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A Gender-Disaggregated Analysis of Labour Market Performance and Economic Growth in Nigeria

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ABSTRACT: This study examined the relationship between gender-disaggregated labour-market performance and economic growth in Nigeria, with emphasis on the quality of male and female labour-market participation rather than participation rates alone. The study was motivated by the concern that aggregate labour indicators often concealed gender-based differences in employment quality, productivity, informality, underemployment and access to growth-enhancing work. Using annual Nigerian data covering 1991 to 2025, the study constructed male and female labour-quality indices from labour force participation, employment-to-population ratio and unemployment indicators, while controlling for foreign direct investment and inflation. The empirical analysis employed descriptive statistics, correlation analysis, unit root testing, ARDL bounds testing and dynamic ARDL estimation. The findings showed that gender-disaggregated labour-market performance was relevant to Nigeria's growth process. The ARDL bounds test confirmed the existence of a long-run relationship among economic growth, female labour-market quality, male labour-market quality, foreign direct investment and inflation. The results further showed that improvements in female labour-market quality were positively associated with economic growth, while inflation had a negative effect on growth. The implied long-run estimates indicated that female labour-market quality had a stronger long-run association with economic growth than the male labour-quality index within the estimated model. These findings suggested that Nigeria's gender-growth challenge was not merely about increasing women's labour force participation, but about improving the productivity, formality, stability and growth-linkage of women's work. The study concluded that gender-inclusive labour-market reform should be treated as an economic-growth strategy. It recommended policies that promote female skills development, the formalisation of women-owned enterprises, childcare and care-support systems, gender-responsive investment incentives, improved labour-market data systems and macroeconomic stability.

KEYWORDS: Gender-disaggregated labour market; female labour-market quality; economic growth; informality; ARDL; Nigeria.
JEL Classification: J16, J21, J24, O40, O55, C32.

I. INTRODUCTION

Labour remains one of the most fundamental factors of production and one of the most important transmission channels through which households participate in national economic growth. In classical and modern growth theory, labour contributes to output through the quantity of workers supplied, the skills embodied in those workers, the efficiency with which labour is allocated across sectors, and the institutional arrangements that govern access to productive employment. However, labour is not gender-neutral. Men and women often face different levels of access to education, assets, paid employment, mobility, technology, finance, childcare support, safety, and workplace rights. These differences shape not only individual welfare but also national productivity and long-run growth (Omotor and Olele, 2015). Globally, labour markets have recovered from the immediate shock of the COVID-19 pandemic, but the recovery has not eliminated structural inequality. The International Labour Organization's *World Employment and Social Outlook: Trends 2025* notes that strong headline employment indicators continue to hide persistent structural weaknesses, including informality, gender gaps and working poverty (ILO, 2025). Similarly, the World Bank's *Women, Business and the Law 2024* shows that the global average legal-framework score for women's economic opportunity is only 64.2 out of 100, and that none of the 190 economies assessed had achieved complete legal gender parity in the measured areas (World Bank, 2024a). These global findings indicate that gender inequality in labour markets is not merely a social concern; it is also a productivity, competitiveness and growth concern (Olele, 2020).

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For developing economies, and particularly for Nigeria, the gender-labour-growth relationship is especially important because the economy faces persistent unemployment, underemployment, informality, weak industrial absorption, low productivity, poverty, high cost of living and a large youth population. Nigeria's economy has continued to grow in aggregate terms, with Nigerian Bureau of Statistics (NBS) reporting real GDP growth of 3.89 percent in Q1 2026 compared with 3.13 percent in Q1 2025 and 2.98 percent in Q1 2024 (NBS, 2026; NBS, 2024b). However, the quality and inclusiveness of this growth remain critical questions. A growth process that expands GDP but fails to absorb women and men into productive, secure and higher-value employment may produce weak welfare gains and slow structural transformation.

The most recent NBS Labour Force Survey evidence does not support a simplistic claim that women are absent from the labour force. In Q2 2024, labour force participation among males was 79.9 percent, while female participation was 79.1 percent (NBS, 2024). The gender participation gap is therefore narrow at the aggregate level. Yet the quality indicators reveal a deeper gender problem: women recorded higher unemployment, higher time-related underemployment, higher self-employment, lower wage employment and higher informality than men. In the same NBS report, the employment-to-population ratio was 77.2 percent for males and 75.0 percent for females; unemployment was 3.4 percent for males and 5.1 percent for females; underemployment was 7.1 percent for males and 11.2 percent for females; self-employment was 82.8 percent for males and 88.3 percent for females; and informal employment was 90.0 percent for males and 96.0 percent for females (NBS, 2024).

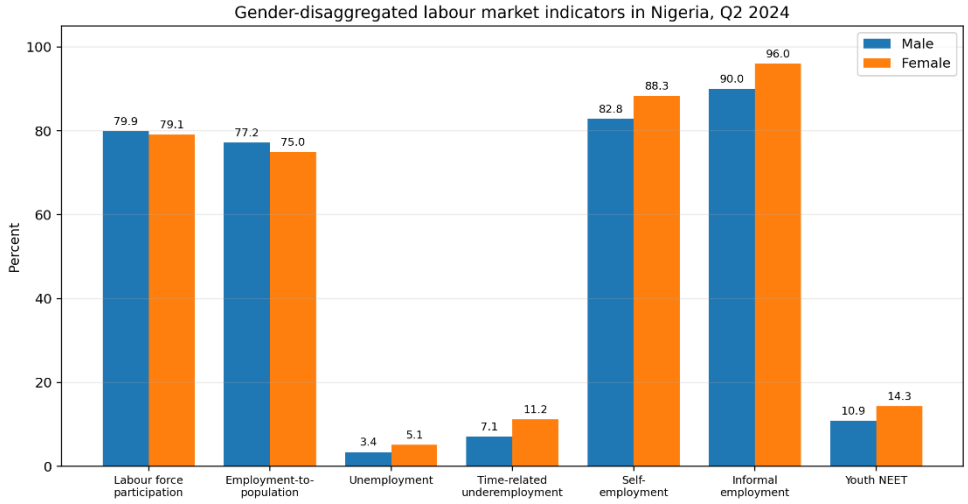


Figure 1: Gender-disaggregated labour market indicators in Nigeria, Q2 2024.
Source: Author's computation from NBS Labour Force Survey Q2 2024.

The implication is clear: Nigeria's gender problem is not only a problem of labour force entry but also one of labour-market quality, sectoral allocation, productivity, informality, earnings, care constraints, and access to growth-enhancing employment. A woman may be recorded as employed, but if she is self-employed in a low-productivity activity, underemployed, informally engaged, without access to social protection, formal credit and income stability, her contribution to growth may be constrained and her welfare may remain vulnerable. In this sense, aggregate labour participation can conceal gendered economic vulnerability. This study is therefore motivated by the need to move beyond the conventional approach that simply links female labour force participation to economic growth. While female labour force participation remains important, it is no longer sufficient as a standalone measure of women's economic contribution. A more robust analysis must examine gender-disaggregated labour market performance across multiple indicators, including labour force participation, employment-to-population ratio, unemployment, underemployment, informality, wage employment, self-employment, education, and human capital. This is the core analytical justification for the present study.

1.1 Statement of the Problem

Nigeria continues to face a paradox of growth without sufficiently broad-based labour-market transformation. Real GDP has remained positive in recent periods, but labour-market outcomes continue to reflect deep structural weaknesses. Informal employment stood at 93.0 percent in Q2 2024, self-employment accounted for 85.6 percent of employed persons, and only 14.4 percent of employed persons were primarily engaged as wage employees (NBS, 2024). These statistics suggest that Nigeria's economy remains dominated by informal, own-account and low-productivity activities. The problem becomes more serious when viewed through a gender-disaggregated lens. Although women participate actively in the labour market, they are more likely than men to be located in less secure and less productive work. Female informal employment was 96.0 percent in Q2 2024 compared

with 90.0 percent for males, while female underemployment was 11.2 percent compared with 7.1 percent for males (NBS, 2024). This indicates that Nigerian women are not simply excluded from work; rather, many are included in forms of work that are economically fragile and weakly connected to productivity growth.

