Female Education and Employment in Nigeria

Educación y empleo femenino en Nigeria

Yetunde Oladokun

Cocoa Research Institute of Nigeria, Nigeria
https://orcid.org/0000-0001-6919-4681
yomoladokun@gmail.com

Olubunmi Alawode

Department of Agricultural Economics, University of Ibadan, Nigeria
https://orcid.org/0000-0003-1201-1770
olubunmio.alawode@gmail.com

Abstract

This paper examined female education and employment in Nigeria. The 2018 Nigeria Demographic and Health Survey data (NDHS, 2018) was used. After sorting out for missing data, 28,494 women's individual data were used. Data were analyzed using descriptive statistics and Multinomial logit regression. Only 0.3% of women in Nigeria are unemployed while 99.7% are employed in skilled and unskilled jobs. However, only 13.4% of the women are engaged in skilled employment; 8.5% are in professional/technical/managerial jobs while 4.9% are involved in skilled manual. The majority (86.3%) are in the unskilled manual employment category; 1.6% in clerical, 49.4% in sales, 9.5% in services, 0.1% in unskilled manual and 25.7% in Agriculture. The likelihood of being involved in professional/technical/managerial employment by women in Nigeria increases with age (0.06), region {North West (1.18), South West (1.87), educational level {secondary (0.68), tertiary (1.64)}, wealth index{richer (0.90), richest(0.95)}. On the other hand, the likelihood of being engaged in professional/technical/managerial employment type reduces with large household size >10persons (-0.71). Engagement of women in skilled employment types are driven by education while education discourages them in engaging in unskilled employment types. However, because the highest proportion of the women have secondary education, they are found more in the unskilled employment types. Also, engagement in skilled employment types is driven by wealth index while age drives skilled and unskilled employment types. Nigerian women are not much involved in skilled employment, the right policy should be put in place to educate girls beyond the secondary education level and enlighten them on the need to be involved in skilled employment.

Keywords: Skilled employment, Unskilled employment, Education, Wealth index

Resumen

Este documento examina la educación y el empleo femenino en Nigeria. Se utilizaron los datos de la Encuesta Demográfica y de Salud de Nigeria de 2018 (NDHS, 2018). Después de depurar los datos faltantes, se utilizaron los datos individuales de 28,494 mujeres. Los datos se analizaron utilizando estadísticas descriptivas y regresión logit multinomial. Solo el 0.3% de las mujeres en Nigeria están desempleadas mientras que el 99.7% están empleadas en trabajos calificados y no calificados. Sin embargo, solo el 13.4% de las mujeres están involucradas en empleos calificados; el 8.5% en trabajos profesionales/técnicos/gerenciales, mientras que el 4.9% están en trabajos manuales calificados. La mayoría (86.3%) está en la categoría de empleo manual no calificado; el 1.6% en trabajos clericales, el 49.4% en ventas, el 9.5% en servicios, el 0.1% en trabajos manuales no calificados y el 25.7% en agricultura. La probabilidad de estar involucrada en empleos profesionales/técnicos/gerenciales para las mujeres en Nigeria aumenta con la edad (0.06), la región {Noroeste (1.18), Suroeste (1.87)}, el nivel educativo {secundaria (0.68), terciaria (1.64)}, el índice de riqueza {más rico (0.90), el más rico (0.95)}. Por otro lado, la probabilidad de estar involucrada en empleos profesionales/técnicos/gerenciales disminuye con un tamaño de hogar grande >10 personas (-0.71). La participación de las mujeres en tipos de empleo calificado está impulsada por la educación, mientras que la educación las desalienta de participar en tipos de empleo no calificado. Sin embargo, debido a que la mayor proporción de las mujeres tiene educación secundaria, se encuentran más en los tipos de empleo no calificado. Además, la participación en tipos de empleo calificado está impulsada por el índice de riqueza, mientras que la edad impulsa tanto el empleo calificado como el no calificado. Las mujeres nigerianas no están muy involucradas en empleos calificados, se debe implementar la política adecuada para educar a las niñas más allá del nivel de educación secundaria y concienciarlas sobre la necesidad de involucrarse en empleos calificados.

Palabras clave: Empleo calificado, Empleo no calificado, Educación, Índice de riqueza

Universidad Andina del Cusco

180

Oladokun, et al. (2024) Mujer Andina. 179-193

Introduction

Gender is an essential component in the subject of employment distribution because it has been demonstrated that gender influences employment choice (Lambin and Nyyssölä, (2022). Enfield, 2019). Throughout history, women have been engaged in the society mainly in domestic responsibilities. They have been known to be caregivers and they rarely get involved in the economy or when they do, they take jobs with low-incomes. According to a report by the International Labour Organization (ILO, 2010), 48.8 percent of female were inactive in the labour market globally compared to 22.3 percent of male, implying that percentage of female

employed globally was considerably lower than that of males. This is due to a variety of variables, the most significant of which is gender bias, which causes women to prioritize domestic duties (Kee *et al.* 2020). This affects girl child education negatively, and thus, the skills that can be acquired for engagement in skilled employment.

Even though women's participation in the labour market has increased (Lincoln, 2012), there are significant inequalities in the types of occupations that women pursue. Women are involved in farm operations in 73.15 percent of cases and non-farm business activities in 26.85% of cases (Enfield, 2019); farming, fishing, and forestry are the

primary agricultural while manufacturing, sales, and services are the primary off-farm activities. Women have also gained more positions in administrative, clerical, personal services, and sales occupations in recent years, as well as in law, medicine, and accounting, but no equivalent change has occurred in managerial occupations (Women's Working Group, 2005).

