



AEFUNAI JOURNAL OF ECONOMICS,
FINANCE AND DEVELOPMENT STUDIES

AEFUNAIJEFDS

Department of Economics and Development Studies
Alex Ekwueme Federal University, Ndufu-Alike Ikwo, Ebonyi State, Nigeria.

Website: <https://www.ecofunai.ng>

ISSN (Print): 2536-6793 | ISSN (Electronic): 2536-6742

Volume 3 (1) February, 2026 (pp 555–573)

Submitted January 2025; Published February 2026.

Nexus between Gender Gaps in the Labour Market and Economic Growth in Sub-Saharan Africa: Evidence from Fixed Effects Regression and Granger Causality

Chibuikem Dibor-Alfred, Hüseyin Özdeşer & Fatma Türüç

Department of Economics, Near East University, Nicosia, Cyprus.

Email: fatma.turuc@neu.edu.tr

ABSTRACT

This paper investigates gender disparities in the labour market and their implications for economic growth. Utilizing data from 2000 to 2020 sourced from World Bank indicators, the study employed the Fixed Effects Regression technique and Granger Causality methods to analyze data from sub-Saharan African countries. The findings reveal a negative and statistically significant relationship between female wage rate and economic growth in the region. Female employment emerges as a key driver of economic growth, underscoring the importance of policies aimed at gender inclusiveness in the labour market, eradicating wage gender discrimination, and wage differentials. Additionally, the rise of the service economy is identified as a gender-neutral force driving female employment, highlighting opportunities for targeted interventions in service sector industries. Policy recommendations include initiatives to improve access to education, healthcare, and financial resources for women, address gender wage gaps, promote female entrepreneurship, and invest in infrastructure development. Overall, the study underscores the importance of evidence-based policymaking to foster gender equality and inclusive economic growth in diverse socio-economic contexts.

Keywords: Gender, Aggregate demand, wage differentials, Gender disparities

Dibor-Alfred, C., Özdeşer, H., & Türüç, F. (2026). Nexus between gender gaps in the labour market and economic growth in Sub-Saharan Africa: Evidence from Fixed Effects Regression and Granger Causality. *AEFUNAI Journal of Economics, Finance and Development Studies*, 3(1), 555–573.

1. Introduction

In recent times, the issue of gender inclusiveness has been widely debated. Most successful businesses, particularly Fortune 500 companies, are often associated with top-tier managers who are predominantly male. Does this imply that female top managers are not equally successful? Or is gender inclusiveness of vital importance when examining firms' performance through profitability? This paper analyzes the role of gender inclusiveness in shaping firms' performance, taking into account the profitability index of the organizations examined in this study. Certain observable traits in women have been identified as special endowments, such as strong listening skills and a greater willingness to address organizational concerns, which may translate into effective and successful leadership in firms headed by women (Kamalizeni et al., 2018). There is also a pressing need to implement gender-inclusive social reforms that enable capable women to exercise their legal rights and attain the status they deserve in society (Hoor-Ul-Ain & Iraqi, 2022). Empirical evidence further suggests that firms led by female managerial leaders are often associated with better performance compared to those managed by their male counterparts. In some cases, corporate boards provide similar stock option incentives to female CEOs as they do to male CEOs, presumably to encourage calculated risk-taking and foster overall organizational success (Khan & Vieito, 2013).

In Sub-Saharan Africa, leadership positions have historically been dominated by men. However, in recent years, the balance has gradually shifted toward greater workplace equity. Although considerable gaps remain, the participation of women in the labor force has steadily increased, alongside a substantial rise in the proportion of women occupying managerial positions. Evidence shows that average output per worker declines by over 10% if women are excluded from entrepreneurship, and earnings decline even further; income per capita falls by more than 40% if women are entirely excluded from the labor force. Cross-country findings indicate that while gender inequalities and income losses are relatively similar across income groups, they vary significantly across regions—27% in the Middle East and North Africa, 23% in South Asia, and approximately 15% in other parts of the world (Cuberes & Teignier, 2012).

This study contributes to the existing literature by employing a more advanced regression technique and incorporating new variables not widely used in previous empirical studies, thereby providing deeper insights into the relationship between gender disparities and economic performance. To achieve this, the study is concerned with the question below:

Research Question

To what extent do gender gaps in employment and wage rates influence economic growth in Sub-Saharan Africa?

Objective of the Study

The primary objective of this study is to empirically examine the nexus between gender gaps in the labor market and economic growth in Sub-Saharan Africa by assessing the effects of female employment and wage disparities on economic performance using Fixed Effects Regression and Granger Causality techniques.

2. Literature Review

2.1 Conceptual Literature

A research paper's literature review section offers a thorough summary of all the academic publications that have been published that are pertinent to the topic of the study. The literature evaluation would include research and theoretical frameworks that look at different elements of pay disparities, women's engagement in the workforce, and variables influencing their results in the context of gender differences in the labour market. Important elements of the review of the literature might be. The prevalence of gender wage discrepancies, occupational segregation, and other types of discrimination is demonstrated by empirical studies, which emphasise the necessity of policy initiatives targeted at advancing gender equality in the workforce. Furthermore, studies on the intersections of gender and other social identities shed light on how disadvantaged groups are disproportionately affected by the intersections of other types of discrimination. The relevance of context-specific methods to reducing gender inequalities is highlighted by the exploration of regional and sectoral differences in gender disparities.