Existing Nigerian studies have made important contributions by examining female labour force participation and economic growth. For example, Olatunde et al. (2026), used ARDL and Granger causality techniques for Nigeria from 1986 to 2024 and found that female labour force participation positively drives economic growth in the long run. Monyon et al. (2026), also examined women's labour force participation and economic growth from 1996 to 2024 and reported threshold effects, arguing that growth gains from women's participation become stronger beyond a critical participation threshold. Okechukwu and Adesanya (2026) found that gender inequality in employment has a statistically significant negative association with Nigeria's economic growth. These studies confirm the relevance of the research. However, a major gap remains. Much of the existing literature treats female labour force participation as the central gender variable, but Nigeria's current reality shows that participation alone is not the central problem. The key problem is the quality and growth-productivity content of employment. A study that relies only on female labour force participation may conclude that gender gaps are small, while ignoring the reality that women are more likely to be underemployed, informal, self-employed, poorly paid and financially vulnerable. Therefore, the problem this study addresses is the insufficient empirical attention given to the multidimensional and gender-disaggregated character of labour market performance in explaining economic growth in Nigeria.

In practical terms, the study asks whether male and female labour outcomes affect growth differently, and whether employment quality indicators such as underemployment, unemployment and informality matter more than aggregate participation. This is a more realistic and policy-relevant framing for contemporary Nigeria.

II. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

A. Gender and Labour Market Performance

Gender and labour market performance are linked through access, allocation, reward and protection. Access concerns whether women and men can enter the labour market. Allocation concerns the sectors, occupations and job types into which they are absorbed. Reward concerns wages, income and returns to work. Protection concerns the degree to which workers enjoy formal contracts, social security, safety, legal rights and resilience against shocks. A proper gender-disaggregated labour-market analysis must examine all four dimensions. The limitation of conventional analysis is that it often focuses on labour force participation. Participation is important, but it is only the starting point. A labour market may show high female participation while still producing unequal outcomes if women are concentrated in unpaid family work, subsistence agriculture, petty trade, informal self-employment or low-return services. Therefore, gender-disaggregated labour market performance must include quality indicators such as employment-to-population ratio, unemployment, underemployment, informality, wage employment and sectoral distribution. The NBS Q2 2024 Labour Force Survey supports this position. It shows that male and female participation rates are close, but women are worse off in unemployment, underemployment and informality (NBS, 2024). This indicates that the gender issue in Nigeria is not merely the extensive margin of participation; it is also the intensive and qualitative margin of work.

2.1.2 Economic Growth and Labour Market Channels

Economic growth is affected by labour through several channels. The first is the labour quantity channel, where growth increases as more people participate in production. The second is the human capital channel, where education, skills and health raise worker productivity. The third is the allocation channel, where growth rises when workers move from low-productivity to high-productivity sectors. The fourth is the innovation and enterprise channel, where productive workers and entrepreneurs generate new outputs, services and markets. The fifth is the demand channel, where employment and income increase household purchasing power and stimulate aggregate demand. A gender-disaggregated approach is necessary because men and women may not be equally positioned across these channels. If women have lower access to formal jobs, productive assets, finance, technology and skills, then their labour may be underutilised relative to its potential. This produces a growth loss because the economy does not fully exploit its available human capital.

2.1.3 Recent Nigerian Labour Market Context

Recent labour data show that Nigeria's labour market is active but structurally weak. In Q2 2024, the labour force participation rate was 79.5 percent, employment-to-population ratio was 76.1 percent, unemployment was 4.3 percent, time-related underemployment was 9.2 percent and informal employment remained very high at 93.0 percent (NBS, 2024). The same report shows that self-employment accounted for 85.6 percent of employed persons, while wage employment accounted for only 14.4 percent. These figures suggest that the Nigerian labour market is not primarily characterised by open unemployment alone, but by widespread informal and low-productivity work.

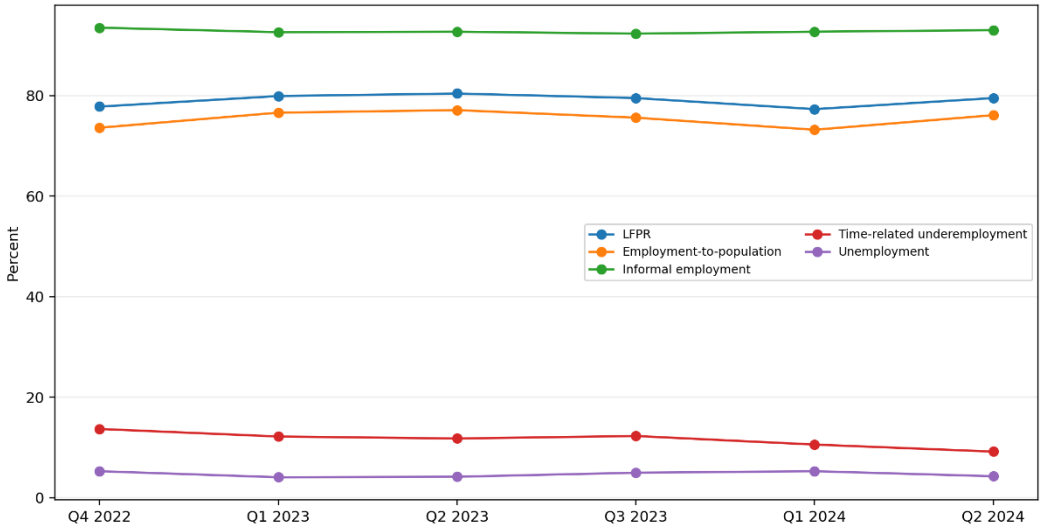


Figure 2: Recent national labour-market indicators in Nigeria. Source: Author's computation from NBS Labour Force Survey Q2 2024.

From a growth perspective, this matters because a high-employment economy may still experience low productivity if most jobs are informal, micro-scale and weakly capitalised. The relationship between labour and growth therefore depends on the type and quality of work, not merely the number of people working.

2.1.4 Economic Growth Context in Nigeria

Nigeria has recorded positive real GDP growth in recent quarters. NBS data show that real GDP grew by 2.98 percent in Q1 2024, 3.13 percent in Q1 2025 and 3.89 percent in Q1 2026 (NBS, 2024b; NBS, 2026). While this points to macroeconomic expansion, it does not automatically imply labour-market inclusion or welfare improvement. The relevant question is whether growth is creating productive employment for both women and men, and whether female labour is being absorbed into sectors with stronger productivity and income effects.

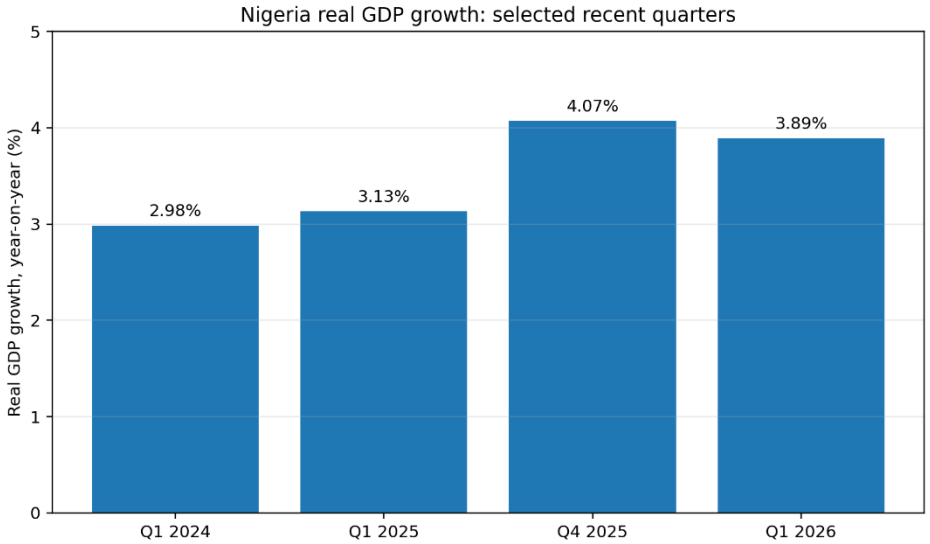


Figure 3: Nigeria real GDP growth in selected recent quarters. Source: NBS GDP reports and public NBS-linked releases.

The Nigerian growth structure is particularly important because services dominate GDP, while the labour market remains heavily informal. If growth is concentrated in capital-intensive or high-skill segments without broad labour absorption, women may remain concentrated in low-return informal activities. This explains why gender-disaggregated labour market analysis is necessary for understanding inclusive growth.

