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# Informality and Poverty Dynamics: Evidence with Panel Data from Nigeria

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## ABSTRACT

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In Nigeria, informality has been on a persistent rise with an increasing number of people engaging in informal employment. Similarly, the rate of poverty and extreme poverty in the country has also been on the rise, an occurrence more evident among the working poor. However, not much is known empirically about the dynamics of both informality and poverty within the Nigerian context. Using panel data from the four waves of the Nigeria General Household Survey (GHS), this study employs the random effects panel regression model to assess the poverty implications of mobility across informal employment types, while also exploring the dynamics of informality and poverty, respectively. The results of our analysis indicate that although work is important, the quality of the work is much more crucial for the welfare of those engaged. Specifically, we find that whereas, transition between all forms of employment is negatively associated with poverty, household heads who transition from formal to informal employment are 0.8 times less likely to move above the poverty line than those who remain in formal employment. Our findings also show that persistence in informality in the country is more evident among own-account workers.

**JEL Classification:**

I32, J21, J46, O55

**Keywords:**

informal employment, poverty, Nigeria

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## 1. Introduction

In recent times, there has been a growing emphasis on the informal sector as a result of its continued growth, which contradicts the conventional expectation of a decrease in informality as economies progress. In particular, the informal sector has become a key source of employment, <sup>1</sup>helping to absorb the excess labour from rural-urban migration and serving as a viable alternative to unemployment (Chen, 2012; Mbaye and Benjamin, 2014); as well as an income source especially for the poor (ILO, 2013; Fox and Sohnesen, 2016). Available data shows that over two billion people (61.2% of the global workforce) are employed in the informal sector globally and this is especially true in the developing countries of Africa, Asia, and the Pacific, and the Arab states. In the African context, the informal sector serves as the primary provider of employment opportunities, accounting for more than 70 percent of non-agricultural jobs. This trend is particularly prominent in Sub-Saharan Africa (SSA), where the informal sector's share of employment (excluding agriculture) is the highest, reaching 76.8 percent (ILO, 2018).

Aside concerns about the persistent rise in the rate of informality, a lot of debate has surrounded the poverty alleviating potential of the sector as well as the motivating factors for those who engage in informal employment (Chen, 2012) coupled with the extent of heterogeneity of work and workers in the sector (Banerjee and Duflo, 2007; Perry et al., 2007; Lehmann, 2015; Basu, Chau, Fields and Kanbur, 2018; Danquah, Schotte and Sen, 2021). However, while several studies exist in the literature about the interrelationship between informality and poverty, most of the studies have relied on cross-sectional data, thereby presenting a static analysis of the issue (La Porta and Shleifer, 2014; ILO, 2013; Benjamin et. al, 2014; Kanbur, 2017; Laoyza, 2018; Gulyani and Talukdar, 2010; Devicienti, Groisman, and Poggi, 2010; Canelas, 2019). Moreover, the literature on the poverty implications of such employment transitions is quite scant. This is particularly important in the Nigeria context as evidence suggests that the percentage of working poor has been on the rise, growing from 21.98% to 31.37% in the informal sector, between 2016 and 2018, compared to 14.68% and 17.24% in the formal sector. Consequently, this examines

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employment transitions, the individual and household characteristics associated with them, and the poverty implications of informal employment mobility/dynamics in Nigeria.

This study therefore contributes to the literature in two ways: first, it provides new evidence on the dynamics of informality using panel data from Nigeria. While studies in the literature have examined the dynamics of informal employment (Slonimczyk and Gimpelson, 2015; Lee, Lee and Choe, 2018; Folawewo and Orija, 2020; Danquah, Schotte and Sen, 2021) and poverty (Baulch and Hoddinott, 2000; Barrett, Garg and McBride, 2016; Eigbiremolen, 2018; Balboni, Bandiera, Burgess, Ghatak and Heil, 2021; Eigbiremolen, 2022), only a few have focused on the Nigerian context. Nigeria presents an interesting case study with about 93 percent of all employments being informal in 2018 (ILO, 2018).

Secondly, the study provides empirical evidence on the dynamic relationship between poverty and employment transitions. Although, there exists a number of studies on the relationship between informal employment and poverty (La Porta and Shleifer, 2014; ILO, 2013; Benjamin et. al, 2014; Kanbur, 2017; Laoyza, 2018; World Bank, 2019; Eigbiremolen 2022), the empirical literature on the dynamics of both poverty and informal employment as well as the dynamic relationship between them is scanty. Evidence on the latter is important as it provides insights as to the persistence or otherwise of both phenomena which would help inform policy choices. In particular, if poverty is found to be dynamically related to informal employment, it implies that not only is informality involuntary, it also has poverty implications. Hence, more policies to help households break through both informality and poverty traps would be imperative.

In the light of these, using panel data from the four waves (2010/2011, 2012/2012, 2015/2016 and 2018/2019) of the Nigeria General Household Survey (GHS), this study utilizes a random effects panel regression model to address the research question: Are informality and poverty dynamically interrelated in Nigeria? Specifically, are informal employment transitions in the Nigerian labour market associated with the poverty status of households? We further employ Dynamic Multinomial Logit to explore the dynamics of informal employment.

The results of our analysis indicate that although work is important, the quality of the work is much more crucial for the welfare of those engaged. Specifically, we find that whereas, transition between all forms of employment is negatively associated with poverty household heads who transition from formal to informal employment are 0.8 times less likely to move above the poverty line than those who remain in formal employment. This finding can be linked to the uncertain nature of earnings from informal employment is likely to weaken its association with poverty

reduction (Fields, 2011). In addition, our findings show that persistence in informality in the country is more evident among the lower-tier informal self-employed workers otherwise known as own-account workers. However, the upper-tier informal wage employed individuals have the highest propensity to transition to other forms of employment, particularly to the formal sector, making it the most dynamic employment state. Furthermore, we find no evidence of poverty persistence, that is, the past poverty status of the household does not affect its present poverty level, various observed and unobserved household characteristics matter for the current poverty level of the household. From the foregoing, it is expedient that policies targeted at the eradication of poverty in the country must be such that seek to address the household characteristics and choices that do matter for the current poverty status of the household. In particular, short-term policies such as cash transfer programs implemented by various administrations of government may have limited effect towards the goal of poverty reduction.

The remainder of the paper is structured as follows: section 2 provides an overview of the Nigerian labour market with insights into the regulatory framework guiding labour issues. Section 3 presents a discussion of the data and methodology used for the study. Section 4 highlights the descriptive statistics of the variables for the study while the empirical results are presented and discussed in section 5. Section 6 concludes the study with policy recommendations.

## **2. Overview of the Nigerian Labour Market**

As with labour markets in most developing countries, a key feature of the Nigeria labour market is that it is dual and heterogeneous with two distinct but interrelated sectors: the formal and informal sectors (Harris and Todaro, 1970; Fields, 1975; Folawewo and Orija, 2020). Whereas the formal sector is under the regulation of the government, the informal sector tends to lie outside it; in particular, the formal-informal dichotomy is defined by the official registration of the business with the government and the provision/contribution of social security—paid leave, health insurance or pension— for the employees (Folawewo, 2015; ILO, 2018).