Several factors were found to be the cause of low female participation in the labour market; low level of education and lack of skills that will enable women to participate in high income jobs. Other characteristics that have been linked to gender and employment choice include reproductive responsibilities, lack of child-care facilities, cultural discrimination and religious values and area of residence (Enfield, 2019), which can all be grouped as socioeconomic factors. This paper examines female education and employment in Nigeria. The specific objectives are to:

i. Assess female employment in Nigeria

ii. Describe Nigerian Women in skilled and unskilled employment types.

iii. Examine the factors influencing female employment in Nigeria.

Literature Review

Theoretical Review: The Neoclassical Theory

The rationality of employers and workers is central to neo-classical economists' analysis of segregated labour markets. Workers choose appropriate employment after considering their endowment levels, restrictions, and preferences. According to this reasoning, similarly, employers, as profit-maximizing actors, will pay workers the value of their marginal product. The interaction of these two factors results in competitive and efficient labour markets (Krueger, 1963;Arrow, 1973; Arrow, 2014). According to this hypothesis, women employees are paid less because they have less human capital, are less likely to participate in the labour market, and have little skill and training earned throu-

ghout their employment. These considerations lead women to pursue economic activities that reflect their limitations and preferences, such as low-paying jobs, flexible work, part-time work, and so on. Women's "improved" working conditions are meant to be compensated for by lower monetary rewards. According to Becker (1957); Becker 2010; Neumark (2018); Schmader, (2023) and Ehrenberg *et al.*(2021). if a person has a taste for discrimination, he should act as though he would be prepared to pay something, either directly or indirectly in the form of a lower salary, to be associated with some people rather than others. Individual preferences and prejudices contribute to the taste for discriminating. Due to the challenges connected with employing women, such as maternity leaves and inflexible nature, employers are willing to forgo profit to avoid female workers by paying higher amounts to higher male workers.

However, a major flaw in neo-classical theory is that it does not investigate the underlying mechanisms that prevent women from making different choices. Are there social-cultural norms that have an impact on women's human capital? Women, for example, are unable to compete on an equal footing with men because they typically lack the necessary knowledge.

Empirical Review: Employment and Gender

Gender Discrimination and Employment Opportunities in Nigerian Manufacturing Companies were investigated by Efanga *et al.* (2021). From the findings, gender has a favorable and significant impact on career chances. Employment opportunities are strongly influenced by one's age and educational level. Organizations should continue to promote equal employment opportunities for all genders in terms of career growth, encourage employment of people of various ages, and ensure that people with the right mix of qualifications are hired based on their individual qualifications.

Luci (2019) studied how economic growth affects the dynamics of gender disparity in the workplace. Economic research implies that female labour market participation has a beneficial impact on

growth, but the impact of growth on female labour market participation is less obvious. This implies that relying on the equalizing impacts of economic growth to promote women's participation in the labour market is insufficient in the short term. In order to enhance women's labour market participation and general economic growth, active labour market policies are required, particularly in developing nations.

Iweagu (2012) found that female labour participation had remained essentially unchanged since 2004 and explored the present factors affecting female labour participation. The determinants of female labour participation in urban and rural settings were discovered to be different. Findings showed that in the rural sector, marital status, religion, poverty rate, and per capita income are important variables, but in the urban sector, age and literacy rate are the important drivers. Because the drivers of female labour participation in urban areas differ significantly from those in rural areas, it was recommended that discriminatory policies be promoted while developing policies to improve female labour participation in Nigeria.

Methodology

The scope of this paper is Nigeria. The 2018 Nigeria Demographic and Health Survey data (NDHS, 2018) was used. NDHS 2018 is the sixth survey to be implemented by the National Population Commission. The other five surveys were done in the years 1999, 2003, 2008 and 2013. The 2018 data is a national sample survey that provides up-to-date information on demographic and health indicators. The sample was selected using a stratified, two-stage cluster design, with enumeration areas (EAs) as the sampling units for the first stage. The second stage was a complete listing of households carried out in each of the 1,400 selected EAs. The target groups were women aged 15-49 and men aged 15-59 in randomly selected households across Nigeria (NPC and ICF, 2019). A total of 40,427 households, 41,821 women (15-49years) and 13,311 men (15-59years) were successfully interviewed. After sorting out for missing data, 28,494 women individual data were used.

Analytical Techniques

The analytical techniques used in the study are descriptive statistics and Multinomial logit regression. Descriptive statistics involves the use of frequency counts, percentages, and means. Results are presented in frequency distribution tables.

Multinomial Logistic regression (MNL)

Multinomial Logistic regression was used to determine the factors influencing female employment in Nigeria.