Conceptual Framework

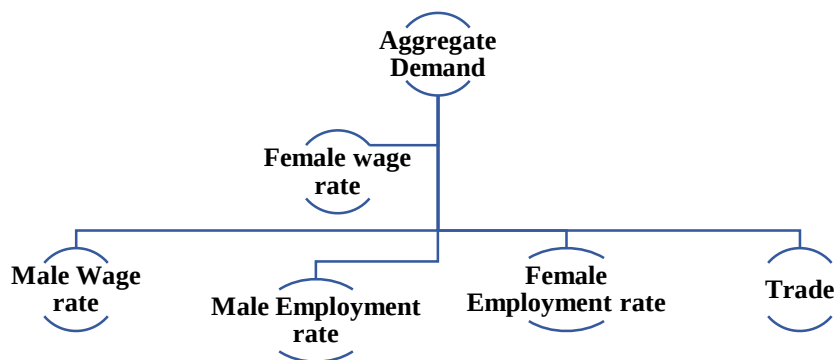


Figure 1: Conceptual Framework

Gender and Economics

Is Economics a one-sided concept? Given that most of the great thinkers and award-winning economists were born during a time when women were not given a lot to do. Most women were confined to just the Private sphere in society, which included getting married, taking care of the home, and raising the kids. (Marçal, 2016) The book explores the idea of unpaid domestic work, with a special emphasis on women's roles in household chores and the effects these have on society and the economy. There seems to be a growing correlation between regional economic growth and gender disparities in the workforce. (Klasen & Lamanna, 2009). Gender inequality has an inverse relationship with the economy of the world; gender inequality forms as a result of cultural norms, stereotypes, and occupational segregation (Benería et al., 2015; Boserup et al., 2013; Chaudhry, 2007; Eswaran, 2014; Hoor-Ul-Ain & Iraqi, 2022; Klasen & Lamanna, 2009; Kleven & Landais, 2017). As more and more region adopts gender inclusiveness, there has been a growth surge in the labour supply for women in recent years (Bravo, 2024; Kamalizeni et al., 2018; Khan & Vieito, 2013). The graph below also carefully shows this surge relating the female wage rate and Aggregate demand, which is a proxy for economic growth.

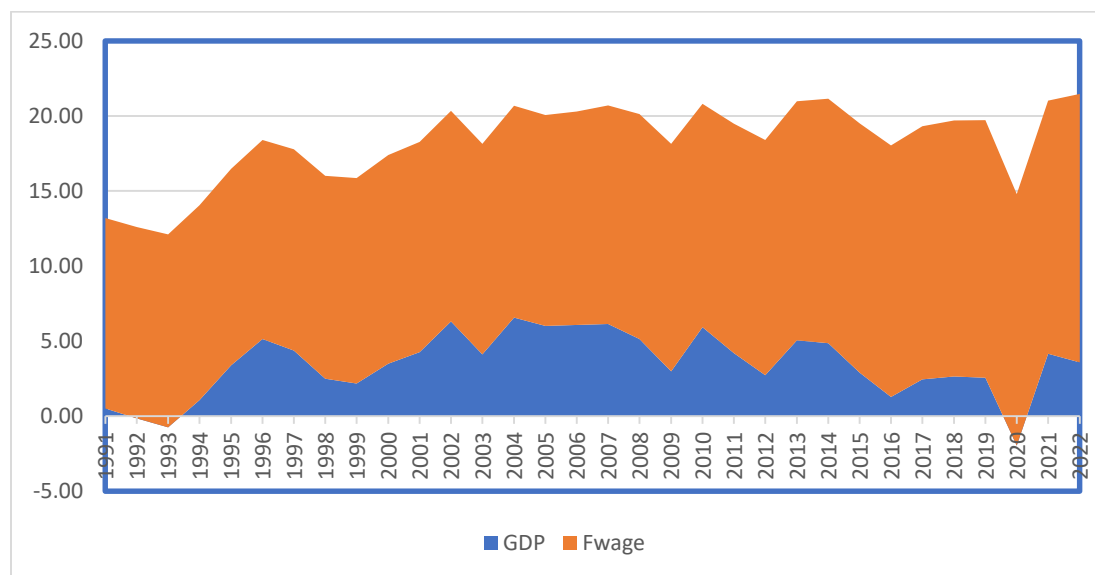


Figure 2: showing the trend between Gender(female) and Economic Growth

Author's Compilation using Microsoft Excel

Gender and the Labor Market

The labour market is a place (workspace) where labour supply and labour demand interact. In recent times, the labour supply of Women in some countries has seen some improvement, but a lot of work still needs to be put in if gender equity is to be achieved. (Angulo-Guerrero et al., 2024) Their results showed that, although in high-income nations the relationship between labour regulations and entrepreneurial activity appears to be minimal, in emerging economies, labour flexibility is strongly linked to female entrepreneurship. In the Scandinavian countries, the social welfare of the states answers the questions as to if strict state involvement increases or decreases gender discrimination (Gornick, 1999). Women are more represented in high-productivity positions when there is a gender quota for top jobs, but businesses undermine this policy by increasing wage discrimination. Requiring businesses to pay men and women the same wage decreases the wage difference by 15% on average, according to a counterfactual analysis of equal pay policies. However, this has unforeseen repercussions as hiring margins are adjusted by employers (Xiao, 2021). Gender gaps in the labor market are a result of occupational segregation and high discrimination in certain regions in the world (Azmat & Petrongolo, 2014; Cuberes & Teignier, 2016; Olivetti & Petrongolo, 2016).

