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Gender Equality and Human Development

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Abstract
This study examined the effect of gender equality in education and employment on human development in Nigeria between 1990 and 2021. The specific objectives are to determine the effect of the gender parity index in primary school enrolment, gender parity index in secondary school enrolment and female labour force participation on the human development index (HDI), a proxy for economic development. The study employed annual time series data for each of the variables over the study period. The data analysis followed the descriptive statistics, pre-estimation tests (unit root and bounds cointegration tests) and autoregressive distributed lag (ARDL) model in addition to the post-estimation tests. The findings from the unit root test showed that the variables are mixed integrated while the bounds cointegration test results affirmed the evidence of long-run relationship among the variables at the 5 per cent significance level. The findings from the estimated ARDL showed that the ratio of female-to-male primary school enrolment has a significant positive effect on HDI. A unit increase in the ratio of female-to-male primary school enrolment is associated with a 0.1718 increase in the HDI score. This suggests that the gender parity index in primary school enrolment has the potential to promote human development in Nigeria in the long run. At the same time, evidence of a positive effect of the ratio of female-to-male secondary school enrolment on the HDI was established from the long-run results. Although this finding conforms to the a priori expectation, it is not statistically significant at the 5 per cent level. The long-run results further showed that female labour force participation has a positive and significant effect on HDI. This suggests that a 1 per cent increase in female labour force participation leads to a 0.011 decrease in the HDI. The error correction coefficient revealed that the model can adjust from the short to the long run at a speed of 65.45 per cent. Based on the findings, this study recommends that policymakers should provide more opportunities for equal access to primary education in accordance with the objectives of universal basic education (UBE) to increase its contributions to HDI.

Keywords: *Gender equality, economic development, education, employment, school enrolment and female labour force participation*

1. Introduction

Gender equality in education and employment has been identified as one of the challenges facing developing economies including Nigeria. This is evident in the gap between male employment-to-population and female employment-to-population. Anyanwu and Augustine (2013) posit that Africa has remained a destination for gender inequality in employment with the male employment-to-population ratio estimated at about 69.2 per cent whereas the female employment-to-population ratio stood at 39.2 per cent. This has renewed the public interest in promoting gender equality. As a human right, gender equality is described by Shannon *et al.* (2019) as imperative for achieving a peaceful society and sustainable development. It is also considered fundamental for economic growth and poverty reduction in Africa (African Development Bank, 2014).

Furthermore, gender equality is considered an important determinant of social and economic prosperity in countries across the world. This is partly attributed to the fact that achieving gender parity in social and economic rights, which is one of the 17 sustainable development goals (SDGs) of the United Nations, is essential and morally justifiable. According to Hossain, Asadullah, and Kambhampati (2019), gender equality in political participation that promotes the empowerment of women politically increases their life satisfaction and feelings of self-worth. The further explained that gender parity promotes development, particularly by redirecting the allocation of resources towards enhanced capabilities of women that may drive endogenous economic and political change. This explains the integral role of gender parity in the process of development. By improving the lot of women, gender equality provides opportunity for accelerating human capital development (Asadullah, Alim, and Hossain, 2019).

In addition, it is established in extant literature that countries with high levels of gender equality between men and women especially in the area of economic opportunities tend to experience higher levels of development compared to societies that place certain restrictions on women. As outlined in the International Monetary Fund (2016), higher level education for girls will help to mitigate the gender disparity in education while creating more opportunities for female folks to benefit from better developmental opportunities for the country at large. An increase in the education of the girl child is expected to improve the empowerment of women which has been identified as a key developmental factor while increasing gender equality (Anochie, Osuji and Anumudu, 2015). Female education also to an increase in the labour force which will in turn bring about an increase in economic productivity and adequate use of human resources.

