

Review Article

WOMEN, EDUCATION AND WORK: IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT IN NIGERIA

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Article History:

Received: 05 February 2026 | **Accepted:** 12 February 2026 | **Published:** 27 February 2026

DOI: <https://doi.org/10.1234/ijmd.2025.01.001>

*** Related declarations are provided in the final section of this article.*

Abstract

Sustainable development in Nigeria remains constrained by persistent gender disparities in education and labour market participation, making the nexus between women, education, and work a critical development concern. This paper, titled Women, Education and Work: Implications for Sustainable Development in Nigeria, examined the level of access to and attainment in formal education among women and how this shapes labour market participation; analyses the nature and conditions of women's engagement in paid and unpaid work; and evaluates the implications of these dynamics for sustainable development in Nigeria. The paper adopted Human Capital Theory as its analytical framework, drawing on the propositions of Schultz and Becker that investment in education enhances productivity and economic returns. A systematic review methodology relying on secondary data was employed, synthesizing recent peer-reviewed empirical and theoretical studies relevant to the paper. Findings indicate that higher educational attainment significantly improves women's employment prospects and career mobility, particularly in the formal sector, yet structural constraints such as wage disparities, occupational segregation, and care burdens limit full realization of returns on educational investment. The paper further established that gender inequality in education undermines long-term economic growth and weakens poverty reduction efforts. It concluded that while expanding women's access to quality education is indispensable, sustainable development requires complementary labour market and institutional reforms. The paper recommended among others strengthening female educational completion rates, enforcing gender-responsive employment policies, and integrating women's economic empowerment into national development planning.

Keywords: Women's Education, Female Labour Participation, Human Capital, Gender Inequality, Sustainable Development, Nigeria.

Introduction

Gender equality in education and labour force participation has become a central pillar of global development discourse, particularly within debates on inclusive growth and sustainable development. Across the world, empirical scholarship consistently demonstrates that investments in female education generate significant returns in terms of earnings, productivity, health outcomes, and intergenerational mobility (Psacharopoulos & Patrinos, 2018). Recent global estimates indicate that each additional year of schooling increases women's wages by an average of 12 percent, a return that is often higher than that for men in low- and middle-income countries (Montenegro & Patrinos, 2014; Psacharopoulos & Patrinos, 2018). Despite notable improvements in gender parity in primary education, disparities persist at secondary and tertiary levels in many developing regions, with significant implications for labour market integration and income distribution. The persistence of gender wage gaps worldwide further underscores the uneven translation of educational gains into equitable economic outcomes (Blau & Kahn, 2017). These global patterns suggest that while access to education has expanded, structural and institutional factors continue to shape how women convert schooling into sustainable livelihoods.

Within Sub-Saharan Africa, progress in female enrolment has accelerated over the past two decades, yet regional inequalities remain pronounced. Educational expansion has not uniformly translated into proportional labour market gains for women, particularly in contexts characterized by informal employment dominance and gendered occupational segmentation (Bhorat & Goga, 2013). Empirical analyses from African labour markets show that women are disproportionately represented in vulnerable employment and low-paying sectors even when educational attainment improves (Bhorat & Goga, 2013). Moreover, the gender wage gap across African economies remains persistent, with evidence suggesting that differences in returns to education and occupational segregation contribute significantly to earnings disparities. These regional dynamics highlight the complexity of linking education to sustainable economic participation and demonstrate that human capital accumulation alone does not automatically dismantle entrenched gender inequalities.

In Nigeria, the largest economy in Africa, gender disparities in educational attainment and labour force participation continue to shape development outcomes. Although female enrolment rates at the primary level have improved considerably, completion rates and transitions to secondary and tertiary education remain uneven across regions, particularly between northern and southern states. Empirical studies reveal that women's labour force participation in Nigeria is characterized by high engagement in informal and unpaid family work, limited representation in managerial and professional occupations, and persistent wage differentials relative to men (Orji & Nwosu, 2023). Orji and Nwosu (2023) demonstrate that while the gender wage gap has narrowed over time, significant disparities persist across the earnings distribution. Similarly, Atinuke and Enaifoghe (2025) show that higher educational acquisition enhances women's career advancement in the civil service, though structural barriers such as workplace discrimination and domestic responsibilities constrain upward mobility. At the macroeconomic level, Adeleke et al. (2024) find that gender inequality in education exerts a statistically significant negative effect on Nigeria's long-run economic growth, underscoring the developmental cost of excluding women from full educational participation. These findings collectively indicate that Nigeria's sustainable development trajectory is closely tied to how effectively women's educational gains are translated into equitable and productive labour market outcomes.