The study intends to show the relationship between gender gaps in wage differentials, job opportunities, and societal differentials, and also shows how well they affect the aggregate demand of a country, i.e., the economic growth. The labor force of any country to be classified as a full employment states that's 94%-95% of the labor force has to be active participants of the labor market, this is not viable in sub-Saharan Africa as women's right are still up for debate in some regions in the world sadly enough but the truth remains that gender equality is a reachable and sustainable venture and to achieve this the study aims to add new views to the field; touching sensitive topics like wage differentials, and employment segregation.

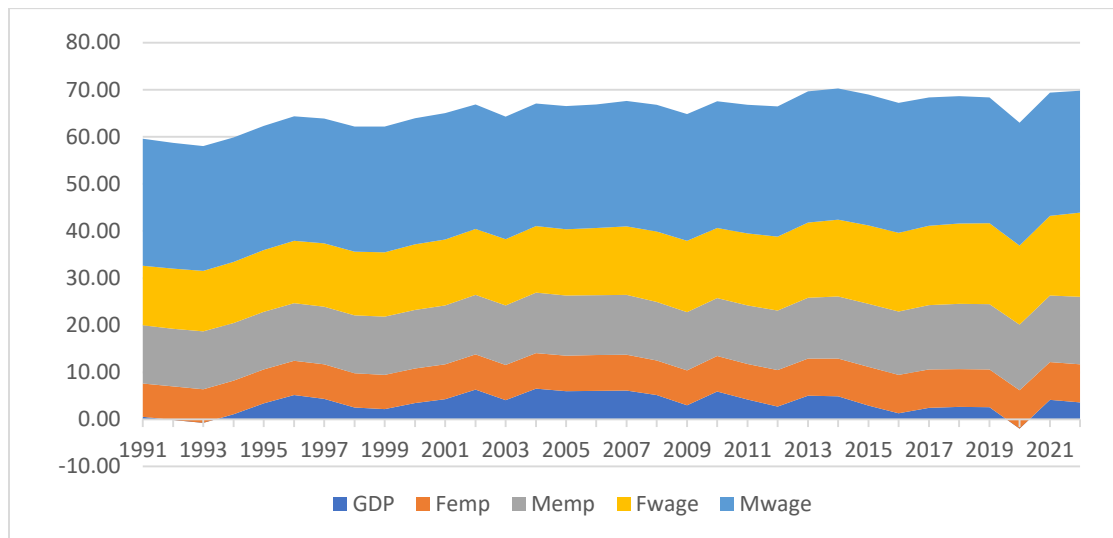


Figure 3: Graph showing trends relationship of all variables

Author's Compilation using Microsoft Excel

2.2 Theoretical Framework

The theoretical framework employed to key theories that relate to the topic of gender gaps in the labour market and the aggregate demand. The Human Capital theory suggests that the level of education is a major source of discrimination in the workforce, and also that those with a higher level of education receive higher wages, but again, some studies showed that the return on investment differs due to gender bias (Espinoza-Delgado & Silber, 2024). The study will look into these theories in order to provide a full understanding of the factors producing gender wage differentials.

Human Capital Theory and Gender Disparities Theory

The theory propounded by Gary Becker was a theory focus at various factors that can enhance a worker or an individual, with the most talked about one being the level of education. According (Becker, 1976) in his book "The Economic Approach to human behavior", showed the adverse relationship between human capital accumulation and wage differentials, The more and more level of human capital one accumulates be it level of education or years of experiences the higher the individuals wage rate, this means the old an individual gets in the labor force the more significantly wage rate should increase Meaning that wage rate and years of experience has a positive relationship and graph should be upward slopping. The study adopted this theory because when it comes to gender gaps level of education at times rewards might differ in regions plagued with gender discrimination, hence making the adoption of this theory a good fit for this research work.

The Gender Disparities theory aims to show how cultural norms, gender discrimination, and stereotypes fuel gender gaps in the labour market. This theory shows emphasis on disparities that exist between both genders in the labour market, aiming at occupational segregation, and confirms that the return on investments in human capital differs, with the female gender experiencing huge deficits. The concept offers a prism through which to analyse the complex processes that underlie gender disparities, which helps to achieve an equitable society and gender parity. The gender disparities theory aims to guide the Idea that human capital theory may not be feasible in some regions in the world, i.e., the higher the level of education, the higher the wage rate, and the same in experience due to gender discrimination.

2.3 Empirical Reviews

Xiao (2021) examined an equilibrium between lifecycle and gender wage gap, human capital accumulation, and preference for Job amenities. The study made use of employer-employee survey data and found that in Finland, gender quotas at reputable jobs improve women's representation in managerial roles, and that hiring discrimination against women will lead to low productivity and slow down career growth in the long run.