Aside the international Conventions, Treaties and Protocols for labour and employment ratified by the government, labour issues in Nigeria are primarily governed by the Labour Act, No. 21 of 1974 and its subsequent amendments, most recent of which is the Labour Act 2004 (Folawewo and Orija, 2020). The Labour Act which stipulates the minimum terms of employment as well as the relationship between employees and employers, applies only to workers (employees) while the terms of employment of non-workers (persons exercising administrative, executive, technical or professional functions as public officers or otherwise – Section 91 of the Labour Act) are subject

to the terms of their individual contracts of employment (Jegade and Idiaru, 2021; Lambo and Agomuo, 2022). Within the Labour Act, several laws are enacted by both the national and states houses of assembly including the Employees' compensation Act 2010; Industrial Training Fund, LFN 2004; National Health Insurance Scheme Act, chapter N42, LFN 2004; National Housing Fund Act, chapter N45, LFN 2004; Pension Reform Act 2014; Trade Disputes Act, chapter T8 LFN 2004; Trade Unions Act, chapter T14, LFN 2004; National Industrial Court Act, among others (Lambo and Agomuo, 2022). These laws guide labour and employment matters including compensations and dispute resolutions.

However, despite being guided by international labour treaties and conventions of the ILO ratified by the government as well as other domestic labour laws, the Nigerian labour market still functions below international standards and as with most developing countries, only a segment of the labour market are covered by these laws (Okoronkwo, 2008; Folawewo, 2015). In particular, besides the large informal sector for which the labour laws are ineffective, the private sectors are mostly also uncontrolled as the level of compliance is low due to poor monitoring and enforcement (Folawewo, 2016; Folawewo and Orija, 2020). These, among other factors have contributed to the continued expansion and growth of the informal sector in the country, mainly because it becomes relatively easier to enter and transition into the informal sector as well as a credible opportunity for tax avoidance by both employees and employers.

### **3. Data and Methodology**

#### **3.1 Data**

The study utilizes four (4) waves of the Nigeria General Household Survey (GHS) panel data collected in 2010/2011, 2012/2012, 2015/2016 and 2018/2019. The GHS-Panel for Nigeria is implemented by the National Bureau of Statistics (NBS) in collaboration with the World Bank's Living Standard Measurement Study- Integrated Surveys in Agriculture (LSMS-ISA). The GHS-Panel data is based on a multi-stage stratified sample design and comprises 60 Primary Sampling Units (PSUs) or Enumeration Areas (EAs) chosen from each of the 37 states in Nigeria. The data is integrated with the 2010 GHS sample and is a nationally representative survey of 5,000 households visited twice a year – post-planting and the post-harvest seasons. However, due to attrition and non-response, 4,916 households in wave one, 4,851 households in wave two and 4,581 households in wave three, completed their interviews. More so, in wave 4, there was a partial sample refresh of about 3600 new households with the inclusion of 1507 households from the original panel sample. This is done to enable continued panel analysis dating back to the first



wave, 2010. Hence, for this study, we focus on a sample of 1425 households, which is the final sample size from the long panel sample after accounting for attrition.

The survey data encompasses a wide range of information at the community, agricultural, and household levels. This includes demographic data such as age, gender, and marital status of household members, as well as their educational qualifications. Other variables captured in the survey include household size, food and non-food expenditure, household assets, annual consumption expenditure, farming practices, and non-farm enterprise and income-generating activities. The study relies on obtaining crucial information regarding income-generating activities. This includes determining the operational status of the enterprise, whether it is currently open or closed, the official registration status of the enterprise, the number of employees who are not members of the household, the primary source of capital for the enterprise, and whether the enterprise had access to credit. These responses are essential for the study. The longitudinal nature of the data allows for an assessment of the dynamics of informality and poverty in the country.

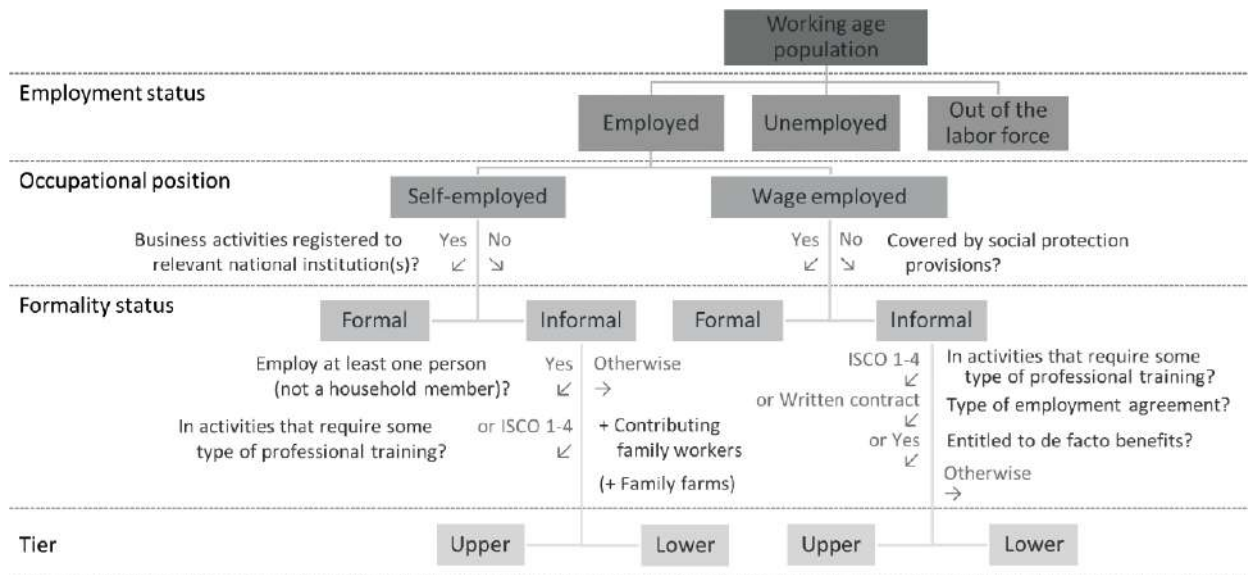
For this study, poverty will be measured using a dummy variable indicator is used to classify the households into poor and non-poor in relation to the poverty line. The poverty line is calculated using the Cost of Basic Needs (CBN) approach which accounts for the amount of money needed by household members to enable them satisfy their basic needs or maintain a minimum level of welfare (Eigbiremolen, 2022; The World Bank, 2022). As a dummy, poverty takes on the value of 1 if the household is poor and 0 if the household is non-poor. The poverty lines for years 2010/2011, 2012/2013 and 2013/2014 calculated in Eigbiremolen, (2022) are adopted for this study while the national poverty line is defined at ₦137, 430 per person per year (that is, per capita expenditure) by the National Bureau of Statistics (2020) is used for wave 4 (2018/2019) as it is based on the 2018/2019 National Living Standards Survey (NLSS) data. The adjustment for inflation was made by utilising the 2003-04 poverty line as the benchmark, which amounted to ₦28,836.70 per person per year. Therefore, households whose consumption expenditure falls below the poverty threshold are categorised as poor, while those whose expenditure lies above it are considered non-poor.