In Nigeria, gender equality has remained a controversial issue considering the growing inconsistencies in policies that promote equal access for men and women in education, health, employment and the economy at large. Cultural and religious restrictions predominant in Nigeria have continued to worsen the discrimination against women with negative implications on gender equality. This has also affected the country's ranking in terms of equality of access to education, employment, healthcare and technology, among others. For instance, the 2021 Global Gender Gap report showed that Nigeria is ranked 139 out of 153 countries. This has raised concern on the effectiveness of the public policy and legislations tailored towards improving gender sensitivity in education, employment, and distribution of opportunities in the other aspects of the economy.

Thus, this study examined how gender equality in education and employment affected economic development with a focus on human development index (HDI).

does not significant affect HDI in Nigeria.

2. Literature Review

2.1 Theoretical Literature

The liberal feminist theory was credited to the work of Mitchell (1971). The theory is based on the assumption that gender inequality is created by lowering access for women and girls to civil rights and allocation of social resources such as education and employment. Liberal feminists contend that a number of social and legal barriers prevent women from achieving success in the public arena and that these barriers are the source of female subordination. Liberal feminists were motivated to use education and the law to address the issue because women's life chances and results were lacking (Tong, 2009). According to Riger (1998), the liberal feminist theory challenges male dominance in political positions as well as economic and social opportunities and advocates social, political and economic equality of women and men in any society.

The tenets of the liberal feminist theory are that the appearance of neutrality towards gender equality of men and women is important in mitigating the problem of gender inequality. In its central assumption, liberal feminism maintains that differences between women and men are not based on biology, which basically represents reproduction differences. Hence, women should have the same rights as men, including the same education as well as employment opportunities. Notably, the theory emphasizes the rights of the individual woman and aims to grant access to equal rights and representation through legislation. This is expected to create opportunities for equal access to education, healthcare, employment and other economic opportunities.

The liberal feminist theory also applies liberalism to gender equality and claims that the oppression of women lies in their lack of political and civil rights. It is also argued that the subordination of women, which deprives them of freedom, is an unjust violation of the principle of liberty. The theory opposes women's secondary status in society arguing that it is triggered by unequal opportunities and segregation from men. Despite the contributions of this theory to the literature on gender equality, it has been criticised for its failure to acknowledge that discrimination against women may *vary* according to race, class, and ethnicity.

2.2 Empirical Literature

Altuzarra, Gálvez-Gálvez and González-Flores (2021) examined how different measures of gender inequalities such as education, labour market and institutional representation affected on economic growth in the sub-Saharan African (SSA) countries. The study employed data from the World Bank Development Indicators database for the period 1990–2017. The results showed that gender equality in education contributes to economic growth, which is an integral aspect of developing countries. The contribution of equality in education to growth seems to be greater in the SSA countries than in the entire sample of developing countries. The female–male ratio of labour market participation is not statistically significant. It was also found that there is a significant

relationship between female parliamentary representation and growth in the sample of all developing countries. Based on the findings, this study concludes that expanding women's educational opportunities is an effective way to promote economic growth in developing countries, including the SSA countries.

Egbulonu and Eleonu (2018) examined the link between gender inequality and economic growth in Nigeria from 1990 to 2016. Secondary data was used to back up our econometric analyses of how gender inequality affects economic growth in Nigeria. The main findings include that the economic development of Nigeria is mostly influenced by male school enrolment and female employment rates. Thus, the study concluded that if the nation wishes to achieve sustained growth, which would lead to a structural transformation of the Nigerian economy, it must seriously address the issue of gender equality. In order to generate the appropriate productivity required to achieve the desired growth in Nigeria, the government must invest in targeted policies to raise education standards, create employment opportunities, and, more importantly, reduce the barriers that cause gender inequality in access to education and employment.

Esen and Seren (2021) investigated the impact of gender-based inequalities in both education and employment on economic performance using the dataset of Turkey for the period 1975–2018. The study utilized Johansen cointegration tests to analyze the existence of a long-term relation among variables. Furthermore, dynamic ordinary least squares (DOLS) and fully modified ordinary least squares (FMOLS) estimation methods are performed to determine the long-run coefficients. The findings from the Johansen cointegration analysis confirm that there is a long-term cointegration relation between variables. Moreover, DOLS and FMOLS results reveal that improvements in gender equality in both education and employment have a strong and significant impact on real gross domestic product per capita in the long term.