In the MNL, as used in this paper, the dependent variable Y represents the categories of employment: This is specified as: Not employed, professional/technical/managerial, skilled manual, clerical, sales, services, unskilled manual and agriculture

Not employed Y=0; professional/technical/managerial Y=1; skilled manual Y=2; clerical Y=3; sales Y=4; services Y=5; unskilled manual Y=6; agriculture Y=7

The regression equation can be explicitly specified as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \cdots + \beta_m X_m + \varepsilon \ldots \ldots \ldots 2$$

The explanatory variables X_{is} are as follows:

X_1 is the age of women (years), X_2= North Central (1=yes,0=no), X_3= North East (1=yes,0=no), X_4= North West (1=yes,0=no), X_5= South East(1=yes,0=no), X_6= South South (1=yes,0=no), X_7= South West (1=yes,0=no), X_8=no formal educational (1=yes,0=no), X_9=primary education (1=yes,0=no), X_{10}=secondary education (1=yes,0=no), X_{11}=tertiary education (1=yes,0=no)}; Household size{X_{12}=1-5persons (1=yes,0=no), X_{13}=6-10 persons (1=yes,0=no),X_{14}=>10persons(1=yes,0=no)};Marital status{X_{15}=never married(1=yes,0=no), X_{16}= married (1=yes,0=no), X_{17}=widowed (1=yes,0=no), X_{18}=divorced (1=yes,0=no)}, X_{19}=Sex of household head (male=0, female=1), X_{20}=Place of residence(urban=0, rural=1), Wealth-Index {X_{21}=poorest (1=yes,0=no), X_{22}=poor(1=yes,0=no), X_{23}=midd-

Universidad Andina del Cusco

182

Oladokun, et al. (2024) Mujer Andina. 179-193

le (1=yes,0=no), X_{24} =rich (1=yes,0=no), X_{25} =richer (1=yes,0=no), X_{26}= Age of household head

Results and Discussion

Socio-economic characteristics of Nigerian women

The socio-economic characteristics of women in Nigeria are presented in Table 1. The mean age of Nigerian women is 31±12 years with more than half (51%) ranging between 31-60years and 49% being ≤30years. Majority (75%) are married, while less than 5% are widowed/divorced. Marriage could play a positive role in helping women get more education, thus getting well paid jobs. This could happen if a woman has a supporting partner. About 32% of women have no formal education while 18% have primary education. However, 39.3% have secondary education while 11% have tertiary education. More women have secondary education than other educational levels. It is believed that after secondary school education, a woman can learn a trade so that she can marry early to raise a family.

Most women (81%) live in male-headed households and 49% are in small sized households. The mean household size for women is 6±4persons. In Nigeria, 20 out of 100 women are from North Central, 19 out of 100 from North West, 17 out of 100 from North East, 15 out of 100 from South West. About 59% of women in Nigeria reside in the rural areas. Also, about 23% of the women are in the middle and richer wealth quantile.

Female Employment in Nigeria

The different employment types that Nigerian women are involved in are presented in Table 2. Employment types were grouped under no employment, skilled employment and unskilled employment. In the skilled employment category, the job types include Professional/technical/managerial and skilled manual. The job types in the unskilled category are clerical, sales, services, unskilled manual and agriculture. From the results, only 0.3% of women in Nigeria are not employed,

while 99.7% are employed in the skilled and unskilled jobs. This implies that Nigeran women are working. However, only 13.4% of the women are engaged in skilled employment; 8.5% are in professional/technical/managerial jobs, while 4.9% are involved in skilled manual.

The majority (86.3%) are in the unskilled manual employment category; 1.6% are in clerical, 49.4% in sales, 9.5% in services, 0.1% in unskilled manual and 25.7% in Agriculture. More women in the skilled jobs category are involved in professional/technical/managerial jobs. Also, in the unskilled jobs category, there are more women in sales. An average woman in Nigeria is enterprising, some women get involved with trading (sales) as early as in primary school when they hawk for their mothers. Women are also involved in Agriculture. It is evident from literature that 70% of smallholder farmers are women (Sabo *et al.* 2017).

Nigerian Women in skilled and unskilled employment types

The decomposition of the employment categories across socio-economic characteristics is presented in Table 3. This is to describe women in the employment categories. The majority (78.9%) of women who are not employed are the younger ones (≤30years) and the young ones are also involved more with skilled employment (53.4%). This is quite understandable as women in this category are young and are still in school or learning a trade. Even with the high unemployment rate, most university graduates in this age category are still hunting for jobs or learning a trade. Older women (31-60 years) are more involved in unskilled employment (51.3%).

The highest proportion (51.3%) of married women in the study are unemployed followed by 42.1% of single women. Also, married women have the highest percentage of those involved in skilled (69.2%) and unskilled employment (75.8%). North Central zone has the highest percentage (26.3%) of women who are unemployed, South West zone has the highest percentage (28.5%) of women who are involved in skilled employment and North

Universidad Andina del Cusco

184

Oladokun, et al. (2024) Mujer Andina, 179-193

Table 1:
Socio economic characteristics of Nigerian women

Variable	Freq (N=28,494)	%	Variable	Freq (N=28,494)	%
Age			**Geopolitical Zones**		
≤30	14076	49.4	North Central	5610	19.7
31-60	14418	50.6	North East	4785	16.8
Mean 33 ± 12	31± 9		North West	5520	19.4
Marital Status			South East	4239	14.9
Single/Never married	5258	18.4	South South	3842	13.5
Married	21318	74.8	South West	4498	15.8
Widowed	982	3.5	**Place of residence**		
Divorced/separated	936	3.3	Urban	11729	41.2
Sex of household head			Rural	16765	58.8
Male	23127	81.2	**Wealth Index**		
Female	5367	18.8	Poorest	4868	17.1
Household size			Poorer	5652	19.8
1-5	14049	49.3	Middle	6204	21.8
6-10	10904	38.3	Richer	6208	21.8
>10	3541	12.4	Richest	5562	19.5
Mean 6 ± 4	6 ± 4				