Informality is conceptualized in line with the definition of informal employment by the ILO (ILO, 2018) based on the status of employment – wage or self-employment. Hence, for wage employment, informality is defined by the lack of contribution to employment related social protections including health insurance contributions, pensions or written job contracts. For self-employment, the informality is represented by enterprises that are not officially registered with



the government. Though, we disaggregate employment into wage and self, for both formal and informal employment types, for a more nuanced analyses of informal employment, we also disaggregate both informal wage and self-employment into upper and lower-tier based on the ILO International Standard Classification of Occupations (ISCO) skill-level classification of employment, especially for the analysis of the employment transitions (ILO, 2012). Specifically, in line with the ISCO-08, occupations with ISCO codes 1 to 3 (skill levels 3 and 4) are classified as upper-tier, whereas codes 4 to 9 (skill levels 1 and 2) are classified as lower-tier. Additionally, among the self-employed, those who have at least one paid employee who is not a household member is classified as upper-tier and those with only contributing household members are classified as lower-tier. The classification discussed above is depicted in figure 1 below:

**Figure 1: Classification of Employment Status**



**Source:** Danquah, Schotte and Sen (2021)

## 3.2 Methodology

### 3.2.1 The Link Between Employment Transitions and Poverty Status

To estimate the link between employment transitions and changes in poverty status of households, we adopt the random effects panel regression model. In particular, we estimate the model below:

$$D_{it} = \beta_0 + \beta_1 X_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

Where  $i = 1, \dots, N; t = 1, 2, 3, 4$

$\mu_i$  represents the household unobserved heterogeneity

$\varepsilon_{it}$  is the idiosyncratic error which is assumed to be independently and identically distributed and uncorrelated with the unobserved household characteristics  $\mu_i$  as well as the regressors  $X_{it}$ .  $D_{it}$  is

the poverty status of the household. However, the analysis of the informality-poverty nexus is somewhat embodied with some complexities, particularly due to the disparities in the units of measurement of both phenomena: while poverty is measured at the household level, informality is measured at the individual level as it depends on the formal or informal status of an individual's job. To overcome this challenge, this study would focus the analyses on a sample of household heads (measure informality based on the formal/informal self-employment status of the household head). This follows the standard practice in the literature (Amuedo-Dorantes, 2004; Devicienti et al., 2009; Canelas, 2019). One justification for this is that in most cases, the earnings of the household head represent a significant proportion of the household's incomes (Bookwalter, Fuller and Dalenberg, 2006; Devicienti et al., 2009). This is supported by our data as results in table A.2 (in appendix A) show that the earnings of the household heads in poor households is significantly lower than that of those in non-poor households. Additionally, to correct for possible bias we control for household-level characteristics.

### **3.2.2 Employment Dynamics**

To explore the dynamics of employment, specifically among the categories of informal employment, transition matrices are first utilized. The transition matrices show the probabilities of transition from one employment status to another between period  $t$  and  $t + y$ , where  $y$  is the number of years. They however do not provide insights as to how the transition probabilities vary with observed and unobserved individual and household characteristics including gender, age, educational status as well as initial and previous employment status or experience, among others (Lee, Lee and Choe, 2018; Danquah, Schotte and Sen, 2021). Hence, to do this, we also estimate a multivariate regression model, in particular, we adopt the Dynamic Multinomial Logit Regression Model. The Dynamic Multinomial Logit Model allows for the assessment of the extent to which the probability of being in a particular employment status is affected by an individual's past and initial work status while controlling for individual and household characteristics (Slonimczyk and Gimpelson, 2015; Lee, Lee and Choe, 2018). The outcome variable in this case is the categories of employment including unemployment that an individual can choose to be in at the current time period. It is noteworthy that the model not only allows us to account for individual heterogeneity but also state dependence (measured by the effect of the past employment state on current state of employment) (Danquah, Schotte and Sen, 2021).

Based on the standard analysis in the literature (Liu, 2016; Lee, Lee and Choe, 2018), suppose that there are two time points at which the employment status of individual  $i$  is observed,  $t = \{0,1\}$  where  $D_{i0}$  represents the initial employment status and  $D_{i1}$  represents the final employment status.

Assuming there are  $J$  possible response states indicating the individual's employment status, then  $\Pr(D_{it} = k|X_{it})$  with  $k = (1, \dots, K)$  is the probability that individual  $i$  has a response  $k$  at the time  $t$  given  $X_{it}$ , where  $X_{it}$  is a column vector of covariates for the observation. We specify the value  $W_{ijt}$  for an individual  $i$  in employment state  $j$  at time  $t$  as follows:

$$W_{ijt} = X'_{it}\beta_j + D'_{ijt}\theta_j + \alpha_{ij} + \mu_{ijt} \quad (2)$$

Where  $W_{ijt}$  is a  $J \times 1$  vector of utilities for individual  $i$  at time  $t$ ;  $X_{it}$  is a vector of explanatory variables and  $D_{ijt}$  is a vector of dummy variables indicating the lagged employment states.  $\beta_j$  and  $\theta_j$  are the parameters to be estimated while  $\alpha_{ij}$  is a random effect which indicates time invariant unobserved individual heterogeneity.

#### 4. Descriptive Analysis

Table 1 displays the descriptive statistics of the employment indicators/variables for the study. The results show that while the labour force represent a significant proportion of the total population of the country it has been on a rise, increasing from 31% in 2011 to about 34% in 2018. This can be linked to the continued increase in the population of the country, a greater percentage of which is accounted for by the population of the youths (Eromosele, 2022; Akinyemi and Mobolaji, 2022). However, the unemployment rate rose from 11.4% in 2011 to about 22.8% in 2019, reflecting the current high rate of unemployment in the country. Of those unemployed, a greater proportion tend to be in the rural area (77.3% in 2019) compared to the urban areas (22.6% in 2019), this often leads to high rates of rural-urban migration.

In terms of status of employment, the results show that informal employment represents a higher percentage of the total non-farm employment in the country relative to formal employment, and it has been on the rise over the years. In particular, informal employment rose from 84.42% of the total employment in 2011 to 84.55% in 2016 and though it declined to about 64% in 2019, formal employment accounts for a lower percentage of total non-farm employment, 36% in 2019. However, while a greater proportion of the formal employment consists of wage employment (72.85% in 2019), most of the employment in the informal sector are in self-employment, rising from 71.88% in 2011 to about 86% in 2019 of the total informal employment.

**Table 1: Descriptive statistics - Employment**

|  | 2010-11                              | 2012-13 | 2015-16 | 2018-19 |
|--|--------------------------------------|---------|---------|---------|
|  | <b>Labour force and Unemployment</b> |         |         |         |
| Labour Force (% of the working age population)   | 31.49                                | 32.02   | 28.08   | 34.01   |
| Unemployment (% of the labour force) <b>NBS*</b> | 11.44                                | 9.37    | 8.12    | 22.78   |

|   | <b>Formal/Informal Employment</b>        |       |       |       |
|---|--|-------|-------|-------|
| Formal Employment (% of Non-farm Employment)    | 15.58                                    | 29.96 | 15.45 | 36.21 |
| Informal Employment (% of Non-farm Employment)  | 84.42                                    | 73.04 | 84.55 | 63.79 |
|   | <b>Formal Employment</b>                 |       |       |       |
| Regular Wage Earners (% of Formally Employed)   | 28.96                                    | 63.55 | 37.23 | 72.85 |
| Self-Employed (% of Formally Employed)          | 71.04                                    | 36.45 | 62.77 | 27.15 |
|   | <b>Informal Employment</b>               |       |       |       |
| Regular Wage Earners (% of Informally Employed) | 28.12                                    | 16.32 | 25.65 | 13.97 |
| Self-Employed (% of Informally Employed)        | 71.88                                    | 83.68 | 74.35 | 86.03 |
|   | <b>Rural/Urban (Formal) Employment</b>   |       |       |       |
| Rural Formally Employed (% of Employed)         | 37.11                                    | 36.20 | 26.38 | 39.10 |
| Urban Formally Employed (% of Employed)         | 62.89                                    | 63.80 | 73.62 | 60.90 |
|   | <b>Rural/Urban (Informal) Employment</b> |       |       |       |
| Rural Informally Employed (% of Employed)       | 42.02                                    | 36.88 | 36.77 | 52.02 |
| Urban Informally Employed (% of Employed)       | 57.98                                    | 63.12 | 63.23 | 47.98 |
|   | <b>Rural/Urban Unemployment</b>          |       |       |       |
| Rural Unemployed (% of Unemployed)              | 64.28                                    | 57.62 | 40.78 | 77.37 |
| Urban Unemployed (% of Unemployed)              | 35.72                                    | 42.38 | 59.22 | 22.63 |

**Source: Authors' computation using Nigeria GHS datasets**

\*The Nigeria Bureau of Statistics (NBS) defines unemployment as the proportion of those in the labour force who were actively looking for work but could not find work for at least 20 hours during the reference period

The gender distribution of workers by the nature of employment depicted in figure B.1 (in appendix B) shows that in general, males were more engaged in wage employment (61%) than self-employment (56%) whereas a higher proportion of females engaged in self-employment (44%) than in wage employment (39%). This can be linked to the flexibility of work in self-employment which allows women more time to attend to other duties particularly with the family. In addition, it can be seen that although, males were engaged in both formal and informal employment (66.6% and 50.4%, respectively), a greater percentage of females were engaged in the informal employment (49.6%) than formal employment (33.4%). However, with further disaggregation, the figure shows that while males dominated both formal wage and self-employment (61% and 73% respectively) as well as informal wage employment (60%) both upper and lower-tier, women were more predominant in informal self-employment (60%), upper and lower-tier inclusive (This is shown in appendix B.2). Consequently, the result portrays the higher rate of male labour force participation relative to that of females in Nigeria.

