, and the log value of this variable was used for empirical analysis.
FEMPA	Female employment in agriculture. This is measured by the percentage of women employment in agriculture vis-à-vis total female employment.
FEMPS	Female employment in service. This is measured by the percentage of women employment in service sector vis-à-vis total female employment.
FEMPI	Female employment in industry. This is measured by the percentage of women employment in industry vis-à-vis total female employment.
FLFPR	Female labor force participation rate. This is measured by the percentage of total female employment vis-à-vis female population ages 15-64
INF	Inflation rate. This is measured by inflation, consumer price, annual percentage.
GFCF	Gross fixed capital formation. This is proxied by gross fixed capital formation as a percentage of GDP

Table 3: Descriptive statistics

Descriptive Statistics	GDP (%)	FEMPA %)	FEMPS %)	FEMPI (%)	LFPR (%)	INF (%)	GFCF (%)
Mean	5.27E+13	35.18064	14.53724	44.48708	55.15198	18.08467	28.74951
Median	3.04E+13	36.08263	14.57748	44.68734	56.62200	12.87658	27.49712
Maximum	8.95E+11	43.48763	17.00234	52.28580	56.92500	72.83550	53.18669
Minimum	2.02E+14	24.63433	10.55844	36.71874	51.45800	5.388008	14.90391
Std. Deviation	5.83E+13	6.958038	2.123706	5.960431	2.315951	16.10793	10.90219
Skewness	1.025906	-0.232693	-0.195905	-0.012992	-0.770513	2.198991	0.409091
Kurtosis	2.945212	1.511538	1.457953	1.355972	1.663613	6.826438	2.166878
Jargue-Bera	5.792779	3.344140	3.480709	3.717318	5.720950	46.72782	1.874833
Probability	0.055222	0.187858	0.175458	0.155881	0.057242	0.000000	0.391638
Sum	1.74E+15	1160.961	479.7290	1468.074	1820.015	596.7940	948.7339
Sum Sq. Dev.	1.09E+29	1549.257	144.3240	1136.856	171.6361	8302.893	3803.450
Observations	33	33	33	33	33	33	33

The Johansen Cointegration test was used to look into the possibility of long-term convergence among these variables after it was determined that the unit root problem might cause short-term divergence among several variables in the preceding table. It was inferred from Table 6 that the estimated model has a maximum of six cointegrating equations. This result firmly establishes the existence of long-term convergence among the relevant variables. Therefore, Modified Ordinary Least Squares (FMOLS) becomes an appropriate technique of estimation in this study.

Table 4: Stationarity tests

Variable	Level	Prob.	1st Diff.	Prob.	2nd Diff.	Prob	Remark
GDP	-2.957110	1.0000	-2.971853	0.9999	-2.963972	0.0000	I (2)
FEMPA	-2.960411	0.6846	-2.960411	0.2423	-2.967767	0.0007	I (2)
FEMPS	-2.963972	0.2952	-2.960411	0.1747	-2.963972	0.0000	I (2)
FEMPI	-2.960411	0.4513	-2.960411	0.1579	-2.963972	0.0003	I (2)
FLFPR	-2.960411	0.7015	-2.963972	0.0044			I (1)
INF	-2.957110	0.2253	-2.963972	0.0021			I (1)
GFCF	-2.957110	0.1189	-2.960411	0.0010			I (1)
			Phillips Perron Test				
GDP	-2.957110	1.0000	-2.960411	0.9984	-2.963972	0.0000	I (2)
FEMPA	-2.957110	0.9674	-2.960411	0.2123	-2.963972	0.0010	I (2)
FEMPS	-2.957110	0.9098	-2.960411	0.2121	-2.963972	0.0000	I (2)
FEMPI	-2.957110	0.6963	-2.960411	0.1233	-2.963972	0.0002	I (2)
FLFPR	-2.957110	0.9205	-2.960411	0.0433			I (1)
INF	-2.957110	0.1421	-2.960411	0.0010			I (1)
GFCF	-2.957110	0.1293	-2.960411	0.0011			I (1)

Table 5: Johansen cointegration investigation

Hypothesized No. of CE(s)	Trace test	Prob.	Max-eigen test	Prob.
None	245.6801	0.0000	72.33107	0.0000
At most 1	173.3490	0.0000	55.02345	0.0005
At most 2	118.3256	0.0000	47.83837	0.0006
At most 3	70.48721	0.0001	31.85539	0.0132
At most 4	38.63182	0.0037	22.27430	0.0344
At most 5	16.35752	0.0370	16.27160	0.0238
At most 6	0.085920	0.7694	0.085920	0.7694

Table 6: Fully modified ordinary least squares (FMOLS)