2.2 Empirical Literature Review

The empirical literature is reviewed around four connected issues: (i) whether female labour-force participation contributes to economic growth; (ii) whether the quality of women's work, rather than participation alone, explains growth outcomes; (iii)

whether shocks, institutions, norms and structural transformation create gender-differentiated labour-market effects; and (iv) whether Nigeria-specific evidence is sufficiently recent and disaggregated to support a gender-sensitive growth model. The review deliberately prioritises recent studies from Nigeria, Sub-Saharan Africa and comparable developing economies because the post-COVID period, inflationary pressure, labour-force-methodology changes and the persistence of informality have changed the nature of the gender-growth debate. Table 2.1 presents a structured synthesis of twenty recent empirical studies and high-quality research outputs relevant to gender-disaggregated labour-market performance and economic growth. The evidence shows that female labour-force participation can support growth, but the relationship is not automatic. It is conditioned by human capital, institutional quality, fertility, social norms, sectoral allocation, informality, macroeconomic shocks and the ability of the economy to absorb women into productive and protected employment.

***Table 1: Summary of recent empirical literature on gender-disaggregated labour-market performance and economic growth*.**

S/N	Author(s) / year	Scope and data	Method / model	Key findings and relevance to the present study
1	Olatunde, Kabanbuwok, Emmanuel and Adewale (2026)	Nigeria, 1986-2024; female labour-force participation and real economic growth.	ARDL bounds test and Granger causality.	Female labour-force participation has a positive long-run relationship with economic growth. The study supports the growth relevance of women's participation but still relies heavily on FLFP as the main gender variable; the present study extends this by incorporating broader labour-market performance indicators.
2	Monyon, Akombor, Ilemona and Gimba (2026)	Nigeria, 1996-2024; women's labour-force participation and growth.	ARDL bounds testing and threshold regression.	The study reports a stable long-run relationship and suggests that the effect of women's participation may be nonlinear. It is relevant because it introduces the possibility that women's labour becomes more growth-enhancing only after participation reaches a critical level.
3	Okechukwu and Adesanya (2026)	Nigeria, 1980-2024; gender inequality, employment, workforce participation and economic growth.	ARDL framework.	Employment-related gender inequality is negatively associated with economic growth in both the short and long run. The finding strengthens the argument that gender inequality is an economic cost rather than only a social concern.
4	Nnoje and colleagues (2024)	Nigeria, 2009-2023; gender inequality and economic growth indicators.	Ex-post facto design and Granger-causality testing using World Bank and CBN data.	The study confirms a causality link between gender inequality and economic growth. Its limitation is the use of broad gender-inequality indicators rather than detailed labour-quality measures such as informality, underemployment and wage employment.
5	Hossain and Hossain (2025)	Nigeria; multiple pre- and post-pandemic survey rounds on employment and job transition.	Difference-in-differences design.	Employment declined more for women after COVID-19, and women in high-COVID-intensity areas shifted more from wage and service employment to farm-based work. This shows that gendered labour-market vulnerability can deepen during macroeconomic shocks.
6	Diaz Mendez and Martorano (2026)	Nigeria; representative adult panel using 2018/19	Panel-based empirical analysis	The study shows that analysis limited to household heads can miss important

		baseline and three COVID-19 high-frequency phone-survey rounds.	of pandemic labour-market effects.	gender effects. It supports the present study's emphasis on individual-level and gender-disaggregated labour-market outcomes.
7	Oyintonyo and Udeh (2024)	Nigeria; labour-force participation and economic growth.	Econometric time-series approach.	The study links labour-force participation to economic growth and reinforces the relevance of labour as a growth channel. However, it does not sufficiently separate the productivity implications of male and female labour-market quality.
8	Aphriapub study on gender inequality and socio-economic development (2024)	Nigeria; gender ratios in labour participation, schooling, mortality and socio-economic development.	ARDL model based on unit-root pretests.	Female-to-male labour-force participation and female-to-male secondary school enrolment are significant for socio-economic development. The study supports the integration of labour and human-capital channels in gender-growth modelling.
9	Structural Transformation and Gender-Specific Labour Market Frictions study (2023)	Nigeria; sectoral reallocation, household production and gender-specific labour supply.	Structural household model with gender and sector differences.	Sectoral movement from low- to high-productivity activities does not automatically close gender gaps because labour supply, household production and sector access differ by gender. This supports the present study's focus on job quality and sectoral absorption.
10	World Bank / Gender Data evidence for Nigeria (2026)	Nigeria; gender-disaggregated labour, account ownership, education and demographic indicators.	Descriptive and comparative indicator analysis.	Recent data show high female participation but continuing gaps in economic opportunity and account ownership. This provides policy justification for moving beyond participation to the quality and inclusiveness of labour-market outcomes.
11	Petreski, Tanevski and Jacobo (2024)	99 developing economies, 2009-2021; gender-disaggregated labour responses to monetary shocks.	Local projections using country-specific monetary shocks.	Women experience more adverse employment responses than men after monetary tightening. The study is important for Nigeria because inflation, interest-rate tightening and exchange-rate shocks may transmit differently through male and female labour markets.
12	Adedoyin and colleagues (2025)	48 Sub-Saharan African countries, 1996-2021; institutional quality and female labour-force participation.	Linear regression, pooled panel estimation and system GMM.	Economic growth improves female labour-force participation, while fertility, population pressure and self-employment reduce it. Institutional quality matters, suggesting that women's labour-market outcomes depend on governance and social systems, not growth alone.
13	Gender norms and female labour supply study (2024)	42 Sub-Saharan African countries, 2009-2019; formal and informal gender norms.	Panel quantile regression.	Gender stereotypes significantly limit young women's employment opportunities across rural and urban settings. The study shows that labour-market performance must be interpreted

				together with norms, care burdens and social restrictions.
14	Springer study on African gender-gap dynamics (2023)	44 African countries; economic participation and opportunity indicators.	Trend and comparative empirical analysis.	The study finds persistent links between male and female inclusion in economic participation and opportunity. It supports the argument that African growth strategies must address gendered labour-market inclusion, not only macroeconomic expansion.
15	Klasen-type developing-country gender-growth evidence, updated in Springer study (2024)	65 emerging and developing economies; manufacturing industries and gender equality.	Industry-level panel analysis.	Greater gender equality facilitates growth by allowing female labour to be allocated to more productive uses, especially in female-intensive industries. This directly supports the productivity-allocation logic of the present study.
16	Sustainability study on gender inequality and economic growth (2021)	105 developing countries and Sub-Saharan African subsample, 1990-2017.	Cross-country and panel regressions.	Gender equality in education contributes positively to economic growth, while labour-market and institutional gaps weaken inclusive development. The study is useful as broad comparative evidence but is less recent for Nigeria-specific labour quality.
17	Digital infrastructure and gender gaps in labour-force participation study (2025)	Low- and middle-income countries; digital infrastructure and labour-force participation gaps.	Cross-country econometric analysis.	Digital infrastructure can help reduce gender gaps in participation, but effects depend on complementary education, affordability and institutional conditions. This suggests that digital access may be a relevant control or transmission variable in future extensions.
18	Goes, Lopez-Acevedo and Robertson (2023)	Tunisia; gender-segmented labour markets and foreign-demand shocks.	Theoretical model and empirical shock-exposure strategy.	Foreign-demand shocks can either increase or reduce female-to-male employment depending on whether affected sectors are female- or male-intensive. The study is relevant because it shows that sectoral structure shapes gendered employment outcomes.
19	Ogunniyi and co-authors (2023)	Nigeria; youth employment in key sectors, rural-urban differences and gender lens.	Sectoral employment analysis using Nigerian data.	Sectoral growth affects employment differently across rural and urban areas and by gender. This supports the present study's claim that aggregate GDP growth may not translate into equal labour-market gains for women and men.
20	Structural, social and ecological FLFP study (2025)	Global and non-OECD economies; female labour-force participation, education, land and spatial constraints.	Panel-based comparative modelling.	Economic growth alone is insufficient to close women's labour-market gaps. Progress requires education, care systems, land access, spatial inclusion and labour reforms, reinforcing the multidimensional framework adopted in the present study.

Source: Author's synthesis from reviewed empirical studies and institutional research outputs.

The evidence in Table 1 shows that the relationship between gendered labour-market outcomes and economic growth is multidimensional. While Nigerian time-series studies generally confirm that female labour-force participation and gender inequality influence growth, recent evidence suggests that participation alone is an insufficient measure of women's economic contribution. Women may be active in the labour market but still concentrated in informal, low-paid, underemployed, or low-productivity work. The literature also shows that gendered labour outcomes are shaped by shocks and structural conditions. Evidence from Nigeria's COVID-19 labour-market recovery indicates that women experienced greater employment losses and were more likely to shift from wage and service-sector employment into farm-based activities. Cross-country studies similarly show that monetary shocks, gender norms, institutional quality, and sectoral demand affect women's employment outcomes. This supports the need to examine labour-market performance through broader indicators such as participation, employment, unemployment, underemployment, informality, and wage-employment access.