## **5. Results and Discussions**

### **5.1 Employment Transitions**

Table 2 presents the average marginal effects of each of the variables on the individuals' current employment state, estimated from the multinomial logit model. In essence, the marginal effects yields the predicted probability of being in an employment state at time  $t=1$  given a change in the explanatory variables. In this model however, we account for state dependence in the employment status of the individuals, that is, we estimate the marginal effect of the previous period (lagged) employment status ( $Y_{t-1}$ ) on the current employment status ( $Y_t$ ). Hence, table 2 presents results of a dynamic multinomial logistic regression model.

From the results, we find evidence of strong state dependence (persistence) in agricultural employment, formal wage employment, formal self-employment and informal self-employment. This is shown by the positive and significant average marginal effects of these employment states. This implies that compared to those who are unemployed (the base category), individuals engaged in agricultural employment, formal wage employment, formal self-employment and informal self-employment are more likely to remain in those states over time. Also, the results shows that while individuals engaged in informal wage employment are less likely to move to agricultural (-0.159) and informal self-employment (-0.102), they are more likely (0.298) to move to formal wage employment. Also, although, individuals engaged in formal self-employment are more likely to move to informal self-employment, those engaged in informal self-employment are more likely to switch to formal self-employment (0.090) than informal wage employment (-0.106). This could arise as a result of formalization process of the business, making them to transition from informal to formal status in the same business, rather than having to give up their businesses to move to informal wage employment, which may not offer the same benefits, such as flexibility of work, as self-employment. These findings are similar to those from the transitions matrices presented in table A.5.

**Table 2:** Predictors of Employment Transitions: Multinomial Logistic Regression (Average Marginal Effects)

| VARIABLES                           | (1)<br>unemployed | (2)<br>Agric<br>Employment | (3)<br>Formal<br>wage<br>employed | (4)<br>Informal<br>wage<br>employed | (5)<br>Formal<br>self<br>employed | (6)<br>Informal<br>self<br>employed |
|-------------------------------------|-------------------|----------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-------------------------------------|
| <u>Base category – Unemployment</u> |                   |                            |                                   |                                     |                                   |                                     |
| Agric employment (t-1)              | -0.024<br>(0.036) | 0.183***<br>(0.049)        | 0.029<br>(0.030)                  | -0.121***<br>(0.043)                | -0.008<br>(0.018)                 | -0.060<br>(0.044)                   |
| Formal wage employed (t-1)          | -0.010<br>(0.046) | -0.256***<br>(0.061)       | 0.182***<br>(0.043)               | 0.094<br>(0.059)                    | 0.062*<br>(0.034)                 | -0.072<br>(0.056)                   |
| Informal wage employed (t-1)        | -0.012<br>(0.042) | -0.159***<br>(0.057)       | 0.298***<br>(0.047)               | -0.045<br>(0.049)                   | 0.020<br>(0.024)                  | -0.102**<br>(0.050)                 |
| Formal self-employed (t-1)          | -0.060            | -0.219***                  | -0.001                            | -0.000                              | 0.080**                           | 0.200***                            |

|  |           |           |          |          |          |          |
|--|-----------|-----------|----------|----------|----------|----------|
|  | (0.044)   | (0.065)   | (0.036)  | (0.060)  | (0.040)  | (0.071)  |
| Informal self-employed (t-1)                   | -0.050    | -0.178*** | -0.006   | -0.106** | 0.090*** | 0.250*** |
|  | (0.035)   | (0.051)   | (0.029)  | (0.044)  | (0.026)  | (0.051)  |
| Gender (male=1)                                | 0.064*    | -0.052    | -0.030   | 0.062    | 0.023    | -0.068   |
|  | (0.033)   | (0.064)   | (0.039)  | (0.049)  | (0.041)  | (0.053)  |
| Ln(age)  | 0.030     | 0.057     | -0.002   | -0.006   | -0.008   | -0.069   |
|  | (0.034)   | (0.051)   | (0.041)  | (0.041)  | (0.029)  | (0.047)  |
| Marital status (married=1)                     | -0.082*** | 0.034     | 0.028    | -0.025   | 0.035    | 0.009    |
|  | (0.026)   | (0.057)   | (0.036)  | (0.037)  | (0.034)  | (0.045)  |
| <u>Educational Level (base = No schooling)</u> |           |           |          |          |          |          |
| Primary  | -0.104    | -0.150    | 0.067*** | 0.090*** | 0.051*** | 0.045    |
|  | (0.157)   | (0.154)   | (0.017)  | (0.019)  | (0.013)  | (0.133)  |
| Secondary                                      | -0.127    | -0.195    | 0.097*** | 0.099*** | 0.066*** | 0.060    |
|  | (0.157)   | (0.154)   | (0.018)  | (0.012)  | (0.012)  | (0.133)  |
| Tertiary                                       | -0.144    | -0.241    | 0.245*** | 0.174*** | 0.042*** | -0.076   |
|  | (0.157)   | (0.155)   | (0.026)  | (0.017)  | (0.011)  | (0.133)  |
| Others (Informal/Adult education)              | -0.142    | -0.106    | 0.025    | 0.039    | 0.072**  | 0.112    |
|  | (0.157)   | (0.155)   | (0.023)  | (0.027)  | (0.030)  | (0.138)  |
| Area (urban=1)                                 | 0.011     | -0.242*** | 0.055*** | 0.022    | 0.005    | 0.148*** |
|  | (0.016)   | (0.025)   | (0.016)  | (0.018)  | (0.012)  | (0.021)  |
| Observations                                   | 1,235     | 1,235     | 1,235    | 1,235    | 1,235    | 1,235    |
| Log likelihood                                 | -1404     | -1404     | -1404    | -1404    | -1404    | -1404    |
| Pseudo R2                                      | 0.275     | 0.275     | 0.275    | 0.275    | 0.275    | 0.275    |

Note: Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Source:** Author's computation using the Nigeria GHS datasets

Furthermore, we find that the marital status of the individual significantly affects his unemployment probability, specifically, individuals who are married are less likely to be unemployed. While this maybe particularly true for the men, it may not necessarily hold for the female gender, arising from the effect of traditional gender roles that constrain the labour force participation of females in the home (Gammarano, 2020). However, the definition of unemployment utilized for this study (table A.1 in the appendix), may have contributed to this finding in that underemployment is not accounted for. In other words, individuals working as housewives or are retired, who are not participating in the labour force are not covered in the definition of unemployment (Lee, Lee and Choe, 2018).

In line with the results of descriptive statistics, we find that educated individuals have a higher probability of being employed than unemployed, and also less likely to be engaged in agriculture. In particular, the results from table 2 show that educated individuals are more likely to be engaged in formal employment than in informal employment and moreso in wage employment than in self-employment. This result supports the finding in the literature on the effect of education on employment transitions (Danquah, Schotte and Sen, 2021; Lee, Lee and Choe, 2018).