Regressors	Coefficient	T-Statistics	Prob.
FEMPA	-2.00E+13	1.728923	0.0962
FEMPS	-8.57E+12	0.613003	0.5454
FEMPI	-3.06E+12	0.468861	0.6432
FLFPR	7.20E+12	1.199699	0.2415
INF	2.83E+11	1.903272	0.0686
GFCF	2.71E+12	5.700973	0.0000
R- squared	0.962340		
Adjusted R- Squared	0.953302		

Table 6 presents the findings of the analysis on the association between female employment and economic growth in Nigeria, estimated using the completely modified ordinary least squares (CM-OLS) method. The model's explanatory variables—female employment in agriculture, services, and industry; female labor force participation rate; inflation rate; and gross fixed capital formation—together explained approximately 96.2% of the systematic variations in the dependent variable, economic growth.The remaining 3.8% was attributed to random factors, indicating that the model was relatively efficient. However, when the degrees of freedom were accounted for, the explanatory power slightly declined to 95.3%.Notably, while the female labor participation rate and gross fixed capital formation aligned with the a priori expectations, female employment in agriculture, services, and industry, along with the inflation rate, deviated from these expectations. The

findings further revealed that female employment in the agricultural, service, and industrial sectors had a negative yet insignificant effect on economic growth. Similarly, the female labor force participation rate also showed an insignificant impact on economic growth. In contrast, both the inflation rate and gross fixed capital formation significantly influenced economic growth in Nigeria.

The results of direction of causality between female employment and economic growth in Nigeria were displayed in the above table as follows: there is a uni-direction causality flowing from female employment in service sector to economic growth. Female employment in service sector Granger causes female employment in agricultural sector in Nigeria. However, female employment in agriculture and female employment in industry have a two-way causal relationship in Nigeria.

Discussion

With respect to research question and objectives of current study, general discussion of the results is presented as follows: between 1990 and 2022, the Nigerian logged GDP was approximately 5.27% throughout the observation period. This shows that on an average basis; economic growth grows by 5.27% on annual basis in Nigeria. Female employment in agriculture, FEMPA had a mean value of 35.18%. This is an indication that agricultural sector accounted for about 35.18% of total employment in Nigeria. In the same page, female employment in industry, recorded an average value of 44.48% in Nigeria. This implies that within the periods of 1990 and 2022, industrial sector provided over 44% of employment for the female folks in Nigeria. In the case of female employment in service sector, it contributed about 14.53% to the growth of the Nigerian economy. Whereas female labor force participation rate recorded a mean value of 55.15%. This shows that over 55.15% of female population in Nigeria was formally engaged in the Nigerian labour market. From the findings, it is important to stress that the industrial sector is still the highest employer of female working population in Nigeria. This is followed by the agricultural sector. Therefore, the Nigerian policymakers and other relevant stakeholders should invest more in the industrial and agricultural sectors in order to drive the SDG 8- inclusive economic growth via an increase in female labor force participation in Nigeria.

Furthermore, female employments in agricultural, service and industrial sectors had a negative but an insignificant contribution to economic growth in Nigeria. Based on these findings, a unit change in each of these three sectors brings about a reduction in economic growth by 2.0%, 3.4%, and 3.0%, respectively in Nigeria. This is an indication that female engagement in these sectors has not been productive enough to catalyse substantial expansion of economic growth in Nigeria. It is important to stress that the issue of gender inequality in these three sectors might have been the factor behind this outcome. Therefore, the Nigerian policymakers need to take an urgent action towards revamping these sectors so that the contribution of women folks in these sectors could spur inclusive economic growth in Nigeria. Also, gender balancing should be taken into consideration when recruiting workers in agricultural, service and industrial sectors in the country. Meanwhile, generally, policymakers should concentrate on tackling gender discrimination in the public and private sectors, where a sizable amount of female employment is located, in order to create a labour market climate that is more supportive of female employees.

Similarly, female labour participation rate has an insignificant impact on economic growth in Nigeria. A unit change in female labour force participation rate caused 7.2% rise in economic growth in Nigeria. This shows that participation of women in the labour market has a capacity to enhance the growth of the Nigerian economy over time. In view of this, the policymakers in Nigeria should take proactive measures to facilitate more participation of female in the Nigerian labour market. This could be achieved through investment in education and training of women in Nigeria by making it easier for women to have access to better work prospects.

The findings of this study further resonate with broader empirical and theoretical insights in the recent literature on gender, institutional structures, and sustainable development. Beyond sectoral employment effects, emerging evidence suggests that women's economic contributions are often mediated by institutional quality, innovation systems, and social protection mechanisms rather

than direct labor participation alone. For instance, Yang et al.[22] demonstrate that heterogeneous institutional and structural conditions can significantly alter estimated economic effects when latent group dynamics are accounted for, implying that aggregate estimations may obscure subgroup-specific realities affecting women's productivity.