Although existing studies provide useful insights, important gaps remain. Many Nigerian studies still rely mainly on female labour-force participation, thereby overlooking underemployment, informality, job quality, wage employment, self-employment, and sectoral differences. Few studies also compare male and female labour-market indicators within the same growth model. Recent labour-force evidence further shows that gender gaps in Nigeria are now more visible in informality, underemployment, and job type than in participation alone. This study therefore moves beyond a narrow female-labour-force-participation model by adopting a gender-disaggregated labour-market-performance framework. It combines growth theory, feminist economics, labour-market segmentation theory, and an ARDL estimation approach to examine how male and female labour-market characteristics influence economic growth in Nigeria.

2.3 Theoretical Review

2.3.1 Neoclassical Growth Theory and Gender-Augmented Labour

The neoclassical growth model explains output as a function of capital, labour and technology. In the standard Cobb-Douglas form:

$$Y_t = A_t K_t^{\alpha} L_t^{1-\alpha} \quad (1)$$

where Y_t is output, A_t is total factor productivity, K_t is physical capital, L_t is labour and $0 < \alpha < 1$ is the output elasticity of capital.

For a gender-disaggregated study, labour should not be treated as a homogeneous aggregate. Labour can be separated into male and female components:

$$L_t = L_t^m + L_t^f \quad (2)$$

where L_t^m represents male labour and L_t^f represents female labour. However, because male and female labour may differ in access to education, formal employment, sectoral allocation and productivity, a weighted labour formulation is more realistic:

$$L_t^* = \omega_m L_t^m + \omega_f L_t^f \quad (3)$$

where L_t^* is effective labour, ω_m and ω_f are productivity weights attached to male and female labour respectively. If women are concentrated in informal and underemployed work, then ω_f may be lower than it would be under equal access to productive employment. The production function becomes:

$$Y_t = A_t K_t^{\alpha} \left(\omega_m L_t^m + \omega_f L_t^f\right)^{1-\alpha} \quad (4)$$

The gender-growth argument follows directly: economic growth can rise when female labour increases, but the size of the effect depends on the productivity weight attached to female labour. Therefore, policy should not only increase L_t^f; it should also raise ω_f through education, formal jobs, childcare, finance, digital access, safety, mobility and fair labour institutions.

2.3.2 Human Capital Theory

Human capital theory argues that education, training, health and skills raise worker productivity and income. In a gender-disaggregated framework, human capital differs by sex:

$$H_t^s = L_t^s e^{\psi E_t^s + \theta S_t^s + \rho Health_t^s} \quad (5)$$

where H_t^s is effective human capital for sex group $s \in \{m, f\}$, L_t^s is labour supply, E_t^s is education, S_t^s is skills, Health_t^s is health status, and ψ, θ and ρ are productivity parameters. Total effective labour can then be written as:

$$H_t = H_t^m + H_t^f \quad (6)$$

The growth implication is that female labour will contribute more strongly to growth when women's education, health and skills improve. The relevant hypothesis is not simply that more female labour increases growth, but that female labour with stronger human capital has a larger growth effect.

2.3.3 Labour Market Segmentation Theory

Labour market segmentation theory argues that workers are divided into primary and secondary labour markets. Primary jobs are formal, stable, protected and better paid, while secondary jobs are informal, unstable, low paid and weakly protected. In Nigeria, this theory is highly relevant because women are more concentrated in informal employment and self-employment.

Let the labour market be divided into formal and informal sectors:

$$L_t^s = L_{F,t}^s + L_{I,t}^s \quad (7)$$

where $L_{F,t}^s$ is formal employment and $L_{I,t}^s$ is informal employment for sex group s. Output can then be written as:

$$Y_t = A_t K_t^{\alpha}\left[\eta_F\left(L_{F,t}^m + L_{F,t}^f\right) + \eta_I\left(L_{I,t}^m + L_{I,t}^f\right)\right]^{1-\alpha} \quad (8)$$

where η_F and η_I represent productivity parameters for formal and informal labour. If $\eta_F > \eta_I$, then an economy dominated by informal employment may experience weak productivity gains even when employment rates are high. Since female informal employment is particularly high in Nigeria, this theory helps explain why female participation alone may not generate strong growth unless women's work shifts into more productive and protected employment.

2.3.4 Feminist Economics and Unpaid Care Constraints

Feminist economics criticises traditional economic models for undervaluing unpaid care, domestic work and social reproduction. Women often perform unpaid care activities that support the economy indirectly but reduce the time and energy available for formal paid work. A simple time-allocation constraint can be written as:

$$T_i = T_i^p + T_i^u + T_i^c + T_i^r \quad (9)$$

where T_i is total available time, T_i^p is paid work time, T_i^u is unpaid household production, T_i^c is care work and T_i^r is rest or leisure. If women carry a larger burden of unpaid care, then the time available for paid work becomes:

$$T_i^p = T_i - (T_i^u + T_i^c + T_i^r) \quad (10)$$

This means that female labour supply and productivity are constrained not only by market wages but also by unpaid care burdens. In growth terms, the under-provision of childcare, safe transport, household infrastructure and social services reduces women's effective labour supply and productivity.

2.3.5 Endogenous Growth Theory

Endogenous growth theory emphasises human capital, innovation, knowledge accumulation and institutional quality as drivers of long-run growth. In a gender-disaggregated model, growth depends on the accumulation of male and female human capital:

$$g_{Y,t} = \lambda_0 + \lambda_1 \Delta H_t^m + \lambda_2 \Delta H_t^f + \lambda_3 R_t + \lambda_4 I_t + \varepsilon_t \quad (11)$$

where $g_{Y,t}$ is output growth, ΔH_t^m and ΔH_t^f are changes in male and female human capital, R_t is research/innovation capacity, I_t is institutional quality or policy support and ε_t is the error term. The expected sign is $\lambda_2 > 0$ if female human capital contributes positively to growth. This theory supports the idea that investing in women's skills, digital access, health, entrepreneurship and formal employment can produce long-term growth effects beyond immediate labour supply.

2.4 Theoretical Framework of the Study

The theoretical framework integrates the above theories into a gender-disaggregated labour-market-quality model. The framework begins with the assumption that economic growth depends on effective labour, not merely raw labour supply. Effective labour is shaped by gender-disaggregated participation, employment, human capital, sectoral allocation, job quality and productivity. The core proposition is that female labour contributes to economic growth through three main channels:

1. **Quantity channel:** more women participating in work expands the labour input.
2. **Quality channel:** better education, skills, health and job quality increase female labour productivity.
3. **Allocation channel:** movement from informal, underemployed and low-productivity work into formal, remunerative and higher-productivity work increases aggregate output.

This can be summarised as:

$$\text{Growth}_t = f(\text{GLQ}_t, \text{MLQ}_t, K_t, HC_t, Z_t) \quad (12)$$

where GLQ_t represents gender-disaggregated female labour quality, MLQ_t represents male labour quality, K_t is capital, HC_t is human capital and Z_t is a vector of macroeconomic control variables.

A female labour-market-quality index can be expressed as:

$$Q_t^f = \lambda_1 p_t^f + \lambda_2 e_t^f - \lambda_3 u_t^f - \lambda_4 n_t^f - \lambda_5 i_t^f + \lambda_6 w_t^f \quad (13)$$

where Q_t^f is the female labour-quality index, p_t^f is female labour force participation, e_t^f is female employment-to-population ratio, u_t^f is female unemployment, n_t^f is female underemployment, i_t^f is female informal employment and w_t^f is female wage employment. The signs reflect the assumption that participation, employment and wage work improve labour quality, while unemployment, underemployment and informality reduce it.

Similarly, a male labour-quality index may be constructed as:

$$Q_t^m = \gamma_1 p_t^m + \gamma_2 e_t^m - \gamma_3 u_t^m - \gamma_4 n_t^m - \gamma_5 i_t^m + \gamma_6 w_t^m \quad (14)$$

The growth equation can then be represented as:

$$g_t = \beta_0 + \beta_1 Q_t^f + \beta_2 Q_t^m + \beta_3 k_t + \beta_4 h_t + \beta_5 \pi_t + \beta_6 o_t + \mu_t \quad (15)$$

where g_t is real GDP growth, k_t is gross fixed capital formation, h_t is human capital, π_t is inflation and o_t is trade openness. The expected signs are $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$, $\beta_4 > 0$, while the sign of inflation may be negative if macroeconomic instability weakens growth.