Gelard and Abdi (2016) examined the effect of existing inequalities between men and women on economic growth in countries with high human development categories (HDI) for the period 2002 to 2012. The results of the estimation model showed a negative relationship between inequality in life expectancy and disparities in wages and economic growth. Furthermore, the results revealed a positive relationship between gender inequality and educational equality by economic growth rate. This means that a reduction in gender inequality, or in other words, an increase in the equality of women and men in all areas related to the labour market, employment, education, and wages issues, and full cultural equality in society, will increase economic growth with a high HDI.

Koengkan *et al* (2022) used an ordinary least squares (OLS) regression model with fixed effects, quantiles via moments model, and seventeen Latin American and Caribbean (LAC) countries from 1990 to 2016 to investigate the impact of gender inequality on economic growth. A series of preliminary and post-estimation tests were carried out to ensure the sufficiency and suitability of both methodologies. Control variables included electricity consumption from new renewable energy sources, general government capital stock, private capital stock, trade openness, and urban population. The OLS model with fixed effects supports that gender inequality negatively affects gross domestic product (GDP) per capita. The quantiles via moments (QvM) model confirms the results of the OLS model with fixed effects and reveals that with increasing quantiles, gender

inequality leads to decreases in LAC countries' growth. It is recommended that LAC countries' policymakers and institutions should improve gender equality to reach a higher development level and a more prosperous society.

3. Methodology

3.1 Model Specification

The model for this study is anchored on the liberal feminist theory and patterned after the works of Bora (2019) and Ezeh (2020), but with an improvement following the use of gender equality in education and employment as independent variables and HDI as a measure of economic development. The function specification of the model is as follows:

HDI = f (RPE, RSE, FLF) (1)

Where: HDI = Human development index, a proxy for economic development

RPE = ratios of female-to-male primary school enrolment

RSE = ratios of female-to-male secondary school enrolment

FLF = Female labour force participation

The autoregressive distributed lag (ARDL) model of the linear model is specified as follows:

$$\text{HDI}_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} \Delta HDI_{t-1} + \sum_{i=1}^{p} \beta_{2i} \Delta RPE_{t-1} + \sum_{i=1}^{p} \alpha_{3i} \Delta RSE_{t-1} + \sum_{i=1}^{p} \alpha_{4i} \Delta FLP_{t-1} + ßHDIt\text{-}1 + ß_{2RPEt-1} + ß_3 RSE_{t-1} + ß_4 FLP_{t-1} + + U_t \quad (2)$$

Where: α_0 = Intercept to be estimated

α_{1i} - α_{4i} short-run dynamic coefficients to be estimated

$B_1 - B_4$ = long-run coefficients of the regressors

U_{1t} = Error term

Δ = First difference operator

m and P = maximum lag operator

3.2 Data Collection Methods and Sources

In this study, annual time series data were used in the course of the analysis. Specifically, the data were obtained from the World Bank World Development Indicators (WDI), the International Labour Organisation (ILO) database and National Bureau of Statistics (NBS).

3.3 Method of Data Analysis

This study applied the ARDL method to analyse the effects of the regressors on the dependent variable. The choice of this method is to enable the re-parameterizing of the model to determine the dynamic short and long-run effects of gender equality on the HDI in accordance with the proposition of Pesaran and Shin (1999). More importantly, the ARDL provides opportunity for the

estimation of the speed adjustment which offers insights into the convergence of the model to long run equilibrium position. The pre-condition for fitting the ARDL requires that the variables are mixed integrated [I(0) and I(1)] and cointegrated at 5 percent level. In addition, the conventional augmented Dickey and Fuller (1981) approach to unit root test was employed in this study to determine the stationary properties of the variables. The formal specification of the unit root test model with a constant and deterministic trend are provided as follows:

$$\Delta X_t = B_0 + B_1 X_{t-1} + \sum_{i=1}^{q} \pi_i \Delta X_{t-i} + U_t \quad (3)$$

Where: X_t = variable include in each of the models

B_1 and π_i = estimated parameters

q = Proxy for the maximum lag length for the variables

Δ = Notation for the first difference operator

U_t = Disturbance error term

The bounds approach to cointegration was applied in this study. Basically, it involves applying Wald statistic to test the null hypothesis of no cointegration against the alternative hypothesis of cointegration.