Statement of the Problem

Although policies and international commitments underscore the importance of gender equity in education and work, Nigerian women continue to experience significant disadvantages that weaken their ability to contribute fully to sustainable development. Educational disparities remain evident in enrolment, completion rates, and subject-specific participation, with women and girls often underrepresented in higher education and high-skill fields. These educational gaps contribute directly to labour market inequalities, as women are disproportionately concentrated in informal, low-paying, and unstable jobs, and are less likely to access opportunities in high-growth sectors (Benshak et al., 2024). In addition, although recent data indicate a rise in female labour force participation, this quantitative gain masks persistent qualitative deficits, including unequal wages, limited career mobility, and restricted access to leadership positions.

Furthermore, socio-cultural norms and structural barriers continue to constrain women's educational attainment and work participation. Cultural expectations around caregiving roles, early marriage, and limited economic resources often result in girls dropping out of school or being diverted into domestic labour, thereby curtailing their prospects for meaningful employment. These factors are compounded by inadequate policy implementation and insufficient institutional support mechanisms to ensure transition from education to productive work. The persistence of these constraints undermines Nigeria's capacity to mobilise the full potential of its female population toward economic growth, social stability, and environmental stewardship. As a result, the nation risks failing to meet critical sustainable development targets unless there is a concerted focus on bridging the gaps between women's education, meaningful work, and the structural conditions that enable equitable participation.

Aim and Objectives of the Paper

The aim of this paper was to examine implications of women, education and work on sustainable development in Nigeria. The specific objectives includes;

- i. To examine the level of access to and attainment in formal education among women in Nigeria and how it influences their participation in the labour market.
- ii. To assess the nature and conditions of women's engagement in paid and unpaid work in Nigeria and how educational attainment shapes employment opportunities, income levels, and career mobility.
- iii. To analyse the implications of women's education and work participation for sustainable development in Nigeria.

Materials and Methods

This paper utilized a systematic review approach to synthesize extant scholarly evidence on women's education, work participation, and sustainable development in Nigeria and comparable contexts. A systematic review is a rigorous method of knowledge synthesis that involves a structured search, transparent selection procedures, and critical appraisal of existing research to answer clearly defined research questions (Newman & Gough, 2019). Unlike a narrative or integrative review, a systematic review follows explicit protocols that

minimize bias, enhance reproducibility, and provide comprehensive coverage of relevant literature in a field (Newman & Gough, 2019).

Given the broad scope of this paper, encompassing educational access, labour market outcomes, and development impacts, a secondary data synthesis ensured that findings could be triangulated across published empirical studies rather than relying on primary data collection in limited settings. This approach aligns with established practices in educational and social science research, where systematic reviews serve as foundational evidence for policy and theoretical advancement (Newman & Gough, 2019).

Following best-practice guidelines for systematic literature synthesis, an initial list of search terms was constructed and applied across multiple academic databases (e.g., Scopus, Web of Science, ERIC, and Education Source) to retrieve relevant peer-reviewed journal articles, books, and high-quality empirical reports. The review process adhered to strict inclusion criteria, requiring that studies be published in English between 2010 and 2026, focus explicitly on women's education, labour force participation, and/or development outcomes, and employ robust qualitative, quantitative, or mixed-methods designs. Only studies with full-text availability and published in reputable scholarly outlets were considered to ensure methodological transparency and traceability (Newman & Gough, 2019).

Exclusion criteria were applied to remove conference abstracts without full papers, unpublished theses without formal peer review, commentary pieces, and research outside the geographic or topical focus of Sub-Saharan Africa or analogous development contexts. Titles and abstracts were screened for relevance, followed by full-text review to confirm eligibility. This systematic selection process not only enhanced analytical rigour but ensured that the evidence synthesized reliably supported the study's objectives and theoretical framing.

Literature Review

This section review relevant and related literature for this paper in tandem with the aim and objectives, under conceptual review, empirical review and theoretical framework as follows:

Conceptual Review

The key concepts in this paper are identified and reviewed as follows:

Women

Women in sociological and gender studies literature are understood not only as adult human females but as social subjects whose life chances are shaped by historically produced gender structures and institutional arrangements. Recent feminist scholarship emphasises that women's identities and experiences are differentiated by class, ethnicity, religion, and geopolitical location, thereby cautioning against universal definitions (Mohanty, 2003; Oyěwùmí, 2016). Cornwall (2016) argues that "women" as a category must be analysed within specific socio-political contexts where power determines access to resources, representation, and voice. In African contexts, gender relations are embedded in kinship systems, labour structures, and state policies that influence women's social positioning (Mama, 2020). These perspectives converge in treating women as historically situated actors within gendered systems rather than a biologically defined group detached from social relations. For the purpose of this paper, women are defined as socially and economically situated female persons whose educational and work opportunities are structured by prevailing gender norms and institutional practices in Nigeria.

