Gender Disparities in Educational Attainment and Governance in Nigeria: Implications for Women Employment in Agriculture

[1]Oyebamiji, B. A., [2]Obasa, O. D., [3]Tolorunju, E. T., [4]Ogunbakin, M.A., [5]Alebiosu, O. D. and [6]Oyebamiji, T.T.

[2]National Research University Higher School of Economics, Moscow, Russia
[3]Department of Agricultural Economics and Farm Management, Federal University of Agriculture, Abeokuta, Ogun State, Nigeria
[4]Department of Education Management and Foundation, Federal College of Education, Abeokuta, Ogun State, Nigeria
[5]Department of Agricultural Science Education, Kwara State College of Education, Oro, Kwara State, Nigeria
[6]Department of Economics and Project Management Ecole De Techniciens Superieurs Du Benin (Université de la Grace) Cotonou, Republic of Benin
Corresponding Author's email: oyebamijiba@funaab.edu.ng

Abstract
Bridging the gender gap is an indispensable component for sustainable development of agricultural and economic growth in Africa, as the female gender folk are saddled with a lot of other household responsibilities compared to their male counterparts. This study examined the gender disparities in governance and educational attainment on women's employment in agriculture in Nigeria using secondary data. Descriptive statistics results showed that male and female mean years of schooling were 6 and 4 years respectively in 2009 and 2010. There was a constant differential progression of employment from 2001 (9.59%) to 2013 (18.5%) for male than females. The paired t-test result showed a significant difference (t=16.620, df =27, $P< 0.05$) between the percentage of male and females employed in agriculture. Pearson's Product Moment Correlation (PPMC) results revealed a direct and significant relationship (r=0.94; $P<0.05$) between the number of males in governance and the gender gap in agricultural employment. The study, therefore, recommends that structural adjustment should be made for the inclusion of more females in governance and educational institutions to narrow the agricultural gender gap in Nigeria.

Keywords: Governance, Gender Disparities, Agricultural Employment, Education

Introduction
Women are farmers, workers, and entrepreneurs; but almost everywhere, they face more severe constraints than men in accessing productive resources, markets, and services, which reduce their productivity and contributions to the agricultural, economic, and social sectors (FAO *et al*., 2019). Specifically, in Nigeria, women constitute 60-80% of the farming population, while working as; farm producers, processors, and grossly suppliers of labor. They are saddled with responsibility for a wide range of farm activities such as; planting, fertilizing, weeding, harvesting, processing, and marketing, making women inevitably the principal drivers of the agricultural sector in Nigeria (Ajani, 2008). However, gender gaps continue to exist in terms of who owns, controls, and benefits from the use of productive agricultural assets, economic participation, and opportunities embedded in agriculture. Despite the

massive contributions of women to agricultural development, men benefit more from economic participation and opportunity than women. Gender inequality is inherent in the inability to control land, productive resources, financial services, and marketing services (Anderson *et al*., 2021).

Moreover, gender inequality aided by culture, illiteracy, and under-representation of women in governance debars women from having equal rights as men in developmental processes, which is inimical to inclusive development in agriculture as it could strategically disempower women and make them more vulnerable to poverty. Empowering women is an essential tool for promoting development and improving livelihoods. Furthermore, women's underrepresentation in leadership positions constrains their activities as role models and allows for gender imparities in

policymaking since the government neither consults women agricultural stakeholders nor takes cognizant consideration of them in formulating policies that affect their productivity. Gender imparity of the African government in providing support and relief for women in Agriculture despite their enormous contribution to food production, processing, marketing, and preservation also makes gender gap issues in agricultural production much more challenging. In addition, restrictions to educational attainment make women vulnerable as they usually lack the needed skills to take up formal, better-paying jobs in agricultural companies, firms, and estates. Specifically, lower educational attainment constrains women to subsistence, smallholders, and informal farming due to a lack of required technical know-how for employment in agricultural estate and companies (Rapsomanikis, 2015).

Despite the enormous contributions of women to agricultural productivity, food security, and economic growth, their efforts are hardly noticed, nor do they benefit from agricultural incentives due to cultural bias, educational attainment bias, economic and social suppressions, and under-representation in leadership positions (Bafana, 2021). Gender disparities arise from the socially constructed relationship between men and women, affecting the distribution of resources and causing disparities in development outcomes. Therefore, bridging the gender gap would be an essential component for sustainable development of agricultural and economic growth in Africa, where agriculture plays a vital role in sustaining the economy not only because it employs a more significant percentage of the population but also supports the entire population by 80% of its food production (Global Fund for Women, 2019). This study, therefore, appraises the interplay of culture, educational potentials, and governance systems on gender inequality in agricultural development in Nigeria.