For a simpler seminar study, the model may avoid constructing an index and use direct labour variables:

$$g_t = \beta_0 + \beta_1 p_t^f + \beta_2 p_t^m + \beta_3 e_t^f + \beta_4 e_t^m + \beta_5 u_t^f + \beta_6 u_t^m + \beta_7 k_t + \beta_8 \pi_t + \mu_t \quad (16)$$

III. METHODOLOGY

3.1 Research Design

The study adopts an ex-post facto quantitative research design. This design is appropriate because the study uses already-existing secondary data on labour market indicators and economic growth. The researcher does not manipulate the variables; rather, the study observes historical relationships between gender-disaggregated labour market performance and economic growth in Nigeria. The study combines descriptive and econometric analysis. Descriptive statistics, trend analysis and correlation analysis are used to profile the variables over 1991-2025, while recent NBS Labour Force Survey data provide gender-disaggregated context. Econometric analysis is used to estimate the relationship between labour market indicators and economic growth over time.

3.2 Nature and Sources of Data

The study uses secondary annual time-series data for Nigeria covering 1991 to 2025, giving 35 annual observations. Real GDP growth (GDPG), net foreign direct investment inflows (FDI) and consumer price inflation (INF) are obtained from the World Bank World Development Indicators (WDI) and the National Bureau of Statistics (NBS). The sex-disaggregated indicators used to construct the labour-quality indices, namely labour force participation, employment-to-population ratio and unemployment for females and males, are the ILO modelled estimates published through ILOSTAT, the WDI and the World Bank Gender Data Portal. These series are used for the econometric analysis because they are consistent and comparable over the full period. Recent NBS Labour Force.

Table 2: Measurement of Variables

Variable	Symbol	Measurement	Expected Sign	Source
Economic growth	GDPG	Annual real GDP growth rate	Dependent variable	NBS/WDI
Female labour-quality index	FLQI	Composite index (0-100) of FLFP, FEMP and the inverse of FUNEMP	Positive	ILOSTAT/WDI (computed)
Male labour-quality index	MLQI	Composite index (0-100) of MLFP, MEMP and the inverse of MUNEMP	Positive	ILOSTAT/WDI (computed)
Foreign direct investment	FDI	Net FDI inflows as % of GDP	Positive	WDI
Inflation	INF	Consumer price inflation	Negative/ambiguous	WDI/NBS
Female labour force participation	FLFP	Female labour force participation rate, ages 15+	Positive	ILOSTAT/WDI
Male labour force participation	MLFP	Male labour force participation rate, ages 15+	Positive	ILOSTAT/WDI
Female employment	FEMP	Female employment-to-population ratio	Positive	ILOSTAT/WDI
Male employment	MEMP	Male employment-to-population ratio	Positive	ILOSTAT/WDI
Female unemployment	FUNEMP	Female unemployment rate	Negative	ILOSTAT/WDI
Male unemployment	MUNEMP	Male unemployment rate	Negative	ILOSTAT/WDI

Source: Author's computation, 2026

3.4 Model Specification

The empirical model follows the augmented production-function logic in Section 2.4, in which output growth depends on the quality of female and male labour and on macroeconomic conditions. The functional form is:

$$\mathrm{GDPG}_t = f(\mathrm{FLQI}_t, \mathrm{MLQI}_t, \mathrm{FDI}_t, \mathrm{INF}_t) \quad (17)$$

In linear form, the long-run model is:

$$\mathrm{GDPG}_t = \theta_0 + \theta_1 \mathrm{FLQI}_t + \theta_2 \mathrm{MLQI}_t + \theta_3 \mathrm{FDI}_t + \theta_4 \mathrm{INF}_t + \mu_t \quad (18)$$

FLQI and MLQI are the empirical counterparts of Q_t^f and Q_t^m in Section 2.4. Each index combines the three sex-specific indicators with consistent annual coverage over 1991-2025, with unemployment entered inversely so that a higher value indicates better labour-market quality:

$$\mathrm{FLQI}_t = \lambda_1 \mathrm{N}(\mathrm{FLFP}_t) + \lambda_2 \mathrm{N}(\mathrm{FEMP}_t) + \lambda_3 [100 - \mathrm{N}(\mathrm{FUNEMP}_t)] \quad (19)$$

$$\mathrm{MLQI}_t = \gamma_1 \mathrm{N}(\mathrm{MLFP}_t) + \gamma_2 \mathrm{N}(\mathrm{MEMP}_t) + \gamma_3 [100 - \mathrm{N}(\mathrm{MUNEMP}_t)] \quad (20)$$

where $\mathrm{N}(\cdot)$ rescales an indicator to a 0-100 range over the sample period, and the weights in each index sum to one. Underemployment, informality and wage employment, which appear in the theoretical index, are omitted because annual sex-disaggregated series do not cover 1991-2025. Combining the six indicators into two indices also limits multicollinearity in a small sample.

3.5 Estimation Technique

The estimation technique is the Autoregressive Distributed Lag (ARDL) bounds-testing approach. ARDL is realistic and suitable for this study for three reasons. First, the study is based on annual macroeconomic time-series data, and such data often contain variables integrated of order zero, $I(0)$, and order one, $I(1)$. ARDL can be used when variables are a mixture of $I(0)$ and $I(1)$, provided none is integrated of order two, $I(2)$. ARDL performs reasonably well in small-sample time-series studies compared with some cointegration methods that require larger samples. Third, ARDL estimates both short-run and long-run relationships. This is important because the effect of gender-disaggregated labour outcomes on growth may differ between the short run and long run. For instance, increases in female participation may initially reflect survivalist informal work but may have stronger growth effects in the long run if accompanied by human capital and formal employment. Fourth, recent Nigerian studies on female labour participation and economic growth have used ARDL, making it methodologically comparable with the existing literature (Olatunde et al., 2026; Monyon et al., 2026; Okechukwu and Adesanya, 2026).

The ARDL model is specified as:

$$\mathrm{GDPG}_t = \beta_0 + \sum_{i=1}^{p} \phi_i \mathrm{GDPG}_{t-i} + \sum_{j=1}^{4} \sum_{l=0}^{q_j} \beta_{j,l} X_{j,t-l} + \varepsilon_t \quad (21)$$

where $X_1 = \mathrm{FLQI}$, $X_2 = \mathrm{MLQI}$, $X_3 = \mathrm{FDI}$ and $X_4 = \mathrm{INF}$; p and q_j are lag orders; ϕ_i and $\beta_{j,l}$ are short-run coefficients; and ε_t is the error term. The long-run coefficients θ_j are derived as:

$$\theta_j = \frac{\sum_{l=0}^{q_j} \beta_{j,l}}{1 - \sum_{i=1}^{p} \phi_i} \quad (22)$$

The bounds test is based on the conditional error-correction form:

$$\Delta \mathrm{GDPG}_t = \beta_0 + \delta_0 \mathrm{GDPG}_{t-1} + \sum_{j=1}^{4} \delta_j X_{j,t-1} + \sum_{i=1}^{p-1} \phi_i^* \Delta \mathrm{GDPG}_{t-i} + \sum_{j=1}^{4} \sum_{l=0}^{q_j-1} \beta_{j,l}^* \Delta X_{j,t-l} + \varepsilon_t \quad (23)$$

where δ_0 to δ_4 are the long-run (levels) coefficients, and ϕ_i^* and $\beta_{j,l}^*$ are short-run coefficients on the differenced terms.

The bounds-test null hypothesis is:

$$H_0: \delta_0 = \delta_1 = \delta_2 = \delta_3 = \delta_4 = 0 \quad (24)$$

This implies no long-run relationship. The alternative hypothesis is:

$$H_1: \delta_k \neq 0 \text{ for at least one } k = 0, \ldots, 4 \quad (25)$$

This implies the existence of a long-run relationship.

Once cointegration is confirmed, the error-correction representation is:

$$\Delta \mathrm{GDPG}_t = \beta_0 + \sum_{i=1}^{p-1} \phi_i^* \Delta \mathrm{GDPG}_{t-i} + \sum_{j=1}^{4} \sum_{l=0}^{q_j-1} \beta_{j,l}^* \Delta X_{j,t-l} + \kappa \mathrm{ECT}_{t-1} + \varepsilon_t \quad (26)$$

where $\mathrm{ECT}_{t-1} = \mathrm{GDPG}_{t-1} - \sum_{j=1}^{4} \theta_j X_{j,t-1}$ is the error correction term and $\kappa = \sum_{i=1}^{p} \phi_i - 1$ is the speed of adjustment. κ is expected to be negative and statistically significant, indicating that short-run deviations adjust back to long-run equilibrium.