This review research covered a range of topics in the literature on the development of gender disparities and the factors that have fueled them. Gender disparities in commuting behaviour and equality in gender pay gaps are also highlighted, with a primary focus on gender inequalities in the labour force (employment) and salary differentials.

(Petrongolo & Ronchi, 2020).

In their paper labor market regulation and gendered entrepreneurship (Angulo-Guerrero et al., 2024) examined the extensiveness of labor regulation in the bid to control and protect entrepreneurship using panel data for 86 countries spanning from the period of 2004 – 2018 their result showed that more flexible labor regulation are associated with early female entrepreneurs', and suggested that policy makers more incentives showed be applied to the SMEs to encourage female entrepreneurship in the said regions.

Farré et al. (2023) examined how an increase in leisure and travel time affects the gender gap in labour market participation. The study used microdata from the US in the last two decades for this analysis. The study showed that 10 minutes increase in travel time decreases the chances for married women to be actively involved in the labour force; the contrast in men was statistically insignificant.

Verdugo & Allègre (2020) in their study they showed the differences in labour demand by using gender to explain the evolution of the labour force participation between men and women over the years, during the

great recession in Europe. The study showed that women with higher education credentials were more likely to migrate to countries with high labour demand, and for men, the unemployment rate in the labour supply for men declined due to the decrease in labor demand for men in certain regions.

Biasi & Sarsons (2021). This study report posed a crucial query: "Does a flexible wage rate increase the gender wage gap?" The study's empirical analysis, which employed quasi-exogenous variation, revealed that wage bargaining and pay discretion are significant factors to take into account when examining the gender wage gap and its relationship to various sectors. Additionally, the study found that unions play a significant role in mitigating wage gaps in various institutions, including the education sector.

Kiessling et al. (2024) employed a large-scale study carefully inquire about gender wage differentials based on a questionnaire on data of over 15000 students. The results showed that over a long life-cycle wage gaps increase, and that actual wage is subject to so many factors, ranging from human capital to gender bias, and this in turn gives birth to gender inequalities.

Again, gender gaps were examined in both labour supply(employment) and labour force participation in Spain from 1996 to 2022. The results of their findings agreed with this research, stating that as gender discrimination is frowned upon more and more, the gender gaps experienced a serious decline in Spain over the years.

Espinoza-Delgado & Silber, (2024) in their study human capital was the main focus and factor they plunged on for the increased gender gaps experienced in Paraguay, Argentina, and Chile (south American Countries) gender gaps was estimated to be 56%, the study also showed that men's return on human capital investment was more significant than that of the female gender.

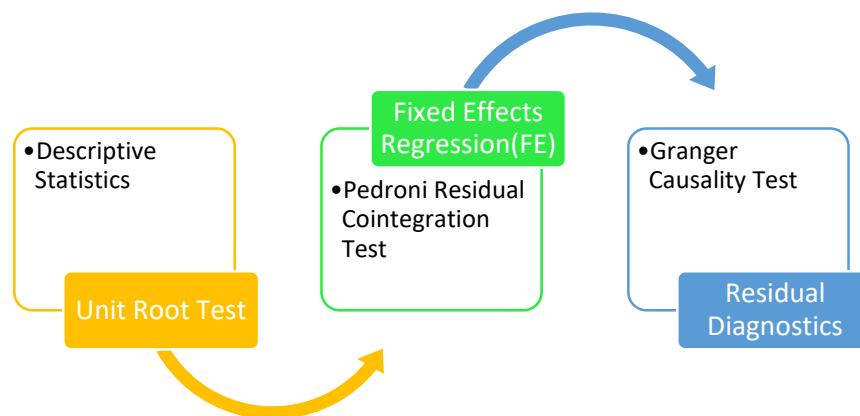
This paper intends to properly examine gender gaps in the labour market and how it affects the economic growth in the region, using the secondary data collection method. The study aims to employ the quantile-on-quantile technical analysis to examine data. The data this study will be utilising will be the GDP growth rate as a proxy for aggregate demand, labour participation rate, percentage of men and women, and also the unemployment rate in both genders in the region, and the inflation rate and wage as control variables to help in this analysis.

3. Methodology

Data

The study utilised the secondary form of data collection, and data were gathered from the World Bank database indicators from 2000 to 2020. The paper examined the relationship between aggregate demand, labour participation in men and women, the unemployment rate in men and women, the inflation rate, and the wage and salary disparities. The study examined these relationships by employing the Fixed Effects Regression technique for modelling and data analysis

Research Method Structure



Source Author's Compilation

Model Specification

The paper utilised three models to analyse the research objectives. The model specification of the

$$GDP_{it} = \beta_0 + \beta_1 FEMP_{it} + \beta_2 MEMP_{it} + \beta_3 FWAGE_{it} + \beta_4 MWAGE_{it} + \beta_5 TRADE_{it} + \mu \quad (i)$$

Where GDP serves as a proxy for aggregate demand, which Keynes described as a strong representation of economic growth. Other variables used are the Fwage, Mwage, Memp, and the Femp (which means wages for female, wages for male, rate of employment for male, and rate of employment for female). β_1, β_2 , and β_3 are the coefficients of the variables. β_0 is the constant, and ξ_{it} is the error term. The expected sign for Female wage rate is predicted that as Female wage rate in Sub-Saharan African Countries increases the economic will be positive impacted i.e ($\beta_1 > 0$), also other contributing variables such as Wage for Male and also labor force participation rate in both genders are expected to affect the aggregate demand positively ($\beta_2, \beta_3 > 0$), and ($\beta_4 > 0$) respectively represented with β (Somoye, 2024).