Source: Computation from NDHS, 2018

Table 2:
Female Employment in Nigeria

Variable	Freq (N=28,494)	%
No employment	76	0.3
Skilled (n=3816)		
Professional/technical/managerial	2423	8.5
Skilled manual	1393	4.9
Unskilled Manual (n=24,602)		
Clerical	463	1.6
Sales	14,072	49.4
Services	2708	9.5
Unskilled manual	34	0.1
Agricultural	7325	25.7

Source: Computation from NDHS, 2018

Table 3:
Description of Nigerian Women in skilled and unskilled employment types

Variable	Not employed		Skilled		Unskilled		N
Age	Frequency	%	Frequency	%	Frequency	%	
≤30	60	78.9	2038	53.4	11978	48.7	14076
31-60	16	21.1	1778	46.6	12624	51.3	14418
Marital status							
Single	32	42.1	976	25.6	4250	17.2	5258
Married	39	51.3	2641	69.2	18638	75.8	21318
Widow	1	1.3	81	2.1	900	3.7	982
Divorced	4	5.3	118	3.1	24602	3.3	936
Geopolitical Zone							
North Central	20	26.3	645	16.9	4945	20.1	5610
North East	19	25.0	395	10.4	4371	17.7	4,785
North West	12	15.8	559	14.7	4949	20.1	5,520
South East	8	10.5	624	16.4	3607	14.7	4,239
South South	14	18.4	506	13.3	3322	13.5	3,842
South West	3	3.9	1087	28.5	3408	13.9	4,498
Place of Residence							
Urban	27	35.5	2350	61.6	9352	38.0	11,729
Rural	49	64.5	1466	38.4	15250	62.0	16,765
Sex of household head							
Male	61	80.3	3028	79.4	20,038	81.4	23,127
Female	15	19.7	788	20.7	4564	18.6	5,367
Educational level							
No formal education	19	25.0	504	13.2	8439	34.3	8962
Primary	10	13.1	329	8.6	4798	19.5	5137
Secondary	35	46.1	1589	41.7	9573	38.9	11197
Tertiary	12	15.8	1394	36.5	1792	7.3	3198
Household size							
1-5persons	34	44.7	2264	59.3	11751	47.8	14,049
6-10persons	29	38.2	1230	32.2	9645	39.2	10,904
>10persons	13	17.1	322	8.4	3206	13.0	3,541
Age of household head							
≤ 30years	3092	82.7	579	15.5	67	1.8	14,049
31-60years	9477	45.4	8662	41.5	2731	13.1	10,904
>60years	1480	38.1	1663	42.8	743	19.1	3,541
Wealth Index							
Poorest	12	15.8	216	5.7	4640	18.9	4,868
Poor	18	23.7	327	8.6	5307	21.6	5,652
Middle	17	22.4	645	16.9	5542	22.5	6,204
Rich	16	21.1	1079	28.3	5113	20.8	6,208
Richer	13	17.1	1549	40.6	4000	16.3	5,562

Source: Computation from NDHS, 2018

West zone has the highest percentage (20.1%) of women who are involved in unskilled employment.

A higher percentage (64.5%) of women in rural Nigeria are unemployed, 61.6% of women in skilled employment group are in urban Nigeria (Mitra,2005). This is because majority of the establishments that need the services of skilled workers are in urban areas. Also, 62% of women in the unskilled group reside in rural areas. Majority of the women who are unemployed (80.3%), employed in skilled (79.4%) and unskilled (81.4%) jobs are in male headed households. Women with secondary education has the highest percentage (46.1%) of those that are unemployed. This is true because Nigerian women, after secondary education, further their education to get a university degree or are learning a trade. Also, higher percentages of women with secondary education are involved in skilled employment (41.7%) and unskilled employment (38.9%). Higher proportions of women in the three employment categories are in small sized households (1-5 persons). When women care for more people in their households, they have less time to focus on themselves and their jobs (Sirianni & Negrey 2000). From the results on wealth index, higher proportion (39.5%) of women who are in the unemployed category are poor. The highest percentage (68.9%) of women in the skilled employment category are richer because they are empowered and get more money from their jobs while 22.5% of women in unskilled employment category are in the middle class.

Factors influencing female employment in Nigeria

Tables 4a and 4b show results on factors influencing female employment in Nigeria. Multinomial regression results show a maximum likelihood of -31416.733, LR χ2 of 15185.98, Prob.Wχ2 (0.0000), which is significant at 1 percent (P<0.01). The employment types used in this regression are Professional/Technical/Managerial, skilled manual, clerical, Sales, Services, unskilled manual, and agriculture.