3.6 Diagnostic and Robustness Tests

The following tests were conducted:

Table 3: Tests conducted

Test	Purpose	Decision Rule
ADF unit root test	To check stationarity	Variables must be $I(0)$ or $I(1)$, not $I(2)$
Bounds test	To check long-run relationship	F-statistic above upper bound implies cointegration
Breusch-Godfrey LM test	To check serial correlation	Probability value above 0.05 implies no serial correlation
Breusch-Pagan-Godfrey test	To check heteroskedasticity	Probability value above 0.05 implies homoskedasticity
Jarque-Bera test	To check normality	Probability value above 0.05 supports normality
Variance inflation factor (VIF)	To check multicollinearity	VIF below 5 implies no serious multicollinearity

Source: Author's compilation

3.7 A Priori Expectations

The expected signs are as follows:

$$\theta_1 > 0, \quad \theta_2 > 0, \quad \theta_3 > 0, \quad \theta_4 < 0 \tag{27}$$

where θ_1, θ_2, θ_3 and θ_4 are the long-run coefficients of FLQI, MLQI, FDI and INF respectively. FLQI and MLQI are expected to raise growth because higher participation, stronger employment absorption and lower unemployment increase effective labour input. FDI is expected to have a positive effect because investment inflows expand productive capacity. Inflation is expected to have a negative or ambiguous effect depending on the level and volatility of prices.

IV. DATA ANALYSIS, RESULTS AND DISCUSSION

This section presents the empirical results for the study on gender-disaggregated labour-market performance and economic growth in Nigeria.

4.1 Descriptive Analysis

The descriptive statistics provide an initial profile of the variables before the econometric estimation. They show the average performance, dispersion and range of each variable over the 1991-2025 period.

Table 4: Descriptive statistics

Variables	Mean	Standard Deviation	Minimum	Maximum
GDPG	3.859	3.93	-6.369	15.329
FLQI	54.223	18.227	5.512	94.565
MLQI	52.389	21.276	0.256	79.179
FDI	1.267	0.854	-0.029	2.9
INF	19.153	15.76	5.386	72.836

Source: *Author's computation from E-views 12.*

The descriptive statistics show that Nigeria's real GDP growth averaged 3.859 percent over the period, with a minimum of -6.369 percent and a maximum of 15.329 percent (table 4). This confirms that the sample captures both expansionary and contractionary episodes, including periods of macroeconomic stress. The female labour-quality index averaged 54.223, slightly above the male index average of 52.389. However, the wide standard deviations of both indices indicate that labour-market performance was not stable across the period. Inflation averaged 19.153 percent, with a maximum of 72.836 percent, confirming that price instability is a major macroeconomic feature of the Nigerian economy. FDI averaged 1.267 percent of GDP, indicating that foreign investment inflows have been modest relative to the size of the economy.

4.2 Trend Analysis of key variables

The recent values below provide a closer view of the final five years in the dataset. This is useful because the period after 2020 reflects COVID-19 recovery, inflationary pressure, exchange-rate instability and recent changes in Nigerian labour-market measurement.

Table 5: Recent values of selected variables, 2021-2025

Variables	GDPG	FLFP	MLFP	FEMP	MEMP	FUNEMP	MUNEMP	FLQI	MLQI	FDI	INF
2021	1.109	75.893	84.327	70.921	80.626	6.551	4.388	8.222	20.304	0.544	16.953
2022	4.319	76.927	85.537	72.787	83.439	5.382	2.452	35.048	57.369	-0.029	18.847
2023	3.316	80.693	84.391	77.374	82.621	4.113	2.098	91.19	51.802	0.384	24.66
2024	4.071	80.714	84.385	77.424	82.632	4.076	2.076	91.929	52.037	0.64	33.242
2025	4.013	80.7	84.297	77.569	82.359	3.881	2.299	94.565	48.236	1.377	23.01

Source: *Author's computation from E-views 12.*

The recent data show that real GDP growth recovered from the 2020 contraction and remained positive from 2021 to 2025. The female labour-quality index rose strongly from 8.222 in 2021 to 94.565 in 2025, while the male labour-quality index moved from 20.304 to 48.236 over the same period (table 5). This movement reflects the relative index construction and the strong recovery of female labour-force participation and employment-to-population indicators in the WDI/ILO modelled series. Inflation rose sharply from 16.953 percent in 2021 to 33.242 percent in 2024 before falling to 23.010 percent in 2025. The inflation path reinforces the need to treat macroeconomic instability as a relevant growth control. The data also show that FDI remained small, although it improved to 1.377 percent of GDP in 2025.

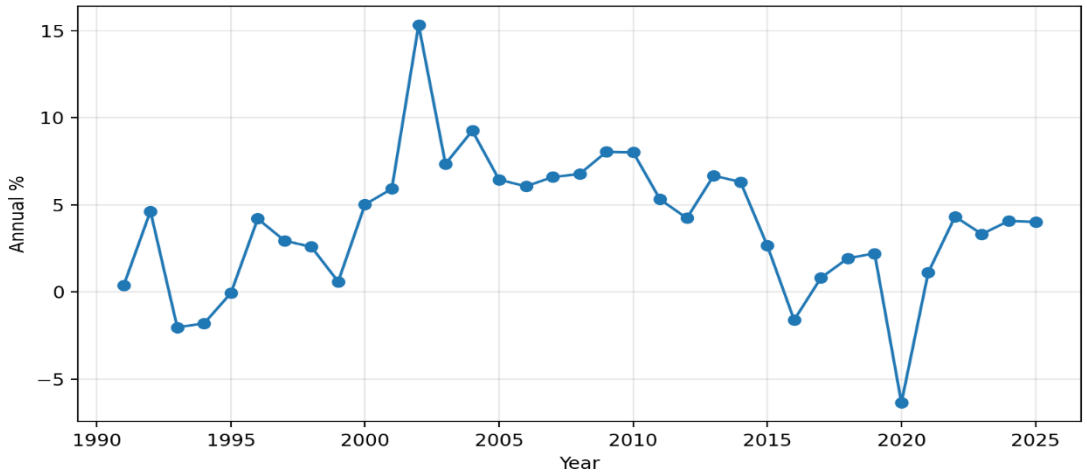


Figure 3: Nigeria real GDP growth, 1991-2025.
Source: Author's computation from WDI data.

Figure 3 shows that Nigeria's growth has been volatile rather than smooth. High-growth episodes are followed by periods of deceleration, and the major contraction in 2020 confirms the sensitivity of growth to shocks. This pattern supports the use of a dynamic model rather than a purely static regression.

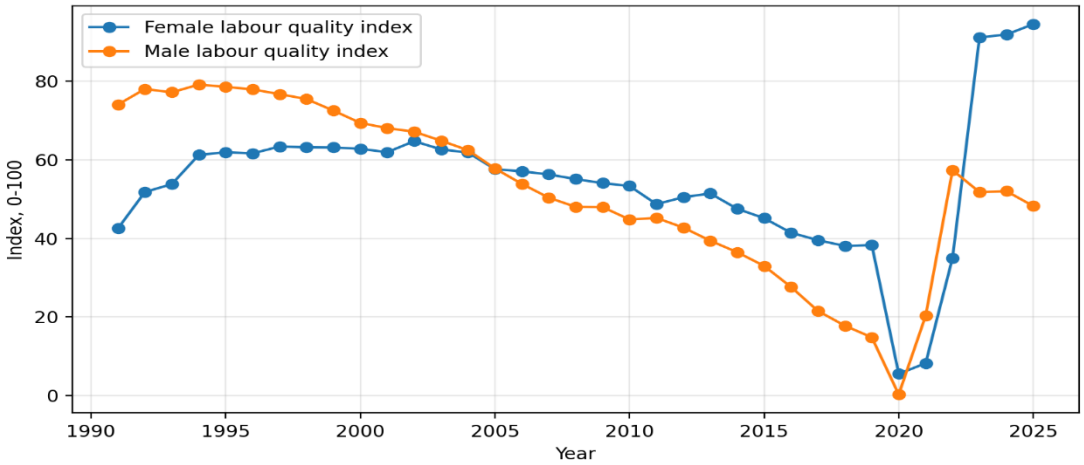


Figure 4 shows that both male and female labour-market performance changed considerably over the period. The female index experienced stronger improvement in the most recent part of the sample, while the male index remained comparatively flatter after the post-pandemic period. The result should be interpreted as a relative index movement, not as evidence that all dimensions of women's work quality have been fully resolved. Recent NBS evidence still shows that women remain more exposed to unemployment, underemployment and informality than men, meaning that participation and employment absorption must be interpreted alongside job quality.