4. Results and Discussion

4.1 Descriptive Analysis

The results of the descriptive analysis are presented in Table 1.

Table 1: Descriptive statistics for the series

	HDI	RPE	RSE	FLP
Mean	0.485969	0.895471	0.847206	46.44438
Median	0.471500	0.892180	0.848020	46.82000
Maximum	0.540000	0.982440	0.929380	47.26000
Minimum	0.443000	0.789210	0.723400	44.22000
Std. Dev.	0.031396	0.069769	0.065533	0.938186
Jarque-Bera	3.936002	3.662285	2.793238	10.62848
Probability	0.139736	0.160230	0.247432	0.004921
Obs	32	32	32	32

Source: Researcher's computation (2023) from E-views 12

The descriptive statistics revealed that HDI averaged 0.485, suggesting that between 1990 and 2021 Nigeria remained under the low human development category. This is not surprising considering the relatively poor public investments in education, health and living standard as evidenced in available statistics. The mean values further showed that ratio of primary and secondary school enrolments averaged 0.8955 and 0.8472 respectively, indicating that disparity in both primary and secondary school enrolments in favour of males. This further attests to the

inequality in education opportunities in the country. The female labour force participation is associated a mean score of 46.44 per cent. The standard deviations revealed that the obsrvations for all the variables clustered around their respective mean scores. However, evidence of normal distribution for HDI and primary and secondary school enrolments were established from the Jarque-Bera test results whereas the result showed no evidence of normal distribution in female labour force participation at the 5 per cent significance level.

4.2 Unit Root Test

The ADF results are presented in Table 2.

Table 2: Unit Root Test Result

Variables	ADF			Decision I(d)
	Level	1st_diff.	Critical Value at 5%	
HDI_t	0.028	-6.269***	-2.960	I(1)
RPE_t	--1.0274	-6.769***	-2.960	I(1)
RSE_t	-1.685	-6.769***	-2.960	I(1)
FLP_t	-3.319**	NA	-2.960	I(0)

Note: *, ** and *** denote rejection of the null hypothesis at Significant of 10%, 5% and 1% level respectively where NA denotes not applicable

Source: Researcher's computation (2023) from E-views 12

The results showed that only female labour participation is stationary at levels. This finding necessitated the rejection of the hypothesis of unit root. Hence, female labour participation is integrated of order zero, I(0). On the other hand, the results showed that HDI as well as female primary and secondary school enrolment ratios are nonstationary. However, to were found to be integrated of order one. From the results, it was found that the variables are mixed integrated. This provided the basis for the bounds cointegration test.

4.3 Cointegration Test

The cointegration test was based on the bounds procedure and the results are presented in Table 3.

Table 3: Bounds cointegration test results

Null Hypothesis: No long run relationship				
Test Statistic	Value	Sig.	I(0)	I(1)
F-statistic	4.808	10%	2.37	3.2
K	3	5%	2.79	3.67
		1%	3.65	4.66

Source: Researcher's computation (2023) from E-views 12

The results showed that the computed F-statistic **(**4.808**)** is greater than the upper bound critical (3.67) at the 5 per cent significance level. This suggests that the null hypothesis will be rejected.

The implication of this finding is that the HDI has a long-run relationship with the underlying regressors which provides the basis for the estimation of the ARDL model.

4.3 Model Estimation

The results of the short and long-run dynamics are presented in Table 4.