Professional/technical/managerial employment type

The likelihood of being engaged in professional/technical/managerial employment type increases with age (0.06) but decreases for a woman with a large household size of more than 10persons (-0.71). It will be almost impossible to take care of more than ten persons in the household and be able to cope in this kind of job. London (2014) in their book emphasised that family and friends could serve as a barrier for making progress in their career. The likelihood of being engaged in professional/technical/managerial increases in North West by 1.18 and South West by 1.87 as opposed to the base category (not employed). The likelihood of engaging in professional/technical/managerial increases by 0.68 for secondary level of education and 1.64 for tertiary level of education. This is true because any woman who wishes to be involved in this employment type must have at least a secondary level of education because of the high level of skills required. Sinha (2015) affirmed that there are less women in managerial jobs and more women in service sector in Japan, China and India. The likelihood of being involved in professional/technical/managerial increases with richer (0.90) and richest (0.95) wealth index

The likelihood of being involved in professional/technical/managerial employment by women in Nigeria increases with age (0.06), region {North West (1.18), South West (1.87)}, educational level {secondary (0.68), tertiary (1.64)}, wealth Index{richer (0.90), richest(0.95)}. On the other hand, the likelihood of being engaged in professional/technical/managerial reduces with large household size >10persons (-0.71).

Clerical employment type

Also, the likelihood of being engaged in clerical employment type increases with age (0.10), region {South West (1.17)}, educational level {secondary (1.27), tertiary(1.99)} and wealth index{middle(1.67), richer (2.09), richest (2.34)}. The likelihood of women engaging in clerical employment reduces

Universidad Andina del Cusco

186

Oladokun, et al. (2024) Mujer Andina. 179-193

with large household size of >10persons(1.14) and marital status{divorced(-1.35)}. The level of education in South West is high because of the introduction of free education in the 1970s by Chief Obafemi Awolowo. Girls are sent to school because of the high level of exposure of families in this region.

Sales employment type

Furthermore, the likelihood of being engaged in sales employment type increases with age (0.05), region {North West (1.26), South West (1.83)}, marital status {married (0.93)} while it decreases with tertiary level of education (-1.45). Women do not require a high level of education to be involved in this type of employment. Most of the time, women with no formal education do well in their trade as they have learned the tricks from their mother/father or a trainer (Yasunaga, 2014; Grajcevci & Shala 2016).

Services employment type

The likelihood of engaging in services employment type increases in South West region (1.63) and wealth index {middle (0.77), richer (1.03), richest (1.09)}.

Skilled manual employment type

The likelihood of being engaged in skilled manual employment type increases in North East (0.61) and South West (2.07); marital status {married (0.67); wealth index{richer(0.99), richest(1.25) while it decreases with tertiary level of education(-1.40) .

Agriculture

The likelihood of being engaged in Agriculture increases with age(0.06); region{South East(0.72); place of residence {rural (0.66)}; age of household head(0.005) while it reduces for region{North East(-0.85), North West(-2.35)} and wealth index{ middle(-0.91), richer(-1.63), richest(-2.63).

Age seems to be a common positive factor across all the employment types. This may probably be that as age increases women stick with their jobs and gain more experience in it. Ortiz-Ospina *et al.*(2024) affirmed in their study that female labour participation varies across age in countries considered in this study. Younger women could be more involved and older women could be more involved too or vice versa. For agricultural employment, women are highly involved in Agriculture in South East and in the rural areas. In the South East, it is a normal occurrence for women to farm and support their households. Practising agriculture would be hard in the Northern region because of the high level of insecurity in this region particularly in North East. Poverty is a common occurrence in Agriculture in Nigeria, women in this job need to do much work to break even (Jiggins, 1989; Anyanwu, 2010). This is because agricultural practice in Nigeria is still crude.

Table 3:
Description of Nigerian Women in skilled and unskilled employment types

Employment types/Variables	Coefficient	S.E	Z	P<|z|
Professional/Technical/Managerial				
Age	0.0559***	0.0192	2.92	0.004
"Household size(b:1-5persons) 6-10persons"	-0.1625	0.2787	-0.58	0.560
>10persons	-0.7073*	0.3897	-1.82	0.069
Geopolitical zones(b: North Central) North East	-0.5495	0.3625	-1.52	0.130
North West	1.1811***	0.4088	2.89	0.004
South East	0.6101	0.4413	1.38	0.167
South South	-0.0651	0.3732	-0.17	0.861
South West	1.8650***	0.6369	2.93	0.003

Universidad Andina del Cusco

188

Oladokun, et al. (2024) Mujer Andina, 179-193

(Continue)