Data Presentation and Interpretation

The Data presentation and Interpretation systematically show regressed data that were regressed employing the Stata-17 and Eviews-12 computer software. The variables and various tests that were employed are carefully represented and labelled for clarity. The following tests were employed: descriptive statistics to show the behaviour of the variables individually, the unit root test to test for stationarity of data at various levels of Integration (level, first difference, and second difference). The models employed were Fixed Effects Regression and the Granger Causality Test.

4. Result and Discussion

4.1 Result

Descriptive Statistics

In the first test, the descriptive statistics test to show the distribution and the behavior of the variables of the data set, the mean and median of the dataset were analyzed, showing that MEMP had the highest mean score at 73.59381, while Aggregate demand, denoted as GDP had a mean score of 4.19427, showing that in comparison the variables are symmetrical in nature. The means for male and female employment (FEMP and MEMP) are 59.69821 and 73.59381, respectively. FWAGE has a somewhat higher standard deviation, which suggests that it is more variable. The mean male wage, MWAGE of 33.82430, indicates that men make more money on average than women do. All things considered, the descriptive statistics show differences in the variables' central tendency, dispersion, and skewness, laying the groundwork for more research and interpretation.

Table 1: Descriptive Statistics

	GDP	FWAGE	FEMP	MEMP	MWAGE	TRADE
Mean	4.19427	22.15454	59.69821	73.59381	33.82430	14.14939
Median	4.35296	14.34097	59.88400	73.75100	31.14824	12.56133
Maximum	26.52413	88.72911	88.52200	90.90300	80.44676	56.06487
Minimum	-20.49107	2.15736	28.98000	51.03900	6.79817	0.00000
Std. Dev.	3.87736	20.74919	14.15287	9.34085	18.55376	8.86789
Skewness	-0.68733	1.74333	-0.27925	0.09117	0.87839	1.54386
Kurtosis	10.15120	5.06152	2.54185	2.30863	3.17309	6.51972
Jarque-Bera	1473.77600	455.96870	14.50226	14.20820	86.60525	609.2613
Probability	0.00000	0.00000	0.00071	0.00082	0.00000	0.00000
Sum	2797.576	14777.080	39818.710	49087.070	22560.810	9437.642
Sum Sq. Dev.	10012.58	286732.4	133402.3	58109.51	229265.1	52373.85
Observations	667	667	667	667	667	667

Unit Root Test

Table 2: Unit Root Test Results

variables	ADF	PP	INT
GDP	-7.47481**	-12.8504**	I(1)
FEMP	-6.84236**	-17.1966**	I(0)
MEMP	-7.60211**	-5.18673**	I(1)
FWAGE	-7.74063**	-6.74534**	I(1)
MWAGE	-5.15739**	-8.67345**	I(0)
TRADE	-10.7568**	-16.6414**	I(1)

Source Author's Compilation

The results indicate that the GDP variable is stationary at the 5% significance level according to both the ADF and PP tests, suggesting it does not possess a unit root and is integrated of order 0 (I(0)). However, the variables, namely Fwage, Mwage, Memp, Femp, and trade, exhibit evidence of non-stationarity at the 5% significance level, as indicated by both ADF and PP tests. These variables are integrated of order level (I(0)) or order 1 (I(1)), implying that they require differencing to achieve stationarity.

Pedroni Cointegration Test

The Pedroni Residual Cointegration Test results indicate significant cointegration among the variables. Specifically, the Panel rho, PP, and ADF statistics all reject the null hypothesis of no cointegration at the 1% significance level, both in the within-dimension and between-dimension analyses. This suggests a long-run equilibrium relationship among the variables in the panel data set.

Table 3 Pedroni Residual Cointegration Test

Alternative hypothesis: common AR coefs. (within-dimension)				
	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-1.12028	0.8687	-3.30985	0.9995
Panel rho-Statistic	0.011831	0.5047	1.312993	0.9054
Panel PP-Statistic	-11.9213	0	-12.027	0
Panel ADF-Statistic	-5.91735	0	-7.86232	0
Alternative hypothesis: individual AR coefs. (between-dimension)				

	Statistic	Prob.	
Group rho-Statistic	2.147359	0.9841	
Group PP-Statistic	-20.0435	0	
Group ADF-Statistic	-6.36758	0	