## 5.2 Link between Employment Dynamics and Household Poverty Status

In this section, we assess the poverty implications of employment mobility/dynamics using random effects panel regression model. The choice of a random effects model is corroborated by the result of the Hausman test presented in table A.5 (appendix). The results from the estimation presented in table 3 shows the association between poverty and transitions between employment status of the household head, represented by the initial (t0) and final employment status (t). We further disaggregate the employment status by formality status (formal/informal wage and self-employment) for a more nuanced view of the employment type. This is differentiated into model 1 and 2 in the table. The models are adjusted for household-level characteristics including age of the household head, level of education, marital status, area of residence (rural/urban), number of children, number of adults, receipt of remittances.

From the results, transition between all forms of employment is negatively associated with poverty, indicating that being employed, whether formally or informally, is associated with a lower likelihood of falling below the poverty line. However, by magnitude, the results show that household heads who transition from formal to informal employment are 0.8 times less likely to move above the poverty line than those who remain in formal employment. This indicates that although work is important, the quality of the work is much more crucial for the welfare of those engaged. Specifically, the uncertain nature of earnings from informal employment is likely to weaken its association with poverty reduction (Fields, 2011). In addition, we find that relatively, household heads who move from informal to formal employment are most likely (-.093) to be poor compared to those who remain in formal employment (-0.218) or move from formal to informal employment (-0.176). This finding is reflective of the difficulty/rigidity in transition from formal to informal employment, especially in wage employment, due to the relatively lower level of human capital among those often engaged in informal employment, consequently trapping them low skill (and consequently, lower earning) formal employment (La Porta and Shleifer, 2014; Kanbur, 2017).

**Table 3: Association between poverty and initial and final employment status**

| Variables                                  | (1)<br><b>model 1</b><br>Poverty status | (2)<br><b>model 2</b><br>poverty status |
|--|---|---|
| <i>Employment status in t0 and t</i>       |   |   |
| Unemployed (t0) x Formal employed (t)      | -0.007<br>(0.101)                       |   |
| Unemployed (t0) x Informal employed (t)    | -0.064<br>(0.096)                       |   |
| Formal employed (t0) x Formal employed (t) | -0.218***                               |   |



|  |                      |
|--|----------------------|
| Formal employed (t0) x Informal employed (t)   | (0.059)<br>-0.176*** |
| Informal employed (t0) x Formal employed (t)   | (0.058)<br>-0.093*   |
| Informal employed (t0) x Informal employed (t) | (0.055)<br>-0.065    |
| Formal employed (t0)                           | (0.054)<br>0.049     |
| Informal employed (t0)                         | (0.100)<br>-0.006    |
|  | (0.096)              |

*Formality status in t and t0*

---

|  |                      |
|--|----------------------|
| Unemployed (t0) x formal wage (t)      | -0.023<br>(0.114)    |
| Unemployed (t0) x informal wage (t)    | -0.038<br>(0.115)    |
| Unemployed (t0) x formal self (t)      | 0.009<br>(0.116)     |
| Unemployed (t0) x informal self (t)    | -0.078<br>(0.103)    |
| formal wage (t0) x formal wage (t)     | -0.299***<br>(0.067) |
| formal wage (t0) x informal wage (t)   | -0.224***<br>(0.067) |
| formal wage (t0) x formal self (t)     | -0.288***<br>(0.086) |
| formal wage (t0) x informal self (t)   | -0.215**<br>(0.085)  |
| Informal wage (t0) x formal wage (t)   | -0.164**<br>(0.081)  |
| Informal wage (t0) x Informal wage (t) | -0.133<br>(0.082)    |
| Informal wage (t0) x formal self (t)   | -0.072<br>(0.099)    |
| Informal wage (t0) x informal self (t) | -0.176**<br>(0.085)  |
| Formal self (t0) x formal wage (t)     | 0.020<br>(0.133)     |
| Formal self (t0) x informal wage (t)   | -0.080<br>(0.107)    |
| Formal self (t0) x Formal self (t)     | -0.119<br>(0.101)    |
| Formal self (t0) x informal self (t)   | -0.145<br>(0.098)    |
| Informal self (t0) x formal wage (t)   | -0.026<br>(0.093)    |
| Informal self (t0) x Informal wage (t) | -0.041<br>(0.077)    |
| Informal self (t0) x formal self (t)   | -0.086<br>(0.077)    |
| Informal self (t0) x Informal self (t) | -0.010<br>(0.073)    |
| Formal wage                            | 0.095                |

|               |          |          |
|---------------|----------|----------|
|               |          | (0.103)  |
| Informal wage |          | 0.071    |
|               |          | (0.112)  |
| Informal self |          | 0.000    |
|               |          | (0.128)  |
| Formal self   |          | -0.054   |
|               |          | (0.107)  |
| Constant      | 0.631*** | 0.624*** |
|               | (0.151)  | (0.148)  |
| Observations  | 2,202    | 2,202    |
| Wald Chi2     | 563.56   | 581.88   |
| Prob>chi2     | 0.000    | 0.000    |

**Notes:** Pooled data for GHS (waves 1-3) with estimates based on a balanced panel sample  
Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Furthermore, disaggregating the analysis by the formality status of the employment, we find that in line with the preceding discussion, transition within wage employment from informal to formal has the lowest association (-0.164), in absolute terms, with poverty reduction compared to transitions within self-employment as well as employment persistence. We also provide a gender analysis of the finding in table A.6 (appendix) and find similar results particularly for the male-headed households and for the model with per capita consumption as the measure of welfare.

## 6. Conclusion and Policy recommendations

In Nigeria, informality has been on a persistent rise with an increasing number of people engaging in informal employment. On the other hand, the rate of poverty and extreme poverty in the country has been on the rise, an occurrence also quite evident among the working poor. However, not much is known empirically about the dynamics of both informality and poverty within the Nigerian context and this study fills this gap by using four waves of the Nigeria General household Survey (GHS) data to assess the dynamics of poverty and informal employment in Nigeria as well as the individual and household characteristics associated with such transitions. In addition, we assess the poverty implications of informal employment mobility/dynamics in Nigeria. For a more nuanced analyses, we further classified the informal sector – wage and self-employment – into upper and lower tiers using the ILO ISCO classification of employment.

The result of the analyses reveals that though, transition between all forms of employment is negatively associated with poverty, indicating that being employed, whether formally or informally, is associated with a lower likelihood of falling below the poverty line, household heads who transition from formal to informal employment are 0.8 times less likely to move above the

poverty line than those who remain in formal employment. This indicates that although work is important, the quality of the work is much more crucial for the welfare of those engaged. Specifically, the uncertain nature of earnings from informal employment is likely to weaken its association with poverty reduction (Fields, 2011). In addition, our findings show that persistence on informality in the country is more evident among the lower-tier informal self-employed workers otherwise known as own-account workers. In other words, these set of workers are less likely to transition into other forms of employment. This result is partly explained by the fact that majority of the workers engaged in lower-tier informal employment have low level of education compared to others, further constraining them to remain in such employment and unable to transition to other forms of employment. On the other hand, the upper-tier informal wage employed individuals have the highest propensity to transition to other forms of employment, particularly to the formal sector, making it the most dynamic employment state. In addition, the results show that workers engaged in the upper-tier informal employment are more likely to move to the formal sector than those in the lower-tier, while individuals in the wage employment were likely to transition to self-employment. The latter is often due to the flexibility of work associated with self-employment relative to wage employment.