Education

Education is widely conceptualised in recent scholarship as a structured process of knowledge acquisition, skills development, and social formation that shapes individual capabilities and societal progress. Human capital theory continues to frame education as an investment that enhances productivity and earnings (Becker, 1993), but more recent analyses expand this view by linking education to social mobility, citizenship, and equality of opportunity (Marginson, 2016). Unterhalter (2017) contends that education must be understood in relation to social justice, particularly in contexts marked by gender disparities, arguing that access alone is insufficient without attention to quality and outcomes. Empirical research further demonstrates that educational attainment significantly influences labour market participation and earnings differentials across gender lines (Psacharopoulos & Patrinos, 2018). Drawing from these positions, education in this study is defined as formal and institutionalised learning processes that equip individuals with cognitive, technical, and social competencies necessary for productive employment and active participation in national development.

Work

Work in contemporary sociological discourse extends beyond paid employment to include unpaid and care labour that sustains households and economies. Kalleberg (2018) defines work as organised productive activity performed within economic systems, noting the growing insecurity and segmentation of labour markets. Feminist economists argue that conventional labour statistics undervalue unpaid domestic and care work disproportionately undertaken by women, thereby obscuring their contribution to economic production (Folbre, 2021). Iversen and Rosenbluth (2010) further highlight how labour market structures and welfare institutions shape gendered patterns of employment and earnings. Current debates also address informal employment and precarious work as defining features of labour markets in developing economies (Chen, 2012). These perspectives indicate that work is both an economic and social institution shaped by power, policy, and market conditions. In this paper, work is defined as paid employment, self-employment, and unpaid productive and reproductive labour that contributes to household welfare and national economic output.

Sustainable Development

Sustainable development in current academic discourse refers to a model of development that integrates economic advancement, social inclusion, and environmental protection over the long term. While the foundational articulation emerged in the late twentieth century, recent scholarship has refined the concept by emphasising human capabilities, equity, and intergenerational justice (Sachs, 2015). Sen's capability approach, though earlier articulated, continues to inform contemporary discussions by framing development as the expansion of substantive freedoms rather than mere income growth (Sen, 1999). Mensah (2019) clarifies that sustainable development rests on balancing economic productivity with social equity and ecological integrity. More recent analyses stress that gender equality is indispensable to sustainability outcomes, as exclusion of women from education and work constrains economic efficiency and social progress (Duflo, 2012). In this study, sustainable development is understood as a long-term process of economic growth, social equity, and environmental responsibility sustained through the effective inclusion and empowerment of women in education and work systems.

The Level of Access to and Attainment in Formal Education Among Women in Nigeria and the Influences on Labour Market Participation

Recent research on female education in Nigeria reveals persistent disparities in access, retention, and completion that shape women's economic opportunities. Although gross enrolment ratios at the primary level have reached about 88.2% for girls in 2023 (World Bank data compiled 2026), significant attrition occurs at higher levels of schooling, particularly between junior and senior secondary levels, where socio-economic barriers disproportionately affect girls (World Bank, 2026). A sizeable portion of out-of-school children in Nigeria remain female, with millions of girls excluded from basic education due to poverty, insecurity, early marriage, and gendered household responsibilities (UNICEF data cited in medium-term national reports). These dynamics create an educational gradient where completion of post-primary schooling remains lower for women, constraining their skills acquisition and labour market opportunities.

Studies using nationally representative datasets demonstrate persistent gender gaps in school enrolment and completion, particularly at the secondary and tertiary levels (Psacharopoulos & Patrinos, 2018; Wodon et al., 2018). Although gender parity has improved in urban areas and southern states, northern Nigeria continues to exhibit lower female enrolment and higher dropout rates due to poverty, early marriage, and sociocultural constraints (Osili et al., 2020). Osili et al. (2020), using quasi-experimental evidence from northern Nigeria, found that targeted scholarship interventions significantly increased girls' secondary school enrolment and delayed marriage, indicating that financial constraints remain a key barrier to educational access.

Educational attainment strongly predicts labour market participation in Nigeria. Human capital theory posits that additional years of schooling enhance productivity and earnings potential (Becker, 1993), and empirical studies confirm this association within the Nigerian context. Psacharopoulos and Patrinos (2018), in a global review including Sub-Saharan Africa, estimate that each additional year of schooling increases individual earnings by approximately 9 percent on average, with returns often higher for women than men. Country-specific analyses reveal that women with secondary or tertiary education are significantly more likely to participate in formal wage employment compared to women with only primary

education or no schooling (Klasen & Pieters, 2015).