Author's Compilation

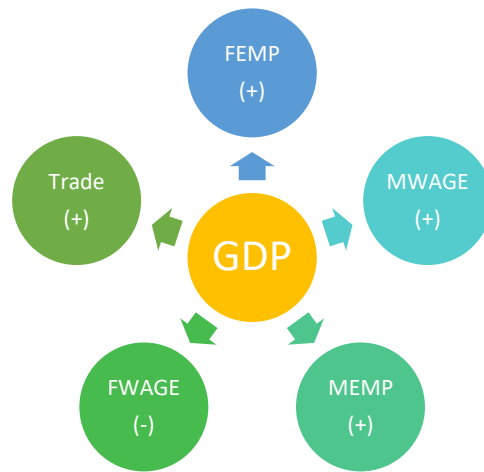
Fixed Effects (within) Regression

The results in the FE regression model indicate that both FEMP and MEMP have a positive but insignificant effect on economic growth in the SSA region, owing to the high level of unemployment rate registered in the region, which makes more sense why the employment rate of both genders might have an insignificant effect on the economic growth and development. Wage showed a negative but statistically significant level at 0.05. It indicated that for a unit increase in female wage rate, the economic growth will decrease by 0.3159. Increased earnings in certain sectors may not translate into increased overall economic productivity if female-dominated industries are typically less profitable or productive than male-dominated industries. The GDP and female wages may have a negative association as a result of this segmentation. Increased pay for women may change the distribution of household income and spending habits. Higher female wages may have a short-term negative effect on GDP and aggregate demand if they increase savings rates or decrease spending. The wage should positive relationship to GDP growth. For a unit increase in Mwage, the GDP increases by 0.2334 units. This indicates that, as high wages are present, this will attract a high labour supply in the region. Lastly Trade had a positive impact on GDP growth; a unit increment in trade showed a 0.0505 increment in GDP growth in the SSA countries.

Table 4: Fixed Effects Regression

Variables	Coefficients	Std. err	P-Value	95% Conf. Interval
FEMP	0.005997	0.052871	0.910	-0.978277
MEMP	0.044541	0.075738	0.551	-0.103586
FWAGE	-0.315908	0.718883	0.000	-0.4570769
MWAGE	0.233432	0.635335	0.000	0.1086697
TRADE	0.050572	0.026879	0.060	-0.0022107
_cons	-1.098378	5.300252	0.836	-11.50658

Source Author's Compilation



Graphical Representation of Fixed Effects Regression Results

Source Author's Compilation

Granger Causality Test

The Granger causality test results reveal several important causal relationships among the variables in your dataset. First, regarding GDP, the results show that male employment MEMP Granger causes GDP 0.0043, but GDP does not Granger cause MEMP 0.3179. This suggests that changes in male employment can predict future changes in GDP, but not vice versa. Both male wages, MWAGE, and GDP have a bidirectional Granger causality, indicating that changes in male wages can predict GDP 0.0000 and changes in GDP can predict male wages 0.0000. Trade does not Granger-cause GDP 0.3202, but GDP does Granger-cause trade openness 0.0305, implying that economic growth influences trade dynamics.

Table 5: Granger Causality Test

Variables	Obs.	Coffs.	Coffs.
FWAGE does not Granger-cause GDP	638	16.8468	0.000**
GDP does not Granger-cause FWAGE		0.00257**	0.960
FEMP does not Granger-cause GDP	638	12.8051	0.000**
GDP does not Granger-cause FEMP		0.43914	0.508
MEMP does not Granger-cause GDP	638	8.22892	0.004**
GDP does not Granger-cause MEMP		0.99918	0.318
MWAGE does not Granger-cause GDP	638	24.2746	0.000**

GDP does not Granger-cause MWAGE		18.5976	0.000**
TRADE does not Granger-cause GDP	638	0.98981	0.320
GDP does not Granger-cause TRADE		4.70368	0.031**

Source Author's Compilation

Residual Diagnostic Test

The normality test showed that variables are leptokurtic because their kurtosis value, 8.719775, is greater than 3. The Jarque-Bera test suggests the null hypothesis of normally distributed residuals is strongly rejected. The residuals do not follow a normal distribution, as indicated by the significant Jarque-Bera test and the high kurtosis value. While the histogram shows a roughly bell-shaped distribution, the presence of skewness and heavy tails suggests deviations from normality. This could have implications for hypothesis testing and confidence intervals that rely on the assumption of normality. The gradients of objective functions shed light on how various factors affect different nations and eras differently.

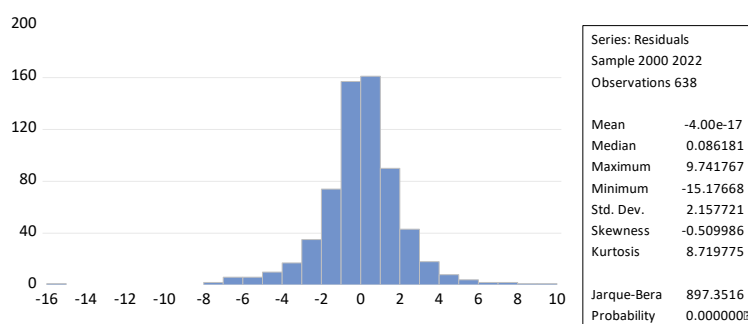


Figure 4 Author's Compilation

4.2 Discussion of the Findings

The findings of this study are broadly consistent with, yet in some respects divergent from, existing empirical literature on gender gaps and economic growth.

First, the positive but insignificant relationship between both female employment (FEMP) and male employment (MEMP) and GDP aligns with arguments in the structural transformation literature that employment expansion alone does not guarantee productivity-driven growth, especially in economies characterised by high informality and low-skilled labour absorption. This outcome is consistent with the theoretical position of Daron Acemoglu (2009), who emphasises that labour participation must be accompanied by productivity-enhancing institutional and structural reforms to generate sustained economic growth. However, the finding that female employment Granger-causes GDP supports the macroeconomic

evidence presented by David Cuberes and Marc Teignier (2012), who demonstrate that gender gaps in labour force participation significantly reduce income per capita. Their cross-country analysis reveals that excluding women from productive activities leads to substantial aggregate income losses. Similarly, Esther Duflo (2012) argues that women's economic empowerment generates broader development spillovers, particularly through improved household welfare and human capital investment.