Employment types/Variables	Coefficient	S.E	Z	P<|z|
Place of residence (b:urban) rural	-0.2176	0.2862	-0.76	0.447
Marital Status (b:single) married	0.4288	0.3637	1.18	0.238
Widowed	0.3232	1.1001	0.29	0.769
Divorced	-0.4452	0.5871	-0.76	0.448
Educational level (b: no formal education) primary	-0.1088	0.4328	-0.25	0.802
Secondary	0.6776*	0.3778	1.79	0.073
Tertiary	1.6427***	0.4772	3.44	0.001
"Sex of household head (b:male) Female"	0.0589	0.3451	0.17	0.864
Wealth Index (b: poorest) poorer	0.338	0.4094	0.08	0.934
Middle	0.5448	0.4407	1.24	0.216
Richer	0.9016*	0.4825	1.87	0.062
Richest	0.9520*	0.5439	1.75	0.080
Age of household head	0.0042	0.0097	0.43	0.665
Constant	-0.2972	0.7799	-0.38	0.703
Clerical				
Age	0.0973***	0.0203	4.80	0.000
"Household size(b:1-5persons) 6-10persons"	-0.3422	0.2966	-1.15	0.249
>10persons	-1.1388**	0.4664	-2.44	0.015
Geopolitical zones(b: North Central) North East	-0.0944	0.4008	-0.24	0.814
North West	0.4992	0.4556	1.10	0.273
South East	-0.1396	0.4641	-0.30	0.764
South South	-0.1299	0.3919	-0.33	0.740
South West	1.1687*	0.6487	1.80	0.072
Place of residence(b:urban) rural	-0.3588	0.3035	-1.18	0.237
Marital Status(b:single) married	-0.0995	0.3857	-0.26	0.796
Widowed	-0.0302	1.1256	-0.03	0.979
Divorced	-1.3503**	0.6608	-2.04	0.041
Educational level(b: no formal education) primary	-0.3623	0.6042	-0.60	0.549
Secondary	1.2713**	0.4878	2.61	0.009
Tertiary	1.9901***	0.5683	3.50	0.000
"Sex of household head(b:male) Female"	0.1185	0.3636	0.33	0.744
Wealth Index(b: poorest) poorer	0.0012	0.7968	0.00	0.999
Middle	1.6699**	0.7423	2.25	0.024
Richer	2.0856**	0.7673	2.72	0.007
Richest	2.3415***	0.8091	2.89	0.004
Age of household head	0.0047	0.0104	0.45	0.654
Constant	-4.1159***	1.0150	-4.06	0.000
Sales				
Age	0.0499**	0.0189	2.64	0.008
"Household size(b:1-5persons) 6-10persons"	-0.0126	0.2747	-0.05	0.963
>10persons	-0.2454	0.3771	-0.65	0.515

Employment types/Variables	Coefficient	S.E	Z	P<|z|
Geopolitical zones(b: North Central) North East	0.4927	0.3465	1.42	0.155
North West	1.2568***	0.4008	3.14	0.002
South East	0.6847	0.4367	1.57	0.117
South South	0.1077	0.3672	0.29	0.769
South West	1.8253***	0.6342	2.88	0.004
Place of residence(b:urban) rural	-0.1302	0.2825	-0.46	0.645
Marital Status(b:single) married	0.9258**	0.3584	2.58	0.010
Widowed	0.7075	1.0909	0.65	0.517
Divorced	-0.0815	0.5732	-0.14	0.887
Educational level(b: no formal education) primary	-0.0943	0.4150	-0.23	0.820
Secondary	-0.3579	0.3649	-0.98	0.327
Tertiary	-1.4535***	0.4678	-3.11	0.002
"Sex of household head(b:male) Female"	0.2021	0.3407	0.59	.553
Wealth Index(b: poorest) poorer	-0.1205	0.3863	-0.31	0.755
Middle	0.3315	0.4208	0.79	0.431
Richer	0.5498	0.4647	1.18	0.237
Richest	0.7056	0.5278	1.34	0.181
Age of household head	0.0044	0.0096	0.46	0.647
Constant	2.4015***	0.7604	3.16	0.002
Services				
Age	0.0271	0.0191	1.42	0.157
"Household size(b:1-5persons) 6-10persons"	-0.0587	0.2775	-0.21	0.832
>10persons	-0.3534	0.3836	-0.92	0.357
Geopolitical zones(b: North Central) North East	-0.3867	0.3549	-1.09	0.276
North West	0.6139	0.4061	1.51	0.131
South East	0.6268	0.4397	1.43	0.154
South South	-0.0318	0.3711	-0.09	0.932
South West	1.6309**	0.6364	2.56	0.010
Place of residence(b:urban) rural	-0.2859	0.2850	-1.00	0.316
Marital Status(b:single) married	0.4836	0.3619	1.34	0.182
Widowed	0.3175	1.0976	0.29	0.772
Divorced	-0.2318	0.5806	-0.40	0.690
Educational level(b: no formal education) primary	0.1938	0.4213	0.46	0.645
Secondary	0.2535	0.3708	0.68	0.494
Tertiary	-0.6178	0.4742	-1.30	0.193
"Sex of household head(b:male) Female"	0.3590	0.3434	1.05	0.296
Wealth Index(b: poorest) poorer	0.2332	0.3976	0.59	0.558
Middle	0.7711*	0.4305	1.79	0.073
Richer	1.0335**	0.4736	2.18	0.029
Richest	1.0893**	0.5363	2.03	0.042
Age of household head	0.0042	0.0097	0.43	0.667

N=28,494, Prob>chi^2=0.0000, Log Likelihood= -31416.733, LR chi^2(147)= 15185.45 (p<0.01=1%, p<0.05=5%, p<0.1=1%)
Source: Authors Computation, DHS 2018