The broad objective of the study is to evaluate gender disparities in governance and educational attainment in Nigeria, while the specific objectives were to; investigate the male and female years of schooling in the specified period and ascertain the agricultural employment of males and females in the specified duration. The hypotheses in null forms are stated as follows:

H_1: There is no significant difference in agricultural employment between the two gender groups.
H_2: There is no significant difference in educational attainment between the gender groups.
H_3: There is no significant relationship between the gender gap in agricultural employment and sex distribution of political leaders between May 1999 and 2018 in Nigeria

Methodology
Secondary data was employed for this study, data used include; employment in agriculture, male and female mean years of schooling, and account ownership at a financial institution which were sourced from United Nations Development Programme (UNDP); as well as student enrolment into Nigeria University, distribution of employment in Federal MDAs by grade level, and gender, political leadership by sex, top government officials and administrators between 1999 and 2018 were sourced from National Bureau of Statistics (NBS) and Independent National Electoral Commission (INEC) publications.

Method of Data Analysis
Simple descriptive statistics involving the use of frequencies, percentages and charts were used, while hypotheses one and two were tested with paired sample t-test, and hypothesis three with Pearson Product Moment Correlation (PPMC).

Correlation model
*P*earson Product Moment Correlation was used to test relationship between the gender gap in agricultural employment and sex distribution of political leaders between May 1999 and 2018 in Nigeria. The model used is presented thus;

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}}$$

Where;
r = Correlation co-efficient
x = Number of male and female in leadership positions
y = Gender gap in agricultural employment
Gender gap = Differences in mean year of schooling between male and females
n = sample size

T-Test Model
Linear regression model was used to test hypothesis two which seeks to evaluate the difference between Gender disparities (males, females) that exist in educational attainment. This is to predict the values and extent of gender disparities, based on the value of education attainment in the study.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{(s^2(\frac{1}{n_1} + \frac{1}{n_2}))}}$$

Where;
t = t-value
$\bar{x}_1$ = mean years of schooling for Males
$\bar{x}_2$ = mean years of schooling for Females
S^2 = the pooled standard error of the two groups,
n_1 and n_2 are the number of observations in each of the groups

Results and Discussion
Distribution of male and female by years of schooling in the specified period
Figure 1 revealed that the least male mean year of schooling was 6 years in 2009 - 2010, while the females had 4 years. The highest mean year of schooling for males is 7 years recorded in 2016 - 2017, while females

had 5 years within these periods. It is disturbing that the highest female mean years of schooling in 2017 could not be at parity with the least male mean year of schooling in 2009. This evidence hints that Nigeria's beliefs and value system – especially in the rural areas – gives males better opportunities to have formal education earlier than females because females are more in household chores and agricultural processing of produces. This finding aligns with Hawkins and Sobukola (2020) that females have a higher percentage of illiterates due to low or no formal education, especially in rural areas. As such, males are better resourced and empowered to undertake and manage agricultural investment profitably than females who spend less years in school, thereby translating into higher knowledge, qualification, income, and a better life for men, while relegating women to be subservient to men

Agricultural employment of male and female in the specified duration

Figure 2 showed that there is a constant differential progression (in favour of males) in employment in agriculture from 2001 (9.59%) to 2013 (18.5%); this doubled the gender difference recorded in agricultural employment in the early 90s and could be attributed to the technological transformation of agriculture, lack of access to economic resources, low women representation in decision making position and female dearth of technical knowledge. Notably, in those days, gender gaps in agricultural employment were a little above 8%, but in recent times, the employment gap has risen above 18% in agricultural-related productions. Thus, confirming that assertions from UNDP (2019) data on gender employment in agriculture showing that more women (ranged between 25% - 43%) were involved in agriculture in the 90s than in recent times, giving an insight into what female employment in agriculture seemed like in the pre-colonial and what it is in recent time. Thereby justifying that agriculture in Nigeria is increasingly becoming gender-sensitive.

Hypotheses testing

The result of the paired sample t-test computed on education as shown in Table 1 revealed significant differences (t=39.287, df =7, $P<0.001$) between the male and female mean years of schooling in Nigeria, therefore the null hypothesis was rejected. On average, male spend more years (2.1 years) in school than female. Gender disparities exist in educational attainment, especially tertiary and postgraduate enrollment, limiting the inclusion of women in leadership positions and decision-making in society. Some women struggle to further their education to a higher level due to social, finance, culture, and family responsibilities. Results in Table 2 revealed a significant difference exists (t=16.620, $P< 0.001$) between the percentage of males and females employed in agriculture; therefore, the null hypothesis was rejected. The implication is that males were 12.91% higher in agricultural employment than females on average, and this gap is expected to increase. This revealed that males had more graduates (first degree and post graduate) and gainfully employed in agricultural sector than females.