Similarly, Duan [23] emphasizes that sustainable development outcomes emerge from a balance between economic growth, environmental sustainability, and social inclusion. In this context, the insignificant contribution of female employment observed in this study may reflect structural constraints such as limited access to productive assets, technological exclusion, and weak institutional support systems that suppress the growth-enhancing potential of women's labor. This aligns with the argument that labor participation alone is insufficient without complementary investments in institutional efficiency and policy coherence.

Recent studies also highlight the importance of governance transparency and innovation incentives in shaping productivity outcomes.

Gao et al. [24] show that institutional transparency can stimulate productivity through innovation channels, suggesting that gender-inclusive labor markets require supportive governance frameworks to translate participation into measurable growth outcomes. In the Nigerian context, weak enforcement of labor protections and unequal access to innovation ecosystems may explain why increased female employment does not significantly stimulate economic growth.

Furthermore, climate change, environmental risks, and spatial economic dynamics increasingly interact with gendered labor outcomes. Mugambiwa and Sibanda[25] argue that climate-induced vulnerabilities disproportionately affect women, particularly in agriculture-dependent economies, potentially undermining productivity and income stability. This provides further explanation for the negative but insignificant effect of female agricultural employment found in this study.Evidence from innovation-focused and spatial analyses reinforces this interpretation. Wu et al. [26] and Hu et al.[27] highlight how technological clustering and smart resource management shape economic efficiency. Exclusion of women from such innovation-driven sectors may limit their capacity to contribute meaningfully to growth, particularly in developing economies where technology diffusion remains uneven.Fiscal decentralization and public expenditure efficiency also play critical roles. Jin et al.[28] demonstrate that optimal decentralization frameworks can enhance sustainable development outcomes, suggesting that gender-responsive fiscal policies could amplify the productivity of female labor. Without targeted fiscal interventions, female participation may remain concentrated in low-productivity segments of the economy.Empirical evidence from health economics and social welfare further underscores the interconnectedness of economic participation and human capital outcomes. Studies by Feng et al.[29], Karakara et al.[30], and Nasir et al.[31] reveal that women's economic engagement is strongly linked to health access, financial security, and household welfare, rather than immediate macroeconomic growth indicators. These findings support the notion that the benefits of female labor participation may manifest more strongly through long-term human capital accumulation than short-term GDP growth.

Moreover, Osabohien et al. [32] and Sui et al.[33] show that financial inclusion and access to digital financial services significantly improve welfare outcomes among women of reproductive age. Such mechanisms may act as indirect growth channels, reinforcing the argument that female labor participation influences economic performance through structural and social pathways rather than direct output effects.

Evidence from sub-Saharan Africa further validates these conclusions. Wang et al. [34] document persistent gender disparities in education and health outcomes that constrain economic growth, while Xu et al.[35] and Zhang et al.[36] highlight how socioeconomic and insurance-related factors shape women's access to productive opportunities. Zhou et al.[37] further demonstrate that women's empowerment indices are strongly associated with demand for social services, reinforcing the multidimensional nature of women's economic contributions.

Strengths and limitations

The study on female employment and economic growth in Nigeria offers significant novelty to the existing body of knowledge by exploring the contributions of female employment across various sectors to Nigeria's economic growth. This

uniqueness serves as one of the study's strengths. In addition, the study is formulated from a well-defined research question and employs both detailed descriptive as well as econometric types of analysis, hence rendering its findings comprehensible to both experts and non-experts.

The study also has a few limitations, providing prospects for additional research. Its greatest drawback is that it only looks at Nigeria. Future studies might extend this analysis to other nations in Africa, particularly those having vast gender disparities in their labor market.

Implications for policy and practice

Based on the findings, the Nigerian policymakers and other relevant stakeholders should invest more in the industrial and agricultural sectors to drive the SDG 8- inclusive economic growth via an increase in female labor force participation in Nigeria. The policymakers should concentrate on tackling gender discrimination in the public and private sectors, where a sizable amount of female employment is located, to create a labour market climate that is more supportive of female employees. And proactive measures to facilitate more participation of female in the Nigerian labour market could be achieved through investment in education and training of women in Nigeria by making it easier for women to have access to better work prospects.

Conclusion

This study therefore concludes that women occupations in farming, service and manufacturing sectors contributed negatively but insignificantly to the Nigerian economic growth. Female labor participation rate also contributes insignificantly towards economic growth in Nigeria.

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