Following the findings of this study, it is imperative that policies targeted at education and training be prioritized as education has been found to be important not only to the choice of employment but also to the exposure to poverty. Also, the findings from this study has shown that the informal sector is a highly heterogenous sector and hence should be treated as such particularly with respect to policies targeted to it. In otherwords, a “one size fits all” policy targeted at the informal sector will be grossly ineffective, as the inherent peculiarities of the various segments must be taken into account.

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## Appendices

### Appendix A

**Table A.1: Definition of terms**

| S/N | Term              | Definition   | Source                              |
|-----|-------------------|--|-------------------------------------|
| 1.  | Labour force      | Persons aged 15-64 years who are willing and able to work regardless of whether they have a job or not   | NBS (2018)                          |
| 2.  | Non-labour force  | Population below 15 or older than 64 years as well as those within the economically active population, that is, 15-64 years, who are unable to work, not actively seeking for work or choose not to work and/or are not available for work. E.g., voluntary full-time housewives, underage children 14 and below, adults above 65, full time students, those in active military service, physically challenged and incapacitated persons whose incapacitation prevents them from working | NBS (2018)                          |
| 3.  | Employment        | A person is regarded as employed if he/she is engaged in the production of goods and services, thereby contributing to the Gross Domestic Product (GDP) in a legitimate manner, which is a component of the national accounts and receives any form or amount of compensation for that activity  | NBS (2018)                          |
| 4.  | Unemployment      | <p>i) Persons aged 15-64 years who during the reference period (which is usually the week preceding the time of the survey is administered) were available to work, but were unable to find work</p> <p>ii) One is said to be unemployed if he did absolutely nothing at all or did something but for less than 20 hours during the reference week</p>   | <p>ILO (2018)</p> <p>NBS (2018)</p> |
| 5.  | Unemployment Rate | <p>The percentage of the labour force who are unemployed:</p> $\text{Unemployment rate} = \frac{\text{Unemployed population}}{\text{Labour force population}} * 100$   | NBS (2018)                          |
| 6.  | Informal sector   | The Informal Sector comprises any economic activity or source of income that is not fully regulated by the government and other public authorities; this   | Bank of Industry (2018); NBS (2018) |

|     |                            |  |            |
|-----|----------------------------|--|------------|
|     |                            | includes enterprises that are not officially registered and do not maintain a complete set of accounts; and wage employed workers who hold jobs lacking basic social or legal protection and employment benefits.<br><br>Hence, informality is characterized by registration of enterprises and/or contribution to social protection and employment benefits |            |
| 7.  | Wage Employment            | Employment in all public and private organizations for which a wage/salary is paid   | ILO (2018) |
| 8.  | Self-Employment            | Employment on own account/ own account workers   | ILO (2018) |
| 9.  | Upper-tier wage employment | Employment that requires some form of professional training (ISCO 1-3) but with no employment benefits such as paid sick leave, health insurance or written employment contract  |            |
| 10. | Lower-tier wage employment | Employment that requires little or no form of professional training (ISCO 4-9) and with no employment benefits such as paid sick leave, health insurance or written employment contract  |            |
| 11. | Upper-tier self-employment | Activities that require some form of professional training (ISCO 1-3) and/or has at least one non-household member who is a paid employee  |            |
| 12. | Lower-tier self-employment | Activities that require little or no form of professional training (ISCO 4-9) and/or engages only contributing household members   |            |

**Table A.2: Test of Mean Differences in Monthly Earnings by Poverty status**

| Household Head Monthly Earnings by Poverty Status |         |            |            |         |         |
|---|---------|------------|------------|---------|---------|
|   | Mean    | difference | Std. Error | t-value | p value |
| Non-Poor  | 46895.6 |            | 3632.084   | 5.85    | 0.0000  |
| Poor  | 25638.6 |            |            |         |         |
|   |         | 21257.091  |            |         |         |

**Table A.3: Proportion of Workers by Type of Employment (%)**

| Proportion of workers by job status (% of total non-farm employment) |           |           |           |           |         |
|--|-----------|-----------|-----------|-----------|---------|
|  | 2010/2011 | 2012/2013 | 2015/2016 | 2018/2019 | Average |
|  | %         | %         | %         | %         | %       |
| Formal wage  | 4.52      | 16.53     | 3.78      | 26.36     | 12.80   |
| Upper-tier informal wage   | 12.34     | 3.13      | 11.56     | 3.22      | 7.56    |
| Lower-tier informal wage   | 11.26     | 6.49      | 9.1       | 5.71      | 8.14    |
| Formal self  | 10.74     | 10.71     | 10.16     | 9.72      | 10.33   |
| Upper-tier informal self   | 28.25     | 25.85     | 0         | 0         | 13.53   |
| Lower-tier informal self   | 32.89     | 37.29     | 65.41     | 54.99     | 47.65   |
| Total  | 100.00    | 100.00    | 100.00    | 100.00    | 100.00  |

Source: Authors' computation using Nigeria GHS datasets

**Table A.4: Proportion of Workers by Type of Employment (%)**

| Proportion of workers by job status (% of total employment) |               |               |               |               |               |
|---|---------------|---------------|---------------|---------------|---------------|
|   | 2010/2011     | 2012/2013     | 2015/2016     | 2018/2019     | Average       |
|   | %             | %             | %             | %             | %             |
| Agric employment  | 49.09         | 48.20         | 48.78         | 43.46         | 47.38         |
| Formal wage   | 2.30          | 8.56          | 1.93          | 14.90         | 6.92          |
| Informal wage   | 12.02         | 4.98          | 10.58         | 5.05          | 8.16          |
| Formal self   | 5.47          | 5.55          | 5.20          | 5.50          | 5.43          |
| Informal self   | 31.13         | 32.71         | 33.50         | 31.09         | 32.11         |
| <b>Total</b>  | <b>100.00</b> | <b>100.00</b> | <b>100.00</b> | <b>100.00</b> | <b>100.00</b> |

**Table A.5: Hausman (1978) specification test**

|                       | Coef.  |
|-----------------------|--------|
| Chi-square test value | 38.832 |
| P-value               | .261   |

**Table A.6: Association between poverty and the initial and final work status by gender**

| VARIABLES   | (1)<br>Poverty status |                     | (2)<br>Per capita consumption |                      |
|---|-----------------------|---------------------|-------------------------------|----------------------|
|   | Male                  | Female              | Male                          | Female               |
| <b>Employment status in t and t0 (base: Unemployed)</b> |                       |                     |                               |                      |
| Formal employed (t) x Unemployed (t0)                   | -0.007<br>(0.101)     | 0.332<br>(0.319)    | 0.082<br>(0.132)              | 0.964<br>(0.933)     |
| Formal employed (t) x Formal employed (t0)              | -0.218***<br>(0.059)  | -0.382<br>(0.256)   | 0.373***<br>(0.104)           | 1.548***<br>(0.201)  |
| Formal employed (t) x Informal employed (t0)            | -0.093*<br>(0.055)    | -0.064<br>(0.151)   | 0.128<br>(0.089)              | 0.369<br>(0.340)     |
| Informal employed (t) x Unemployed (t0)                 | -0.064<br>(0.096)     | 0.134<br>(0.185)    | 0.207<br>(0.128)              | 0.041<br>(0.347)     |
| Informal employed (t) x Formal employed (t0)            | -0.176***<br>(0.058)  | -0.401<br>(0.255)   | 0.204**<br>(0.100)            | 1.460***<br>(0.196)  |
| Informal employed (t) x Informal employed (t0)          | -0.065<br>(0.054)     | 0.005<br>(0.142)    | 0.091<br>(0.086)              | 0.095<br>(0.326)     |
| <b>Employment status in t0 (base: Unemployed)</b>       |                       |                     |                               |                      |
| Formal employed (t0)                                    | 0.049<br>(0.100)      | 0.264<br>(0.261)    | 0.001<br>(0.150)              | -1.225***<br>(0.243) |
| Informal employed (t0)                                  | -0.006<br>(0.096)     | -0.048<br>(0.166)   | -0.010<br>(0.136)             | -0.153<br>(0.376)    |
| <b>Control Variables</b>                                |                       |                     |                               |                      |
| Age   | -0.003***<br>(0.001)  | 0.004<br>(0.003)    | 0.009***<br>(0.002)           | -0.005<br>(0.005)    |
| <u>Level of Education (Base: No schooling)</u>          |                       |                     |                               |                      |
| Primary education                                       | -0.349***<br>(0.133)  | -0.072<br>(0.148)   | 0.216<br>(0.154)              | -0.091<br>(0.105)    |
| Secondary education                                     | -0.446***<br>(0.133)  | -0.117<br>(0.142)   | 0.376**<br>(0.153)            | 0.022<br>(0.102)     |
| Tertiary education                                      | -0.486***<br>(0.133)  | -0.107<br>(0.146)   | 0.612***<br>(0.155)           | 0.293*<br>(0.153)    |
| Others (including adult education)                      | -0.169<br>(0.139)     | 0.620***<br>(0.153) | 0.030<br>(0.161)              | -0.396***<br>(0.133) |
| Marital status (married=1)                              | 0.047**<br>(0.024)    | -0.085<br>(0.056)   | -0.441***<br>(0.057)          | 0.060<br>(0.092)     |
| Residence (urban=1)                                     | -0.075***<br>(0.024)  | -0.007<br>(0.056)   | 0.117***<br>(0.057)           | 0.157**<br>(0.092)   |