However, education does not automatically eliminate gender disparities in labour market outcomes. Research indicates that even among educated women, occupational segregation persists, with many concentrated in education, health, and clerical sectors (Heath & Jayachandran, 2017). In Nigeria, tertiary-educated women face barriers to entry into high-paying sectors such as engineering and extractive industries, reflecting structural gender biases (Okojie, 2013). Moreover, the transition from schooling to work is often mediated by social networks, geographic location, and household responsibilities, limiting the labour market gains of educational attainment for women in rural areas (Klasen & Pieters, 2015).

Case-based analyses further illuminate this pattern. Osili et al. (2020) demonstrate that in northern Nigeria, increased access to secondary education for girls led to measurable improvements in labour force participation intentions and delayed fertility, both of which enhance future economic engagement. Yet the study also shows that labour absorption capacity remains limited, meaning that educational expansion must be accompanied by economic growth to translate into sustainable employment.

The literature therefore indicates that while educational access for Nigerian women has expanded, disparities in attainment remain significant and directly shape labour market participation. Women with higher educational credentials are more likely to secure wage employment and higher earnings, but structural labour market constraints continue to moderate these returns. Education enhances women's employability, yet its transformative potential depends on complementary economic and institutional reforms.

The Nature and Conditions of Women's Engagement in Paid and Unpaid Work in Nigeria

Women's engagement in work in Nigeria spans formal employment, informal economic activities, and extensive unpaid domestic and care labour. Scholarship on gender and labour in the Nigerian economy repeatedly identifies the informal sector as the primary locus of women's paid work, where they predominate in trading, small-scale entrepreneurship, and casual labour with precarious income and limited security (Kalu, 2025). The informal economy provides economic agency for many women but simultaneously exposes them to

vulnerabilities such as lack of social protection, limited access to capital, and constrained career trajectories.

Educational attainment remains a pivotal determinant of the quality and type of work that women access. Higher education opens pathways into formal sectors that offer structured wage employment, regulated hours, and clearer advancement ladders. Evidence indicates that women with tertiary education participate more frequently in wage employment compared to women with only secondary or primary schooling, whose work tends to be concentrated in informal or self-employment (Osili et al. (2020). Moreover, tertiary-educated women are better positioned to negotiate income and professional agency, a dynamic confirmed in recent labour force studies in Nigeria. Conversely, low educational attainment directs women into lower-income, unprotected forms of work and limits their career mobility, as formal sector employers frequently require credentials that disproportionately favour more educated candidates.

Income differentials further reflect educational disparities. Psacharopoulos and Patrinos (2018) demonstrate that returns to tertiary education are particularly strong in Sub-Saharan Africa, suggesting that women with university degrees earn substantially more than those with only primary education. Nevertheless, gender wage gaps persist even among equally educated individuals, reflecting discriminatory practices and occupational segregation (Okojie, 2013)

Unpaid work, particularly domestic roles such as caregiving, household management, and child-rearing, continues to absorb significant portions of women's time, often reducing their availability for paid employment. While quantitative data on unpaid work remain sparse, qualitative studies highlight that normative expectations surrounding women's domestic roles persist even among educated women, thereby constraining labour market outcomes. In this context, women's education mediates but does not fully eliminate traditional gender norms that shape work conditions: women with similar credentials to men may still experience slower career progression due to domestic obligations and labour market discrimination.

Folbre (2021) argues that care work, though economically productive, is undervalued because it is not formally remunerated. Nigerian women bear disproportionate responsibility for childcare, eldercare, and domestic labour, which constrains their ability to pursue full-time

formal employment. This unpaid labour reduces career mobility and contributes to part-time or informal work patterns. Heath and Jayachandran (2017) further note that gender norms often limit women's mobility and occupational choices, even when they possess high educational qualifications.

Case-based analyses from northern Nigeria illustrate that women with secondary education are more likely to operate small enterprises or engage in micro-trading compared to uneducated counterparts, yet access to capital and credit remains constrained (Osili et al., 2020). These findings indicate that education expands opportunity sets but does not eliminate structural barriers related to finance, social norms, and labour demand.