The negative and statistically significant relationship between female wages (FWAGE) and GDP in this study contrasts with much of the mainstream gender-growth literature, which typically finds that reducing gender wage gaps promotes economic performance. For example, the International Monetary Fund (2013; 2018) reports that narrowing gender wage and employment gaps can significantly increase GDP in both advanced and developing economies. The divergence observed in this study may reflect structural segmentation in Sub-Saharan African labour markets, where women are disproportionately concentrated in low-productivity sectors. In such contexts, wage increases may not immediately translate into aggregate productivity gains, thereby explaining the short-run negative association. Conversely, the positive and significant relationship between male wages (MWAGE) and GDP aligns with human capital theory as advanced by Gary Becker (1964), which links earnings differentials to productivity and skill accumulation. The bidirectional causality between male wages and GDP observed in this study also reflects endogenous growth arguments, where income growth and wage growth reinforce each other over time.

The long-run cointegration among gender-related labour variables and GDP corroborates findings from the World Bank (2012; 2020), which consistently emphasise that gender equality is strongly associated with long-term development and economic resilience. Furthermore, the result that GDP Granger-causes trade openness, rather than the reverse, aligns with empirical evidence from developing economies where domestic economic expansion precedes deeper trade integration.

Overall, while this study supports the broader consensus that gender inclusiveness is economically significant, it also reveals region-specific dynamics within Sub-Saharan Africa. The results suggest that wage reforms alone may not yield immediate growth benefits unless accompanied by structural transformation and sectoral productivity improvements. Thus, this study both reinforces and extends existing literature by providing context-specific empirical evidence on the gender-growth nexus.

5. Conclusion and Recommendation

5.1 Conclusion

The Paper looked at the issues of gender gaps in the labour market in the Sub-Saharan region, examining issues such as gender disparities in pay and also labour force participation rate in the region from 2000 to 2020. The study employed three models for the regression analysis. Pedroni residual cointegration was employed to test the long-term link between variables. The fixed effects regression technique and the Granger causality test, although MEMP and FEMP had a positive relationship, they were insignificant, ranging as a result of Informal sector dominance, low productivity, and high unemployment rate that is in existence in the SSA regions, gender equality, and human capital skills mismatch contributed to the variables being insignificant in this study. The FWAGE, MWAGE, and trade showed a reputable positive impact on economic growth in the region.

In conclusion, the results of these cointegration variables suggest that as more and more countries in the region adopt gender inclusion in the labor market, the impact will be positive in the long-run. This result disagrees with the findings of (Abdulla & Serikbayeva, 2024) in their work that although gender gaps are significant but that gender inclusion would not bring about gender equality; also, the paper agrees with the following authors (Espinoza-Delgado & Silber, 2024; Kiessling et al., 2024; Mora-Sanguinetti & Atienza-Maeso, 2024), where they all agreed that gender disparity and discriminations are what births wage differentials and that through gender inclusiveness this issue can be quenched.

5.2 Recommendations

Throughout the study, the main goal was to ascertain what brings about gender gaps in the labour market, which could be in the pay of both genders in the workplace or even the participation rate, ranging from factors such as level of education (human capital), cultural bias, and lack of gender inclusion in the region. The paper found that there is a significant effect and also a positive effect when there is a rise in the salaries of the female gender in the region, and that there is a significant and positive impact when the female supply of labour increases in the region. Hence, the study moves to make the following recommendation. The government in Sub-Saharan Africa should move to eradicate discrimination against women in the workspace, policy such as human capital accumulation subsidies should be given for those willing to go to school to increase the literacy level in the region, as it has shown to have a great impact on economic growth and development in developing and emerging economies of the world. When the gender disparity is regulated and there is equity in the workspace, both genders can thrive.

Again, workshops and seminars should be organized in the region, especially in the rural areas by the domestic governments and also international bodies, to educate the masses on the danger of gender gaps being present in the long-run, gender gaps could bring about brain drains as more and more of the females might choose to migrate to a less harsh environment to develop their skills.

Furthermore, regulations should be put in place for equity in the wages and salaries of workers, inclusive of both genders, to ensure that the economy fully supports women in the workplace and has a level playing field for both genders to compete in a healthy, competitive labor market.

Conflicts of interest/Competing interests

- The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.
- All authors have participated in (a) conception and design, or analysis and interpretation of the data; (b) drafting the article or revising it critically for important intellectual content; and (c) approval of the final version.
- This manuscript has not been submitted to, nor is it under review at, another journal or other publishing venue. The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in the manuscript.)