|                                |          |          |           |           |
|--------------------------------|----------|----------|-----------|-----------|
|                                | (0.020)  | (0.049)  | (0.032)   | (0.078)   |
| Receipt of remittances         | -0.060   | -0.112** | 0.199***  | 0.387***  |
|                                | (0.038)  | (0.047)  | (0.074)   | (0.128)   |
| Number of children (<18 years) | 0.061*** | 0.092*** | -0.119*** | -0.218*** |
|                                | (0.005)  | (0.020)  | (0.008)   | (0.031)   |
| Number of adults               | 0.014**  | 0.006    | -0.012    | -0.037    |
|                                | (0.005)  | (0.014)  | (0.011)   | (0.025)   |
| Constant                       | 0.631*** | 0.031    | 11.544*** | 12.428*** |
|                                | (0.151)  | (0.215)  | (0.191)   | (0.322)   |
| Observations                   | 2,202    | 256      | 2,147     | 249       |
| Wald Chi2                      | 563.56   | 3211.63  | 932.76    | 558.81    |
| Prob>Chi2                      | 0.000    | 0.000    | 0.000     | 0.000     |

**Notes:** Pooled data for GHS (waves 1-3) with estimates based on a balanced panel sample

Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A.7: Workers' Transitions Across Employment Status**

|        | Panel A               |             |                       |                       | Wave 2                |                       |                       |                  |
|--------|-----------------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|
|        |                       | Formal self | Formal wage           | Informal wage (upper) | Informal wage (lower) | Informal self (upper) | Informal self (lower) | Share of stayers |
| Wave 1 | Formal self           | 11.86       | 22.03                 | 0.00                  | 10.17                 | 15.25                 | 40.68                 | 1.27             |
|        | Formal wage           | 4.35        | 26.09                 | 0.00                  | 4.35                  | 13.04                 | 52.17                 | 4.31             |
|        | Informal wage (upper) | 6.33        | 17.72                 | 0.00                  | 21.52                 | 8.86                  | 45.57                 | 0.00             |
|        | Informal wage (lower) | 18.18       | 21.21                 | 1.52                  | 6.06                  | 12.12                 | 40.91                 | 3.93             |
|        | Informal self (upper) | 11.81       | 22.05                 | 0.79                  | 4.72                  | 13.39                 | 47.24                 | 3.46             |
|        | Informal self (lower) | 13.73       | 15.03                 | 4.58                  | 6.54                  | 18.95                 | 41.18                 | 15.36            |
|        | Total                 | 12.03       | 19.33                 | 1.78                  | 8.68                  | 14.40                 | 43.79                 | 28.33            |
|        |                       |             |                       |                       |                       |                       |                       |                  |
|        | Panel B               |             |                       |                       | Wave 3                |                       |                       |                  |
|        | Formal self           | Formal wage | Informal wage (upper) | Informal wage (lower) | Informal self (upper) | Informal self (lower) | Share of stayers      |                  |
| Wave 2 | Formal self           | 1.45        | 0.00                  | 2.90                  | 1.45                  | -                     | 94.20                 | 0.15             |
|        | Formal wage           | 10.84       | 3.61                  | 8.43                  | 2.41                  | -                     | 74.70                 | 1.36             |
|        | Informal wage (upper) | 0.00        | 0.00                  | 26.67                 | 26.67                 | -                     | 46.67                 | 3.08             |
|        | Informal wage (lower) | 3.39        | 3.39                  | 33.90                 | 10.17                 | -                     | 49.15                 | 9.10             |
|        | Informal self (upper) | 0.00        | 2.27                  | 20.45                 | 6.82                  | -                     | 70.45                 | n/a              |
|        | Informal self (lower) | 5.63        | 5.31                  | 8.44                  | 7.50                  | -                     | 73.13                 | 47.83            |
|        | Total                 | 4.73        | 3.79                  | 12.30                 | 6.78                  | -                     | 72.40                 | 61.52            |

| Panel C |                       | Wave 4      |             |                       |                       |                       |                       |                  |
|---------|-----------------------|-------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|
| Wave 3  |                       | Formal self | Formal wage | Informal wage (upper) | Informal wage (lower) | Informal self (upper) | Informal self (lower) | Share of stayers |
|         | Formal self           | 16.67       | 0.00        | 0.00                  | 0.00                  | -                     | 83.33                 | 16.20            |
|         | Formal wage           | 0.00        | 12.50       | 0.00                  | 0.00                  | -                     | 87.50                 | 3.30             |
|         | Informal wage (upper) | 6.90        | 51.72       | 3.45                  | 3.45                  | -                     | 34.48                 | 1.11             |
|         | Informal wage (lower) | 13.73       | 9.80        | 1.96                  | 23.53                 | -                     | 50.98                 | 13.44            |
|         | Informal self (upper) | -           | -           | -                     | -                     | -                     | -                     | n/a              |
|         | Informal self (lower) | 7.19        | 32.19       | 1.03                  | 2.05                  | -                     | 57.53                 | 31.64            |
|         | Total                 | 8.13        | 28.57       | 1.23                  | 4.68                  | -                     | 57.39                 | 100.00           |