In essence, the literature demonstrates that educational attainment enhances employment opportunities, raises income potential, and improves career mobility prospects. However, the persistence of informal employment, unpaid care responsibilities, and labour market segmentation continues to shape women's work experiences in Nigeria. Therefore, workplace conditions remain gendered in ways that penalize women economically. Pay disparities, limited representation in senior roles, and occupational segregation are observed across sectors, and gender-responsive labour policies are inconsistently implemented, diminishing the overall impact of women's educational gains on income and mobility (Ciroma et al., 2025). Thus, while higher education enhances opportunities and income prospects for women in Nigeria, structural and normative barriers in the labour market continue to shape how education translates into work outcomes.

The Implications of Women's Education and Work Participation for Sustainable Development in Nigeria

The intersection of women's education and labour market engagement has profound implications for sustainable development outcomes in Nigeria. Sustainable development theory emphasises both material wellbeing and social inclusion as pillars of long-term progress, and recent Nigerian scholarship frames women's education and work participation as strategic levers for achieving poverty reduction, economic growth, and inclusive development. Empirical research demonstrates that educational attainment equips women with the skills and capabilities that enhance household economic stability, increase lifetime earnings, and contribute to improved welfare outcomes for children and communities.

Increased female labour force participation, particularly in wage employment, broadens household income bases, reducing vulnerability to poverty and supporting investment in health and education within families.

Empirical evidence confirms that female education is strongly associated with lower fertility rates, improved child health outcomes, and increased household income (Duflo, 2012). In Nigeria, these outcomes have significant implications for long-term development indicators. Economic growth is positively associated with higher female labour force participation. Klasen and Lamanna (2009) demonstrate that gender gaps in education and employment reduce economic growth rates across developing countries. Their cross-country econometric analysis suggests that eliminating gender disparities could substantially increase GDP growth. Applying this insight to Nigeria, where women constitute nearly half the population, the underutilisation of female human capital constrains aggregate productivity.

Evidence from Nigeria shows that gender inequality in education and labour force participation negatively affects long-run economic growth (Adeleke et al., 2024). Gender disparities in schooling reduce the effective human capital available to the economy, diminishing productivity and innovation potential. When women's educational enrolment and labour participation rise in tandem, labour supply expands, potentially boosting overall output and growth prospects. Furthermore, women's participation in formal work and leadership positions fosters social inclusion, challenging entrenched norms and enhancing representation in decision-making processes across economic and political spheres.

Poverty reduction is also closely linked to women's income generation. When women control income, expenditures on children's education and nutrition tend to increase, thereby producing intergenerational development effects (Duflo, 2012). In contexts of widespread poverty, such as parts of northern Nigeria, improving girls' educational attainment has been shown to delay early marriage and increase lifetime earnings potential (Osili et al., 2020), contributing to long-term poverty alleviation.

Social inclusion is strengthened when women access formal employment and decision-making roles. Heath and Jayachandran (2017) argue that women's paid employment can shift intra-household bargaining power and challenge restrictive gender norms. Over time, such shifts promote more equitable social structures and enhance democratic participation.

However, sustainable development requires that educational expansion be matched by labour market opportunities; otherwise, educated unemployment may generate social frustration.

The literature therefore supports a strong linkage between women's education, work participation, and sustainable development outcomes. Education enhances productivity and agency; work participation translates skills into economic output; and together they contribute to poverty reduction, economic expansion, and greater social equity. For Nigeria, sustained progress toward inclusive development depends on reducing gender gaps in schooling and improving the quality and security of women's employment.

However, scholars caution that education and work participation alone are not panaceas; supportive institutional frameworks and policy environments are necessary to translate these individual gains into aggregated sustainable development outcomes. Gender-responsive policies, enforcement of workplace equity, and expansion of decent work opportunities are critical to ensuring that women's educational achievements fully manifest in economic participation and social inclusion. Without such enabling conditions, the potential of women's education and labour force engagement to catalyse sustainable development remains partly unrealised, highlighting the necessity of integrated policy responses.

Empirical Reviews

In the Kwara State Civil Service context, Atinuke and Enaifoghe's (2025) study examined how higher educational attainment affects career progression for women in a public sector setting. This research was situated in the North Central region of Nigeria, focusing on female civil servants across six ministries. Anchored on a combination of bureaucratic theory, labour market segmentation, and human capital theory, the authors argued that hierarchical structures and segmented labour markets shape women's career outcomes in ways that education alone cannot fully overcome. Using a cross-sectional survey design with a mixed sampling approach (simple random, purposive, and stratified) to select 158 female public servants, the research employed quantitative questionnaires and qualitative in-depth interviews with senior female directors to gather data. Findings revealed that possession of higher degrees significantly facilitates women's advancement into management positions, although cultural stereotypes, domestic responsibilities, and glass-ceiling effects continue to restrict upward mobility. The study concluded that while academic qualifications are instrumental in

improving career prospects for female civil servants, organisational and sociocultural barriers remain salient deterrents. From a critical perspective, this research strengthens the linkage between formal education and work progression in a formal bureaucratic context but stops short of exploring how educational quality and field of study interact with labour market outcomes for women beyond public service roles. A gap that the current paper addressed is how educational attainment intersects with sectoral labour market structures and gender norms to influence women's participation and mobility in both formal and informal employment spheres across Nigeria.