References

- Acemoglu, Daron (2009). *Introduction to Modern Economic Growth*. Princeton University Press.
- Angulo-Guerrero, M. J., Bárcena-Martín, E., Medina-Claros, S., & Pérez-Moreno, S. (2024). Labor market Regulation and gendered entrepreneurship: A cross-national perspective. *Small Business Economics*, 62(2), 687–706.
- Azmat, G., & Petrongolo, B. (2014). Gender and the labor market: What have we learned from field and lab experiments? *Labour Economics*, 30, 32–40.
- Becker, G. S. (1976). The economic approach to human behavior (Vol. 803). *University of Chicago Press*.
- Becker, Gary S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago Press.
- Benería, L., Berik, G., & Floro, M. (2015). Gender, development, and globalization: Economics as if all people mattered. *Routledge*.
- Biasi, B., & Sarsons, H. (2021). Flexible Wages, Bargaining, and the Gender Gap. *The Quarterly Journal of Economics*, 137(1), 215–266. <https://doi.org/10.1093/qje/qjab026>
- Boserup, E., Kanji, N., Tan, S. F., & Toulmin, C. (2013). *Women's role in economic development*. Routledge.
- Bravo, P. (2024). WTO, Women's Empowerment and Financial Inclusion. *Global Trade and Customs Journal*, 19(Issue 2), 99–109. <https://doi.org/10.54648/GTCJ2024006>
- Chaudhry, I. S. (2007). Gender inequality in education and economic growth: Case study of

- Pakistan. *Pakistan Horizon*, 60(4), 81–91.
- Cuberes, D., & Teignier, M. (2012). *Gender gaps in the labor market and aggregate productivity*.
- Cuberes, D., & Teignier, M. (2016). Aggregate effects of gender gaps in the labor market: A quantitative estimate. *Journal of Human Capital*, 10(1), 1–32.
- Espinoza-Delgado, J., & Silber, J. (2024). Gender Gaps in Financial Literacy: Evidence from Argentina, Chile, and Paraguay. *Feminist Economics*, 30(1), 134–171. <https://doi.org/10.1080/13545701.2023.2278798>
- Eswaran, M. (2014). *Why gender matters in economics*. Princeton University Press.
- Farré, L., Jofre-Monseny, J., & Torrecillas, J. (2023). Commuting time and the gender gap in labor market participation. *Journal of Economic Geography*, 23(4), 847–870. <https://doi.org/10.1093/jeg/lbac037>
- Gornick, J. (1999). *Gender equality in the labor market: Women's employment and earnings*. LIS Working Paper Series.
- Hoor-Ul-Ain, S., & Iraqi, K. M. (2022). Gender-inclusive corporate boards and business performance in Pakistan. *Asian Journal of Business Ethics*, 11(1), 227–273.
- International Monetary Fund (2013). *Women, Work, and the Economy: Macroeconomic Gains from Gender Equity*. IMF Staff Discussion Note SDN/13/10. Washington, DC: IMF.
- International Monetary Fund (2018). *Pursuing Women's Economic Empowerment*. Washington, DC: IMF.
- Kamalizeni, C., Hoque, M., Kader, A., & Mapudzi, H. (2018). Gender inclusive leadership: Exploring women's under-representation in public enterprises—the case of Swaziland. *Journal of Public Administration*, 53(4), 849–872.
- Khan, W. A., & Vieito, J. P. (2013). Ceo gender and firm performance. *Journal of Economics and Business*, 67, 55–66. <https://doi.org/10.1016/j.jeconbus.2013.01.003>
- Kiessling, L., Pinger, P., Seegers, P., & Bergerhoff, J. (2024). Gender differences in wage expectations and negotiation. *Labour Economics*, 87, 102505. <https://doi.org/10.1016/j.labeco.2024.102505>
- Klasen, S., & Lamanna, F. (2009). The Impact of Gender Inequality in Education and Employment On Economic Growth: New Evidence for a Panel of Countries. *Feminist Economics*, 15(3), 91–132. <https://doi.org/10.1080/13545700902893106>
- Kleven, H., & Landais, C. (2017). Gender Inequality and Economic Development: Fertility, Education and Norms. *Economica*, 84(334), 180–209. <https://doi.org/10.1111/ecca.12230>
- Marçal, K. (2016). *Who Cooked Adam Smith's Dinner?* Simon and Schuster.
- Mora-Sanguinetti, J. S., & Atienza-Maeso, A. (2024). How effective is equality regulation in Reducing gender gaps in the labour market? *Journal of Policy Modeling*, S0161893824000449. <https://doi.org/10.1016/j.jpolmod.2024.05.003>
- Olivetti, C., & Petrongolo, B. (2016). The evolution of gender gaps in industrialized countries. *Annual Review of Economics*, 8, 405–434.
- Petrongolo, B., & Ronchi, M. (2020). Gender gaps and the structure of local labor markets. *Labour Economics*, 64, 101819. <https://doi.org/10.1016/j.labeco.2020.101819>
- Verdugo, G., & Allègre, G. (2020). Labour force participation and job polarization: Evidence from Europe during the Great Recession. *Labour Economics*, 66, 101881. <https://doi.org/10.1016/j.labeco.2020.101881>
- World Bank (2012). *World Development Report 2012: Gender Equality and Development*. Washington, DC: World Bank.
- World Bank (2020). *Women, Business and the Law 2020*. Washington, DC: World Bank.

Xiao, P. (2021). *Wage and employment discrimination by gender in the labor market equilibrium*.
Valtion taloudellinen tutkimuskeskus.