Table 4: Summary of the long and short-run results

ARDL long-run results				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RPE	0.171870***	0.057541	2.986915	0.0066
RSE	0.112650*	0.058225	1.934753	0.0654
FLP	-0.01109***	0.002917	-3.804224	0.0009
C	0.752188***	0.162914	4.617075	0.0001
ARDL error correction model				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RPE)	-0.041561	0.058643	-0.708709	0.4856
D(RSE)	0.021572	0.024612	0.876468	0.3898
D(FLP)	-0.031845***	0.006726	-4.734639	0.0001
CointEq(-1)*	-0.654544***	0.123213	-5.312280	0.0000
Adjusted R-squared	0.5593			

Note: *, ** and *** denote rejection of the null hypothesis at Significant of 10%, 5% and 1% level respectively

Source: Researcher's computation (2023) from E-views 12

The ARDL long-run results showed that the ratio of female-to-male primary school enrolment has a significant positive effect on HDI. A unit increase in the ratio of female-to-male primary school enrolment is associated with a 0.1718 increase in the HDI score. This suggests that the gender parity index in primary school enrolment has the potential of promoting human development in Nigeria in the long run. Similarly, evidence of a positive effect of the ratio of female-to-male secondary school enrolment on the HDI was established from the long-run results. Although this finding conforms to the a priori expectation, it is not statistically significant at the 5 per cent level. The long-run results further showed that female labour force participation has a positive and significant effect on HDI. This suggests that a 1 per cent increase in female labour force participation leads to a 0.011 decrease in the HDI. This finding could be linked to the growing gender disparity in employment which tend to favour the male counterparts.

In addition, the short-run results showed that female labour force participation has a negative and significant effect on HDI. This finding is consistent with the long-run results, indicating that female labour force participation does not offer the intended and desired opportunities for human development in Nigeria. However, the results showed that the gender parity index in primary and secondary education does not significantly affect HDI in the short run. The error correction coefficient revealed that the model can adjust from the short to the long run at a speed of 65.45 per cent. This finding further authenticated the evidence of cointegration among the variables. The

adjusted R-squared (0.5593) showed that the explanatory variables accounted for 55.93 per cent of the total variations in HDI over the study.

Table 5: Post-estimation test results

Test Type	Test Stat.	Prob
Breusch-Godfrey Serial Correlation LM Test	0.229	0.8917
Breusch-Pagan-Godfrey heteroscedasticity test	4.129	0.7648
Ramsey RESET	0.9427	0.3561

Source: Researcher's computation (2023) from E-views 12

The results showed that the null hypotheses of serial independence and homoscedasticity of the residuals are rejected at the 5 per cent significance level. This is based on the fact the test statistics are associated with probability values which are greater than 0.05. In addition, the results showed that there is no misspecification in the model given that the F-statistic (0.9427) is associated with a high probability value. In sum, the post-estimation test results revealed that the model is very reliable as it shows no evidence of serial correlation and heteroscedasticity.

5. Conclusion and Recommendations

5.1 Conclusion

In this study, efforts were made to shed more light on the economic development implications of gender equality with a focus on the HDI. Thus, gender equality in education and employment formed the basis for capturing the extent of gender equality in the country. The findings showed that gender equality in education, especially the gender parity index in primary school enrolment significantly enhanced human development in the long run. However, it was found that female labour force participation contracted improvement in HDI during the study. This finding explains that the benefits of gender inclusiveness in the labour market have manifested in the country in the country which undermines the expected and desired economic development implications of female labour force participation in the country. The conclusion drawn from the findings is that the gender parity index in primary school enrolment plays a substantial role in promoting economic development in Nigeria by contributing positively and significantly to HDI.

5.1 Recommendations

1. Policymakers should provide more opportunities for equal access to primary education in accordance with the objectives of universal basic education (UBE) to increase its contributions to HDI.
2. Government at both federal and state levels should ensure that the girl child is offered an equal opportunity with the male counterparts in access to secondary education to foster gender balance and create more opportunities for economic development.
3. Policymakers should promote gender equality in the Nigerian labour market by encouraging gender sensitivity in employment across the public and private sectors to create more opportunities for female participation and contribution to economic development.

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