Table 3:
Description of Nigerian Women in skilled and unskilled employment types

Employment type/Variable	Coeff.	S.E	Z	P>|z|
Skilled Manual				
Age	0.0080	0.1935	0.41	0.679
"Household size(b:1-5persons) 6-10persons"	-0.1896	0.2814	-0.67	0.501
>10persons	-0.2399	0.3876	-0.62	0.536
Geopolitical zones(b: North Central) North East	0.6066*	0.3579	1.69	0.090
North West	0.6500	0.4128	1.57	0.115
South East	0.4399	0.4474	0.98	0.325
South South	-0.3569	0.3825	-0.98	0.351
South West	2.0681***	0.6395	3.23	0.001
Place of residence(b:urban) rural	-0.3522	0.2889	-1.22	0.223
Marital Status(b:single) married	0.6678*	0.3677	1.82	0.069
Widowed	0.0957	1.1211	0.09	0.932
Divorced	-0.2689	0.5959	-0.45	0.652
Educational level(b: no formal education) primary	-0.0056	0.4214	-0.01	0.989
Secondary	-0.1143	0.3742	-0.31	0.760
Tertiary	-1.4025***	0.4829	-2.90	0.004
"Sex of household head(b:male) Female"	0.0064	0.3495	0.02	0.985
Wealth Index(b: poorest) poorer	-0.0347	0.4024	-0.09	0.931
Middle	0.6997	0.4342	1.61	0.107
Richer	0.9962**	0.4781	2.08	0.037
Richest	1.2545**	0.5415	2.32	0.021
Age of household head	0.0032	0.0098	0.32	0.748
Constant	1.4920*	0.7817	1.91	0.056
Unskilled Manual				
Age	0.0507	0.0319	1.59	0.113
"Household size(b:1-5persons) 6-10persons"	-0.5649	0.5377	-1.05	0.293
>10persons	-19.1545	8165.774	-0.00	0.998
Geopolitical zones(b: North Central) North East	-19.1283	6055.421	-0.00	0.997
North West	-0.4046	0.9166	-0.44	0.659
South East	-1.2101	0.8941	-1.35	0.176
South South	-0.2755	0.5850	-0.47	0.638
South West	1.1738	0.7917	1.48	0.138
Place of residence(b:urban) rural	-0.3527	0.4895	-0.72	0.471
Marital Status(b:single) married	-0.7286	0.6456	-1.13	0.259
Widowed	0.2497	1.4089	0.18	0.859
Divorced	0.6859	0.7956	0.86	0.389
Educational level(b: no formal education) primary	-0.1432	0.9042	-0.16	0.874
Secondary	0.2539	0.7883	0.32	0.747
Tertiary	-0.5173	0.9459	-0.55	0.584
"Sex of household head(b:male) Female"	0.4962	0.5682	0.87	0.383
Wealth Index(b: poorest) poorer	0.3443	1.1992	0.29	0.774

(Continue)

Employment types/Variables	Coefficient	S.E	Z	P<|z|
Middle	0.5874	1.1828	0.50	0.620
Richer	0.8077	1.2048	0.67	0.503
Richest	0.6077	1.2650	0.48	0.631
Age of household head	-0.0136	0.0175	-0.77	0.439
Constant	-1.3818	1.6432	-0.84	0.400
Agricultural				
Age	0.0594***	0.0189	3.13	0.002
"Household size(b:1-5persons) 6-10persons"	-0.0971	0.2755	-0.35	0.725
>10persons	-0.5855	0.3789	-1.55	0.122
Geopolitical zones(b: North Central) North East	-0.8544**	0.3471	-2.46	0.014
North West	-2.3479***	0.4049	-5.80	0.000
South East	0.7241*	0.4377	1.65	0.098
South South	-0.0317	0.3682	-0.09	0.931
South West	0.6507	0.6362	1.02	0.306
Place of residence(b:urban) rural	0.6581**	0.2842	2.32	0.021
Marital Status(b:single) married	0.2807	0.3597	0.78	0.435
Widowed	0.5813	1.0921	0.53	0.594
Divorced	-0.6737	0.5766	-1.17	0.243
Educational level(b: no formal education) primary	-0.0634	0.4156	-0.15	0.879
Secondary	-0.4611	0.3658	-1.26	0.208
Tertiary	-1.8818	0.4739	-3.97	0.000
Sex of household head(b:male) female	-0.1407	0.3419	-0.41	0.681
Wealth Index(b: poorest) poorer	-0.4945	0.3865	-1.28	0.201
Middle	-0.9056**	0.4214	-2.15	0.032
Richer	-1.6303***	0.4659	-3.50	0.000
Richest	-2.6345***	0.5329	-4.94	0.000
Age of household head	0.0046***	0.0096	0.48	0.000

N=28,494, Prob>chi²=0.0000, Log Likelihood =-31416.733, LR chi²(147) = 15185.45 (p<0.01=1%, p<0.05=5%, p<0.1=1%)
Source: Computation from NDHS, 2018

Conclusion

Nigerian women are relatively young, married, mostly have secondary education as compared to other educational levels and live in male headed households. Also, Nigerian women are employed more in unskilled employment types. The majority of women that are not employed are the younger ones of less than 30 years. While women in the North Central have the highest percentage of unemployed women, South West has the highest percentage of women who are involved in skilled employment. North Central and North West zones have the highest percentage of women involved in unskilled employment. Women's engagement in skilled employment types are driven by education while education discourages them in engaging in unskilled employment types. However, because the highest proportion of the women have secondary education, they are found more in the unskilled employment types. Also, engagement in skilled employment types is

driven by wealth index while age drives all skilled and unskilled employment types. Nigerian women are not much involved in skilled employment. The right policy should be put in place to educate girls beyond the secondary education level and enlighten them on the need to be involved in skilled employment.. The age limit of women in the data used 15-49years. Information was not provided for older women >49years. This scope of this study was limited because of this.

Authorship contributions:
Yetunde Oladokun: data curation, analysys, methodology, resources, software, supervision, validation, visualization, writing original, writing final draft.
Olubunmi Alawode: methodology, resources, software, supervision, validation, visualization, writing original, writing final draft.