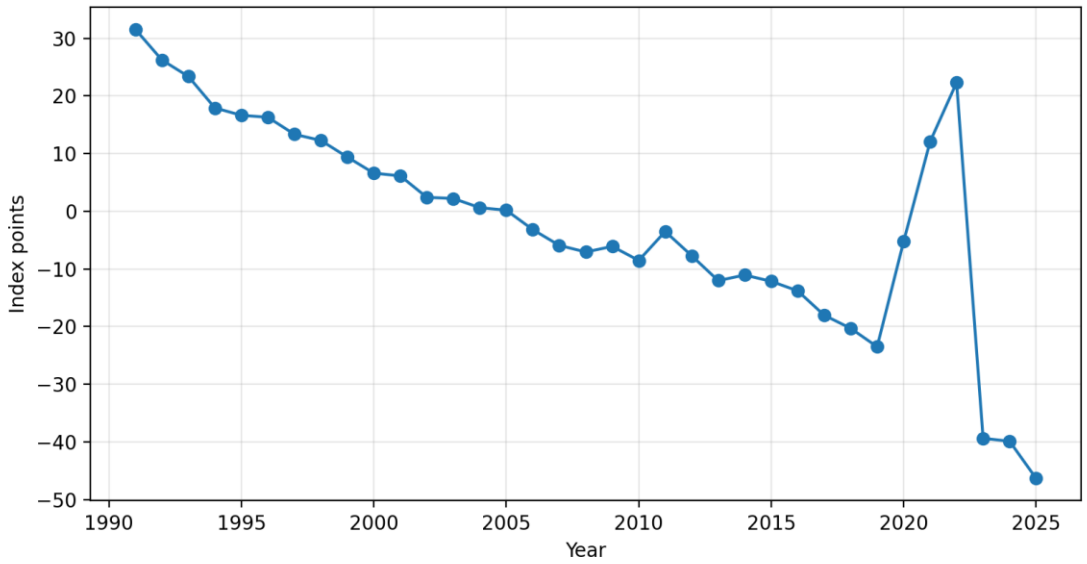


Figure 5: Labour-quality gap, 1991-2025.
Source: Author's computation from WDI/ILO modelled labour data.

Figure 5 shows the gap between the male and female labour-quality indices. Positive values indicate male advantage, while negative values indicate female advantage in the constructed index. The movement of the gap reinforces the argument that gender-disaggregated analysis gives a clearer picture than aggregate labour-market statistics.

4.3 Correlation analysis

The correlation analysis provides a preliminary indication of the direction of association between GDP growth and the explanatory variables. It is not a causality test, but it helps to show whether the relationships are broadly consistent with economic theory.

Table 6: Correlation with real GDP growth

Variable	Correlation with GDPG
FLQI	0.378
MLQI	0.218
FDI	0.378
INF	-0.354

Source: Author's computation from E-views 12.

Table 6 shows that GDP growth is positively correlated with the female labour-quality index, the male labour-quality index and FDI, while inflation is negatively correlated with growth. The correlation between GDP growth and the female labour-quality index is 0.378, compared with 0.218 for the male labour-quality index. This provides preliminary evidence that improvements in women's labour-market performance are meaningfully associated with growth. Inflation has a negative correlation of -0.354, suggesting that high inflation is generally associated with weaker growth performance.

4.4 Unit root test

Before estimating the ARDL model, the variables were tested for stationarity using the Augmented Dickey-Fuller unit-root test. This is necessary because time-series regression can produce misleading results when variables are non-stationary. The ARDL approach is appropriate when variables are a mixture of I(0) and I(1), provided none is I(2).

Table 7: Augmented Dickey-Fuller unit root test

Variable	Level ADF	Level p	Diff ADF	Diff p	Order decision
GDPG	-3.145	0.023	-5.379	-	I(0)
FLQI	-0.019	0.957	-2.871	0.049	I(1)
MLQI	0.112	0.967	-2.81	0.057	I(1)
FDI	-3.505	0.008	-6.825	-	I(0)
INF	-2.205	0.205	-3.543	0.007	I(1)

Source: Author's computation from E-views 12.

The ADF test results in table 7 show that GDP growth and FDI are stationary at level, while the labour-quality indices and inflation become stationary after differencing. The male labour-quality index shows weak first-difference stationarity at the 10 percent level. Since the variables are a mixture of I(0) and I(1), and none is treated as I(2), the ARDL bounds-testing framework is appropriate for the study.

4.5 ARDL bounds test for long-run relationship

The bounds test examines whether a stable long-run relationship exists among real GDP growth, female labour-market quality, male labour-market quality, foreign direct investment and inflation.

Table 8: ARDL bounds test result

Test statistic	Value
F-statistic	4.717
Model	ARDL(1,1,1,1,1)
Case	Restricted intercept and no trend

Table 9: Bounds critical values

Significance level	lower	upper
90	2.27	3.354
95	2.637	3.791
99	3.42	4.706
99.9	4.452	5.884

Source: Author's computation from E-views 12.

The bounds-test F-statistic is 4.717. This is above the 95 percent upper-bound critical value of 3.791 and also slightly above the 99 percent upper-bound critical value of 4.706. The result confirms the existence of a long-run relationship among the variables. This means that gender-disaggregated labour-market performance, investment inflows and inflation jointly move with economic growth in a stable long-run structure.

4.6 ARDL coefficient estimates

The ARDL estimates show the short-run and lagged effects of the explanatory variables on real GDP growth. Table 4.7 reports the dynamic coefficient estimates

Table 10: ARDL coefficient estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.8127	1.8656	-0.9716	0.3409
$GDPG_{t-1}$	0.1637	0.176	0.9305	0.3614
$FLQI_t$	0.0964	0.0476	2.024	0.0542*
$FLQI_{t-1}$	-0.0084	0.0557	-0.15	0.882
$MLQI_t$	0.1622	0.0736	2.2033	0.0374**
$MLQI_{t-1}$	-0.1504	0.0807	-1.8635	0.0747*
FDI_t	-0.0897	0.8437	-0.1063	0.9162
FDI_{t-1}	1.9524	0.8164	2.3914	0.025**
INF_t	-0.1365	0.0501	-2.723	0.0119**
INF_{t-1}	0.0064	0.0493	0.129	0.8984

Source: Author's computation from E-views 12.

The ARDL results show that the current female labour-quality index has a positive coefficient of 0.0964 and is statistically meaningful at the 10 percent level. This means that improvement in female labour-market performance is associated with higher real GDP growth in the short run. The current male labour-quality index is also positive and statistically significant at the 5 percent level, while its lagged value is negative and statistically meaningful at the 10 percent level. This suggests that the immediate growth effect of labour-market performance is stronger than the lagged effect, and that the labour-growth relationship is dynamic rather than purely contemporaneous. FDI is not significant contemporaneously, but its lagged effect is positive and statistically significant at the 5 percent level. This implies that foreign investment inflows do not immediately translate into growth but may support growth with a delay. Inflation has a negative and statistically significant contemporaneous effect on growth. A one-percentage-point rise in inflation is associated with a 0.1365 percentage-point reduction in real GDP growth in the short run, holding other variables constant. This is consistent with the Nigerian macroeconomic context, where high inflation weakens purchasing power, raises business costs and reduces the real value of income.

4.7 Long-run coefficients

The implied long-run coefficients are calculated from the ARDL estimates using the standard transformation:

$$\theta_j = \frac{\beta_{j,0} + \beta_{j,1}}{1 - \phi} \tag{28}$$

where θ_j is the long-run coefficient for variable j, $\beta_{j,0}$ is the current coefficient, $\beta_{j,1}$ is the lagged coefficient and ϕ is the coefficient of lagged GDP growth. The implied speed of adjustment is $\kappa = \phi - 1 = -0.8363$ (t = −4.75), which is negative and significant at the 1 percent level, so about 84 percent of any deviation from the long-run path is corrected within one year.

Table 11: Implied long-run coefficients

Variable	Current coefficient	Lagged coefficient	Long-run coefficient
FLQI	0.0964	-0.0084	0.1052
MLQI	0.1622	-0.1504	0.0141
FDI	-0.0897	1.9524	2.2274
INF	-0.1365	0.0064	-0.1557

Source: Author's computation from E-views 12.