Evaluating the relationship between the gender gap in agricultural employment and sex distribution of political leaders between May 1999 and 2018 in Nigeria

The under-representation of women in leadership positions may not be unconnected with gender disparities in university enrolment and educational attainment. Determined and focused women have to make extra efforts to have tertiary education, achieve their objectives and career goals, unlike their male counterparts who are spatially predisposed to many opportunities to attain education, economic, and career goals. This insight could explain the positive and direct relationship (r=0.93; $P<0.05$) between the number of males in political leadership positions and the gender gap in agricultural employment, as shown in Table 3. As such, as more men continue to assume leadership positions, the gender gap in agriculture will be wider due to the formulation and implementation of policies insensitive to gender issues in agriculture. Consequently, it discourages and frustrates gainful female engagement in agriculture.

Conclusion

The prevalence of gender inequality in agriculture is primarily aided by culture, low level of women's education, and underrepresentation of women in leadership positions. More men than women are employed in agriculture, and women's employment in agriculture diminishes every year because of unequal access to material and non-material resources for agricultural production. There is a positive relationship between the population of men in power and the gender gap in agriculture. This is inimical to inclusive and sustainable development as women would be trapped in abject poverty and household food insecurity. Therefore, narrowing the gender inequality gap in agriculture will require the involvement of all stakeholders along agricultural value chains for inclusive growth and development. The results therefore call for policies aimed at encouragement of female enrolment in adult education and formal agricultural training or related disciplines. Inclusion of more women into leadership positions through the formulation and implementation of gender-sensitive governance policies. Access to farm inputs and training, to encourage female participation in commercial agriculture. Farm inputs should be given to women farmers as incentives to aid the cultivation of cash crops.

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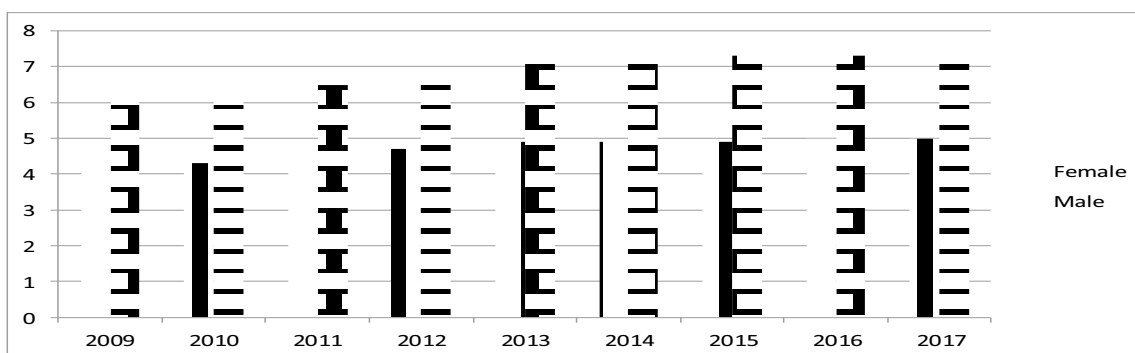
Figure 1: Distribution of mean years of schooling by gender
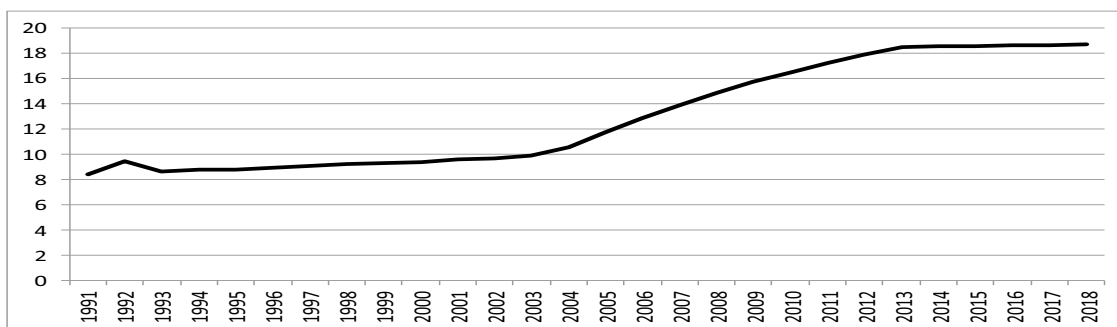**Source: UNDP Data, 2019**

Figure 2: The gender gap in agricultural employment
Source: Computed from UNDP data

Table 1: T-test result of difference in years of schooling between males and females

Variable	Mean	Std.Deviation	t	Df	P-value
Male - Female	2.1	0.151	39.287	7	0.01

Source: Authors Computation, 2019

Table 2: T-test result showing difference in employment in agriculture between males and females

Variable	Mean	Std.Deviation	T	Df	P-value
Male - Female	12.91	4.11	16.620	27	0.01

Source: Authors Computation, 2019

Table 3: PPMC result showing gender gap in agricultural employment and governance

Variables	r	*P*-value	Decision
Number of males in governance	0.924	0.025	Significant
Number of females in governance	-0.709	0.180	NS

Significant at the 0.05 level