Ozigi et al. (2024) investigated women's empowerment initiatives in Nigeria provided a quantitative assessment of how different dimensions of empowerment relate to poverty alleviation. Conducted nationally with beneficiaries of the Conditional Cash Transfer Programme, the study drew on Capability Approach theory to frame empowerment as the expansion of substantive freedoms for women. Employing a cross-sectional design, the study administered structured questionnaires to a sample of 384 randomly selected women from an eligible population of over 18 million. Multiple regression analysis was used to analyse the data. The findings indicated a positive and statistically significant relationship between economic, psychological, and social empowerment and poverty reduction outcomes. Unexpectedly, however, educational empowerment exhibited a negative association with poverty alleviation, prompting the authors to suggest that the nature and quality of education, or associated opportunity structures, influence how education contributes to poverty outcomes. The study concluded that empowerment interventions must be multifaceted and accompanied by effective monitoring systems to maximise impact. While insightful, this research did not distinguish between types or levels of education (e.g., secondary vs tertiary) nor how educational attainment specifically affects labour market engagement and income security for women. The current study filled this gap by unpacking the nuanced role of formal educational attainment in shaping women's work outcomes and contributions to sustainable development.

Orji and Nwosu's (2023) distributional analysis of the gender wage gap in Nigeria offers robust empirical evidence on labour market inequalities that influence women's economic participation. Conducted at a national level and published in the *International Journal of Manpower*, this research deployed an extension of the Oaxaca–Blinder decomposition method

using recentred influence function (RIF) regressions to assess wage differentials across the distribution of earnings. The dataset comprised two waves of national household surveys (2003–2004 and 2018–2019), capturing demographic, educational, and employment variables. Results revealed a persistent and statistically significant gender wage gap favouring men across the entire wage distribution. Temporal comparisons indicated a decline in the gap over time but revealed that wage disparities remain most pronounced at the lower end of the distribution, suggesting a “sticky floor” effect for women’s earnings. The study further identified that urban residence, unionisation, formal sector employment, and education have meaningful roles in reducing the wage gap for women. The authors concluded that addressing gender wage disparities requires policies that enhance human capital accumulation for women and reduce occupational segregation. A notable strength of this research is its methodological depth, but it does not integrate qualitative insights on how education interacts with societal norms and labour market institutions to shape women’s workplace experiences. The present built on this by integrating contextual analyses of how educational quality, gender norms, and labour market segmentation jointly shape work conditions and opportunities for Nigerian women.

Adeleke et al. (2024) carried out an econometric study on gender inequality in education and labour force participation and economic growth in Nigeria provided a macro-level perspective on the structural economic implications of gender disparities. Using annual time series data spanning 1991–2022 sourced from national and international economic indicators, the researchers applied an Autoregressive Distributed Lag (ARDL) model to estimate the long-run and short-run impacts of gender inequality on Nigeria’s GDP growth rate. The theoretical framework drew from growth accounting models that posit human capital as a driver of economic output. Findings underscored that gender inequalities in education exhibit a negative and statistically significant impact on economic growth in the long run, while gender disparities in labour force participation showed no significant effect in either the short or long term. The authors concluded that policies promoting gender parity in education are essential for sustained inclusive growth. Although valuable for linking national growth trends with gender disparities, this macroeconomic focus overlooks micro-level mechanisms through which women’s educational attainment translates into individual labour market outcomes and sustainable livelihoods. The current paper extended this line of inquiry by connecting macroeconomic insights with individual-level experiences of education and work among

Nigerian women to reveal pathways to sustainable development at both individual and national scales.

Theoretical Framework

This paper was based on the theoretical foundation of Human Capital Theory as reviewed below:

Human Capital Theory was originally advanced by Theodore W. Schultz in 1961 and subsequently elaborated by Gary S. Becker in 1964. Schultz (1961) first articulated the argument that investments in education, health, and skills acquisition enhance the productive capacities of individuals and contribute directly to economic growth. Becker (1964) further systematized the theory by modelling education and training as forms of capital in which individuals and societies invest with the expectation of future returns in the form of higher earnings, productivity, and improved economic performance. The central assumption of the theory is that education increases workers' knowledge, competencies, and efficiency, thereby raising their marginal productivity in the labour market. It presumes that labour markets reward individuals according to their accumulated human capital and that differences in income and occupational status can be explained largely by variations in educational attainment and skill levels. Human capital theory also assumes rational decision-making, whereby individuals weigh the costs of schooling against anticipated benefits such as higher wages and improved employment prospects.