References

Anyanwu, J. C. (2010). Poverty in Nigeria: A gendered analysis. *African Statistical Journal, 11*(11), 38-61.

Arrow, K. (1973) *"The Theory of Discrimination", in AshenfelterOrley and Rees All,* (ed.), Discrimination in Labour Markets, N.J: Princeton University Press, Princeton, 3-33. Becker, G. S. (2010). The economics of discrimination. University of Chicago press. https://books.google.com.ng/books?

Arrow, K. J. (2014). The Theory Of Discrimination. *Annals of Economics and Finance, 15*(2), 685-723.

Becker, G.S. (1957). *The Economics of Discrimination.* University of Chicago Press, Chicago.

Efanga, U.O., Alli, M.M., Ihemeje, J.C., and Adeleke, E.O. (2021). Modelling Gender Diversity and Its Relationship with Employment Opportunities in Nigeria. *International Journal of Arts, Languages and Business Studies (IJALBS), 6*: 133 – 142. https://ijalbs.gojams.net/index.php/IJALBS/article/view/135

Ehrenberg, R., Smith, R., & Hallock, K. (2021). *Modern labor economics: Theory and public policy.* Routledge.

Enfield, S. (2019). *Gender Roles and Inequalities in the Nigerian Labour Market. K4D Helpdesk Report.* Brighton, UK: Institute of Development Studies. https://assets.publishing.service.gov.uk/media

Grajcevci, A., & Shala, A. (2016). Formal and non-formal education in the new era. *Action Researcher in Education, 7*(7), 119-130.

International Labour Organization (ILO) (2010). *Women in labour markets: Measuring progress and identifying challenges.* International labour office, Geneva. http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_elm/---trends/documents/publication/wcms_123835

Iweagu, H.E. (2012). *The Determinant of Labour Force Participation among Women in Nigeria.* http://www.unn.edu.ng/publications/files/images/IWEAGU%20HELEN%20E.pdf

Jiggins, J. (1989). How poor women earn income in sub-Saharan Africa and what works against them. *World development, 17*(7), 953-963. https://doi.org/10.1016/0305-750X(89)90160-5

Kee, R. C. S., Othman, W. N. W., Zainudin, Z. N., & Yusop, Y. M. (2020). Factors Affecting Women's Participation in Career: A Systematic Review. *International Journal of Academic Research in Business and Social Sciences, 10*(9): 509-521. http://dx.doi.org/10.6007/IJARBSS/v10-i9/7829

Krueger, A. O. (1963). The economics of discrimination. *Journal of Political Economy, 71*(5), 481-486. https://www.journals uchicago.edu/doi/abs/10.1086/258796

Lambin, R., & Nyyssölä, M. (2022). *Employment policy in Mainland Tanzania: what's in it for women?* (No. 2022/67). WIDER Working Paper. https://hdl.handle.net/10419/267810

Lincoln, A. (2012). Nature of leadership practices of Nigerian female entrepreneurs. *International Journal of Business and Social Science, 3*(10): 50–59. https://ssrn.com/abstract=2363401

London, M. (2014). *Career barriers: How people experience, overcome, and avoid failure.* Psychology Press. https://www.taylorfrancis.com/books/mono

Luci, A. (2019). Female Labour Market Participation and Economic Growth. *International Journal Innovation and Sustainable Development*, pp.1-12. https://doi.org/10.1504/IJISD.2009.028065

Mitra, A. (2005). Women in the urban informal sector: Perpetuation of meagre earnings. *Development and change, 36*(2), 291-316. https://doi.org/10.1111/j.0012-155X.2005.00412.x

NDHS (2018). Nigeria Demographic and Health Survey, 2018.

Ortiz-Ospina, E., Tzvetkova, S., & Roser, M. (2024). *Women's employment. Our world in data.* https://ourworldindata.org/female-labor-supply?

Universidad Andina del Cusco

192

Oladokun, et al. (2024) Mujer Andina. 179-193

Neumark, D. (2018). Experimental research on labor market discrimination. *Journal of Economic Literature, 56*(3), 799-866. https://doi.org/10.1257/jel.20161309

Sabo, B. B., Isah, S. D., Chamo, A. M., & Rabiu, M. A. (2017). Role of smallholder farmers in Nigeria's food security. *Scholarly Journal of Agricultural Science, 7*(1), 1-5. https://www.sciepub.com/reference/303461 (Scientific Research Publishing) (Scientific Research Publishing).

Schmader, T. (2023). Gender inclusion and fit in STEM. *Annual Review of Psychology, 74*, 219-243. https://doi.org/10.1146/annurev-psych-032720-043052

Sinha Mukherjee, S. (2015). More educated and more equal? A comparative analysis of female education and employment in Japan, China and India. *Gender and Education, 27*(7), 846-870. https://doi.org/10.1080/09540253.2015.1103367

Sirianni, C., & Negrey, C. (2000). Working time as gendered time. Feminist Economics, 6(1), 59-76. https://doi.org/10.1080/135457000337679

Women's Working Group (2005). Women's budget group response to the women and work commission February 2005. http://wbg.org.uk/documents/WBGsubmissiontoWWC11.02.05.pdf (accessed on 20 March 2022).

Yasunaga, M. (2014). *Non-formal education as a means to meet learning needs of out-of-school children and adolescents*. Montreal: UNESCO Institute for Statistics. https://www.allinschool.org/media/