The long-run coefficients show that female labour-market quality has a stronger long-run growth coefficient than male labour-market quality. The implied long-run coefficient of FLQI is 0.1052, while that of MLQI is 0.0141. This does not mean that male labour does not matter for the Nigerian economy. Rather, it indicates that improvements in female labour-market quality have a larger marginal growth association within the estimated model. This supports the central argument of the study: the growth relevance of women's work lies not only in participation, but in the quality of employment, labour absorption and reduced underutilisation. The long-run coefficient of FDI is positive at 2.2274, indicating that investment inflows have a stronger growth association over time than in the immediate period. Inflation retains a negative long-run coefficient of -0.1557, confirming that persistent inflation is harmful to growth. The inflation result is important because high and unstable prices reduce real household income, increase operating costs and weaken the productive value of labour-market participation.

4.8 Diagnostic tests

Diagnostic tests were conducted to assess the reliability of the estimated model. The tests examine serial correlation, heteroskedasticity and normality of the residuals.

Table 12: Diagnostic test results

Test	Statistic	p-value	Decision
Breusch-Godfrey Serial Correlation LM	1.7219	0.4228	No serial correlation
Jarque-Bera Normality	25.1763	0	Non-normal residuals indicated
Breusch-Pagan-Godfrey Heteroskedasticity	3.665	0.932	Homoskedastic residuals

Source: Author's computation from E-views 12.

The diagnostic results show that the model does not suffer from serial correlation, as the Breusch-Godfrey probability value is above 0.05. The Breusch-Pagan-Godfrey result also indicates that the residuals are homoskedastic. The Jarque-Bera test, however, indicates non-normality of residuals. This does not invalidate the main ARDL results, but it means the findings should be interpreted with attention to Nigeria's macroeconomic volatility, particularly the growth contractions and inflation spikes captured in the sample. The absence of serial correlation and heteroskedasticity supports the reliability of the estimated dynamic relationship.

4.9 Multicollinearity check

Variance inflation factors were computed to confirm whether the explanatory variables suffer from serious multicollinearity.

Table 13: Variance inflation factor results

Variable	VIF
FLQI	1.49
MLQI	1.839
FDI	1.106
INF	1.236

Source: Author's computation from E-views 12.

The VIF results are all below the conventional threshold of 5. This confirms that the explanatory variables are not excessively collinear. The index approach therefore helps to reduce the risk that overlapping gender-labour indicators distort the regression estimates.

4.10 Discussion of findings

The analysis provides four main findings. First, gender-disaggregated labour-market performance is relevant to Nigeria's growth process. Both male and female labour-quality indicators enter the growth model positively in the contemporaneous period, but the long-run coefficient attached to female labour-market quality is substantially stronger. This supports the argument that improving women's labour-market quality is not merely a social-protection agenda; it is a growth-enhancing strategy. Second, the results support the core argument of the study that participation alone is not enough. Nigeria's labour market contains high levels of economic activity, but recent NBS evidence shows that women remain more exposed to unemployment, underemployment, self-employment and informality. Therefore, policies that only raise female participation without improving job quality, productivity and formal work access will have limited growth effects.

Third, inflation weakens growth in both the short run and long run. This is relevant because women are more likely to be located in informal and low-margin economic activities. Inflation can therefore erode the welfare and productive effect of labour participation by raising transport, food, input and operating costs. The negative inflation coefficient confirms that gender-sensitive labour policy must be supported by macroeconomic stability.

Fourth, FDI has a delayed positive relationship with growth. This suggests that investment inflows matter, but their growth effects depend on absorption, productive deployment and linkages with the domestic economy. For gender-inclusive growth, foreign and domestic investment should be connected to employment-intensive sectors where women can access formal and higher-productivity work. The findings align with recent international evidence that labour-market recovery and headline employment statistics can conceal job-quality weaknesses, informality and gender gaps (ILO, 2025). They also align with the World Bank's position that legal, institutional and supportive frameworks shape women's economic participation and productivity (World Bank, 2024; World Bank, 2026). In the Nigerian context, the results reinforce the need to shift the policy conversation from female labour-force participation alone to women's employment quality, productivity and resilience.

V. CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This study generated annual data for Nigeria covering 1991 to 2025 and examined the relationship between gender-disaggregated labour-market performance and economic growth. The empirical analysis used GDP growth as the dependent variable, female and male labour-quality indices as the core explanatory variables, and FDI and inflation as control variables. The labour-quality indices were constructed from labour force participation, employment-to-population ratio and the inverse of unemployment for each sex. The descriptive analysis showed that Nigeria's growth has been volatile, while inflation has remained a major macroeconomic constraint. The correlation results showed positive associations between GDP growth and both gender labour-quality indices, with the female index showing a stronger correlation. The ADF unit-root test confirmed that the variables

are a mixture of I(0) and I(1), supporting the use of ARDL. The bounds test confirmed a long-run relationship among the variables. The ARDL estimates showed that female labour-market quality has a positive effect on growth, while inflation has a negative effect. The implied long-run coefficients further showed that improvements in female labour-market quality have a stronger long-run association with growth than the male labour-quality index in the estimated model.

5.2 Conclusion

The study concludes that gender-disaggregated labour-market performance matters for economic growth in Nigeria. The evidence supports a shift away from narrow models that focus only on female labour-force participation. Women's contribution to growth depends on the quality of their labour-market engagement, including employment absorption, reduced unemployment, access to productive work and movement away from vulnerable forms of employment. The conclusion is not that women are absent from Nigeria's labour market. Rather, the key issue is that women's work must become more productive, formal, protected and growth-linked. Recent NBS evidence shows that women participate actively but remain more exposed to unemployment, underemployment and informality. The empirical results demonstrate that when female labour-market quality improves, economic growth responds positively. This makes gender-inclusive labour-market reform an economic-growth priority.

The study also concludes that macroeconomic stability is essential. Inflation has a negative relationship with growth and can weaken the benefits of labour-market participation. In a high-inflation environment, women in informal and low-income work are especially vulnerable because rising costs reduce real earnings and business margins. Therefore, gender-sensitive growth policy must combine labour-market reform with inflation control, investment mobilisation and institutional support for women's economic productivity.

5.3 Recommendations

- Nigeria should prioritise the quality of female employment, not only female labour-force participation. Policy should focus on moving women from survivalist informal activities into more productive, better-protected and higher-income work. This requires stronger support for women-owned enterprises, formalisation incentives, skills development, access to finance and sector-specific employment programmes.
- Labour-market policy should be integrated with industrial and investment policy. FDI and domestic investment should be encouraged in employment-intensive sectors with clear potential for women's participation, including agro-processing, light manufacturing, digital services, health, education, care services, renewable energy services, textiles, logistics and formal retail value chains. Investment incentives should include measurable gender-employment targets.
- Government should expand female skills and human-capital development. Training should be aligned with sectors that can generate formal and productive employment, rather than short-term empowerment programmes with weak market linkages. Priority should be given to digital skills, technical and vocational education, enterprise management, financial literacy, formal bookkeeping, quality assurance and market access.
- Childcare and care-support systems should be treated as economic infrastructure. Unpaid care responsibilities reduce women's effective labour supply and constrain their movement into higher-productivity jobs. Public and employer-supported childcare, safe transport, flexible work arrangements and maternity protection can improve women's capacity to take up productive work.
- Inflation control should be treated as part of inclusive labour-market policy. High inflation erodes the gains from employment, reduces real income and weakens small businesses. Monetary and fiscal authorities should prioritise price stability, food-system efficiency, transport-cost reduction and targeted social protection for vulnerable workers.
- Nigeria should improve labour-market data systems. Annual gender-disaggregated data on underemployment, informality, wage employment, earnings, sector, hours worked, childcare constraints and social protection coverage should be made more consistent over time. This will allow future studies to estimate richer models that capture employment quality more directly.
- Gender-responsive budgeting should be linked to measurable labour-market outcomes. Ministries and agencies responsible for labour, women affairs, education, finance, industry and social protection should track whether public spending improves women's access to productive employment, formal enterprise, skills and income security.

The policy implication is clear: inclusive growth in Nigeria requires stronger female labour-market quality. The economy gains more when women are not merely counted as participants but are productively absorbed into formal, stable and higher-value work. Labour policy, investment policy and macroeconomic policy must therefore be coordinated. Without this coordination, Nigeria may continue to record positive GDP growth while large segments of the female workforce remain concentrated in low-productivity and vulnerable work.

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