The strengths of this theory lie in its clear explanation of the economic returns to education and its strong empirical support across diverse national contexts. It provides a coherent analytical basis for linking women's educational attainment to labour market participation, earnings, and national development outcomes. The framework has informed decades of policy on schooling expansion, vocational training, and gender parity initiatives, particularly in developing countries where educational deficits constrain growth. Empirical studies across Sub-Saharan Africa consistently show positive associations between female education and labour force participation, fertility decline, child welfare, and income growth, findings that align with the propositions advanced by Schultz and Becker. The theory also offers measurable constructs, enabling statistical analysis of wage differentials, employment rates, and productivity indicators.

Despite its utility, Human Capital Theory has identifiable weaknesses. It tends to treat labour markets as neutral arenas in which productivity alone determines outcomes, thereby underplaying structural barriers such as discrimination, occupational segregation, unpaid care burdens, and institutional constraints that disproportionately affect women. Critics argue that the theory assumes equal opportunity in translating education into economic returns, an assumption that may not hold in contexts marked by entrenched gender norms and segmented employment structures. Moreover, it pays limited attention to unpaid domestic and reproductive labour, which remains central to women's economic lives in Nigeria and is often excluded from conventional productivity measures. By emphasizing market returns, the theory may also overlook broader social and political dimensions of empowerment that extend beyond earnings.

Notwithstanding these limitations, Human Capital Theory provides a compelling analytical anchor for examining women, education, and work in relation to sustainable development in Nigeria. The topic of this paper seeks to establish how access to and attainment in formal schooling influence women's participation in paid employment and how these dynamics affect poverty reduction, economic growth, and social inclusion. The theory directly supports the proposition that increasing women's educational attainment enhances their employability, earning capacity, and productivity, which in turn contributes to national development indicators such as gross domestic product growth and improved household welfare. In Nigeria, where gender disparities in secondary and tertiary education persist in certain regions and where women's labour force participation remains uneven across sectors, Human Capital Theory offers a structured explanation for how investments in female education can translate into long-term development gains. At the same time, by acknowledging its limitations, the study can incorporate contextual realities such as labour market segmentation and sociocultural constraints, thereby applying the theory in a manner sensitive to Nigeria's socio-economic conditions.

Results and Discussions

This paper examined the implications of women, education and work on sustainable development Nigeria. The results of the review and its discussions are based on the objectives of the paper as follows:

In relation to the first objective, the paper demonstrates that women's access to and attainment in formal education in Nigeria significantly shape their entry into and positioning within the labour market. Evidence from Atinuke and Enaifoghe (2025) shows that higher academic qualifications enhance prospects for career progression within the civil service, although structural and cultural constraints continue to mediate outcomes. This aligns with Schultz's (1961) and Becker's (1964) proposition that investment in schooling increases individual productivity and earnings potential. However, the persistence of occupational segregation and limited representation of women in senior managerial positions suggests that education alone does not eliminate institutional barriers. Orji and Nwosu's (2023) analysis of wage differentials further reinforces this point by demonstrating that while educational attainment contributes to narrowing gender wage gaps, disparities remain across the earnings distribution. The findings of the present study therefore confirm that expanding access to quality education is necessary but insufficient unless accompanied by institutional reforms that address discriminatory labour market practices. For sustainable development, this implies that policies must integrate gender-responsive education strategies with labour market governance mechanisms that promote equitable recruitment, retention, and promotion.

In relation to the second objective, the evidence indicates that the nature and conditions of women's engagement in paid and unpaid work are strongly influenced by educational attainment, yet shaped by sectoral and socio-cultural dynamics. Orji and Nwosu (2023) demonstrate that women with higher levels of schooling are more likely to access formal sector employment, which offers relatively better wages and job security. Atinuke and Enaifoghe (2025) similarly show that postgraduate qualifications correlate with improved career mobility within public institutions. Nevertheless, the findings also reveal that many women remain concentrated in informal and low-paying occupations despite having formal education, pointing to labour market segmentation. Human Capital Theory explains the positive association between schooling and productivity, but its assumption of neutral labour markets is challenged by these patterns. The empirical results thus extend Becker's (1964) argument by illustrating that returns to education for women are conditioned by structural realities, including gender norms and care responsibilities. Sustainable development objectives require addressing these conditions by improving childcare infrastructure, enforcing anti-discrimination policies, and expanding access to vocational and technical education aligned with emerging sectors of the Nigerian economy.

The third objective concerning implications of women, education and work for sustainable development with particular focus on poverty reduction, economic growth, and social inclusion is supported by macro-level evidence. For instance, Adeleke et al. (2024) found that gender inequality in education exerts a negative long-run impact on economic growth in Nigeria, thereby affirming the central role of female human capital in national development trajectories. This macroeconomic evidence complements Ozigi et al.'s (2024) findings that women's empowerment initiatives influence poverty outcomes, although the latter observed that educational empowerment alone did not automatically translate into poverty reduction without supportive economic structures. The present study's findings suggest that when education enhances women's access to stable and adequately remunerated employment, it strengthens household income security and contributes to broader economic expansion. Schultz's (1961) thesis that human capital accumulation drives national output is therefore substantiated in the Nigerian context, particularly when educational parity reduces productivity losses associated with gender exclusion. Sustainable development in Nigeria depends on converting female educational gains into measurable economic contributions through inclusive employment policies, targeted skills development, and investment in sectors where women's participation can be scaled sustainably.

Finally, the theoretical framework adopted in this paper is reinforced by the empirical outcomes while also revealing areas for refinement. Human Capital Theory provides a persuasive explanation for the positive link between women's education and labour market participation, as well as for the macroeconomic benefits identified by Adeleke et al. (2024). However, the persistence of wage gaps and constrained mobility identified by Orji and Nwosu (2023) and Atinuke and Enaifoghe (2025) indicates that human capital accumulation must be complemented by structural reforms to yield equitable returns. The discussion therefore underscores that education enhances women's productive capacity, but sustainable development requires an enabling institutional environment that translates qualifications into dignified work and income stability. Practical implications include prioritising female enrolment and completion at secondary and tertiary levels, aligning curricula with labour market demands, strengthening regulatory frameworks to eliminate discrimination, and integrating gender-responsive budgeting into national development planning. Through these measures, the linkage between women, education, and work can generate measurable progress toward poverty reduction, inclusive growth, and long-term national sustainability.

Conclusions

This paper examined the nexus between women's access to formal education, their engagement in paid and unpaid work, and the implications of these dynamics for sustainable development in Nigeria. The findings demonstrate that higher educational attainment significantly enhances women's labour market participation, career mobility, and earning potential, particularly within formal sector employment. Nevertheless, persistent gender wage gaps, occupational segregation, and structural barriers constrain the full realization of returns on educational investment. The evidence further shows that gender inequality in education undermines long-term economic growth and weakens poverty reduction efforts, thereby limiting progress toward inclusive and sustainable development. While Human Capital Theory provides a persuasive explanation for the productivity-enhancing role of education, the findings indicate that the translation of educational gains into equitable labour outcomes depends on institutional, socio-cultural, and policy environments. Sustainable development in Nigeria therefore requires not only expanded access to quality education for women but also deliberate structural reforms that ensure fair labour market integration and equitable economic participation.

Recommendations

Arising from the above, the paper suggested the following recommendations:

- i. The government and educational authorities at all levels should prioritize universal completion of secondary and expanded access to tertiary education for girls and women, particularly in regions with persistent gender disparities, while simultaneously improving the quality and labour market relevance of curricula through stronger integration of technical, vocational, and digital skills training. Aligning educational content with growth sectors such as technology, renewable energy, agribusiness, and health services will strengthen the employability and productivity of women.
- ii. The labour market institutions should implement and enforce gender-responsive employment policies, including transparent recruitment and promotion procedures, equal pay audits, anti-discrimination enforcement mechanisms, and expanded childcare and parental leave provisions. Such measures will reduce structural impediments that weaken the returns to

women's educational investments and will facilitate their progression into leadership and decision-making positions.

iii. The national development planning should integrate gender-responsive budgeting and targeted economic empowerment initiatives that link women's education to sustainable livelihood opportunities, including access to credit, entrepreneurship support, and formalization pathways for women in the informal economy. By connecting educational attainment with income-generating opportunities and social protection frameworks, Nigeria can strengthen poverty reduction, stimulate inclusive growth, and advance long-term sustainable development objectives.

Article Publication Details

This article is published in the **International Journal of Multidisciplinary Department**, ISSN 3108-2718 (Online). In Volume 2 (2025), Issue 1 (Jan-Feb)

The journal is published and managed by **IJRGP**.

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