Source: Authors' computation using Nigeria GHS datasets

Table A.8: Workers' Transition Across Employment Types and Unemployment

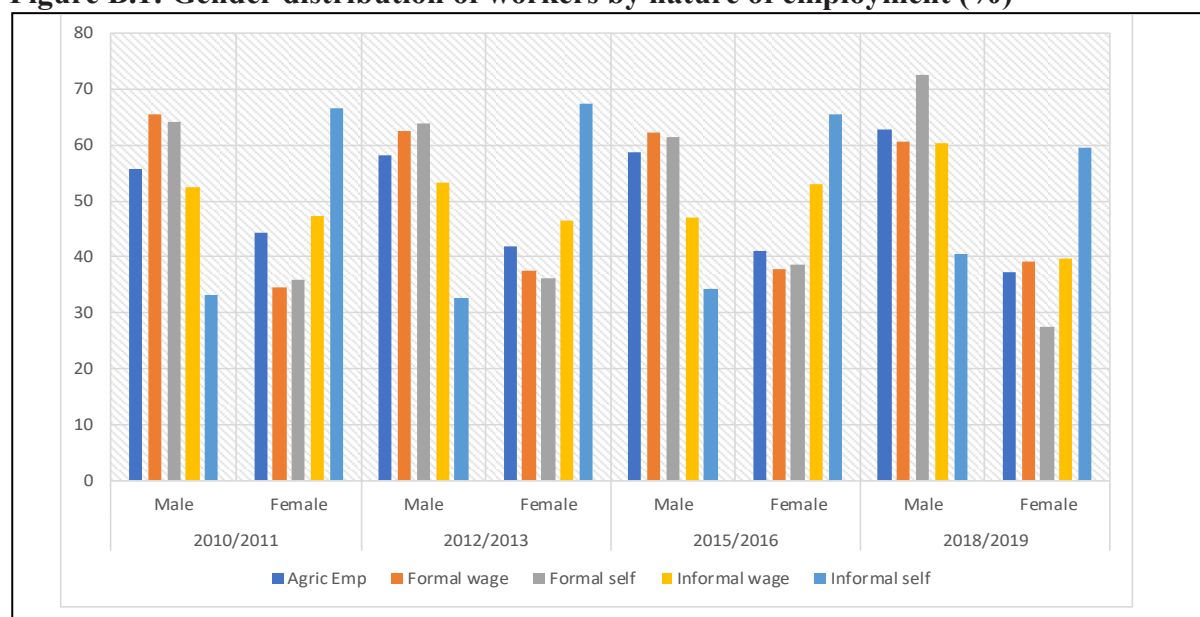
| Panel A:      |            | Wave 2    |             |               |             |               |         |
|---------------|------------|-----------|-------------|---------------|-------------|---------------|---------|
| Wave 1        | Unemployed | Agric emp | Formal wage | Informal wage | Formal self | Informal self | Total   |
| Unemployed    | 13.190     | 40.110    | 11.350      | 10.290        | 5.280       | 19.790        | 100.000 |
| Agric emp     | 15.680     | 43.100    | 8.960       | 6.000         | 4.930       | 21.330        | 100.000 |
| Formal wage   | 6.150      | 58.460    | 9.230       | 1.540         | 1.540       | 23.080        | 100.000 |
| Informal wage | 7.740      | 49.110    | 8.330       | 6.550         | 5.060       | 23.210        | 100.000 |
| Formal self   | 10.190     | 52.230    | 8.280       | 3.820         | 4.460       | 21.020        | 100.000 |
| Informal self | 7.430      | 54.730    | 6.890       | 3.240         | 4.860       | 22.840        | 100.000 |
| Total         | 11.670     | 47.370    | 8.630       | 5.690         | 4.870       | 21.770        | 100.000 |

| Panel B:      |            | Wave 3    |             |               |             |               |         |
|---------------|------------|-----------|-------------|---------------|-------------|---------------|---------|
| Wave 2        | Unemployed | Agric emp | Formal wage | Informal wage | Formal self | Informal self | Total   |
| Unemployed    | 15.380     | 44.510    | 0.820       | 9.070         | 2.750       | 27.470        | 100.000 |
| Agric emp     | 6.460      | 63.010    | 1.870       | 5.870         | 3.320       | 19.470        | 100.000 |
| Formal wage   | 5.450      | 56.820    | 1.360       | 4.090         | 4.090       | 28.180        | 100.000 |
| Informal wage | 8.460      | 34.620    | 1.540       | 26.150        | 1.540       | 27.690        | 100.000 |
| Formal self   | 3.420      | 49.320    | 0.000       | 2.050         | 0.680       | 44.520        | 100.000 |
| Informal self | 6.570      | 31.040    | 2.910       | 11.470        | 2.750       | 45.260        | 100.000 |

|                      |            |               |             |               |             |               |         |
|----------------------|------------|---------------|-------------|---------------|-------------|---------------|---------|
| Total                | 7.550      | 50.110        | 1.820       | 8.290         | 2.940       | 29.290        | 100.000 |
| Panel C:             |            | <b>Wave 4</b> |             |               |             |               |         |
| <b>Wave 3</b>        | Unemployed | Agric emp     | Formal wage | Informal wage | Formal self | Informal self | Total   |
| <b>Unemployed</b>    | 51.220     | 23.780        | 4.270       | 0.000         | 3.050       | 17.680        | 100.000 |
| <b>Agric emp</b>     | 38.710     | 24.870        | 9.890       | 2.910         | 1.870       | 21.750        | 100.000 |
| <b>Formal wage</b>   | 9.090      | 18.180        | 9.090       | 0.000         | 0.000       | 63.640        | 100.000 |
| <b>Informal wage</b> | 38.140     | 27.970        | 8.470       | 6.360         | 3.810       | 15.250        | 100.000 |
| <b>Formal self</b>   | 42.680     | 35.370        | 0.000       | 0.000         | 3.660       | 18.290        | 100.000 |
| <b>Informal self</b> | 31.770     | 20.910        | 15.240      | 1.460         | 3.400       | 27.230        | 100.000 |
| Total                | 37.420     | 24.300        | 10.470      | 2.500         | 2.690       | 22.620        | 100.000 |

## **Appendix B**

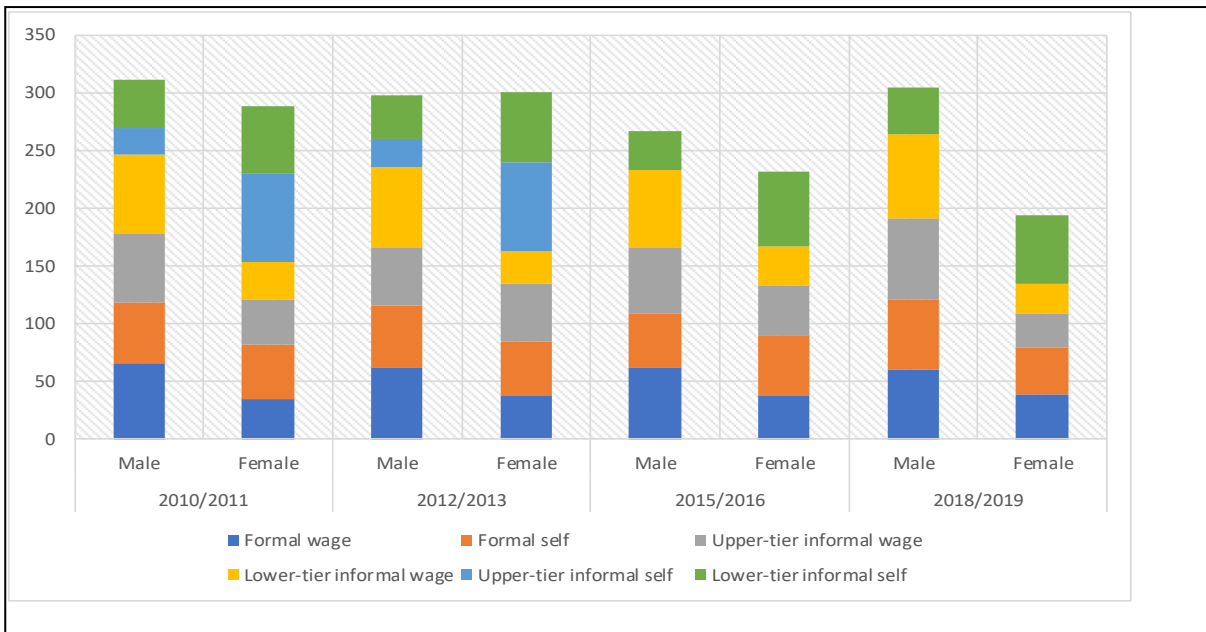
**Figure B.1: Gender distribution of workers by nature of employment (%)**



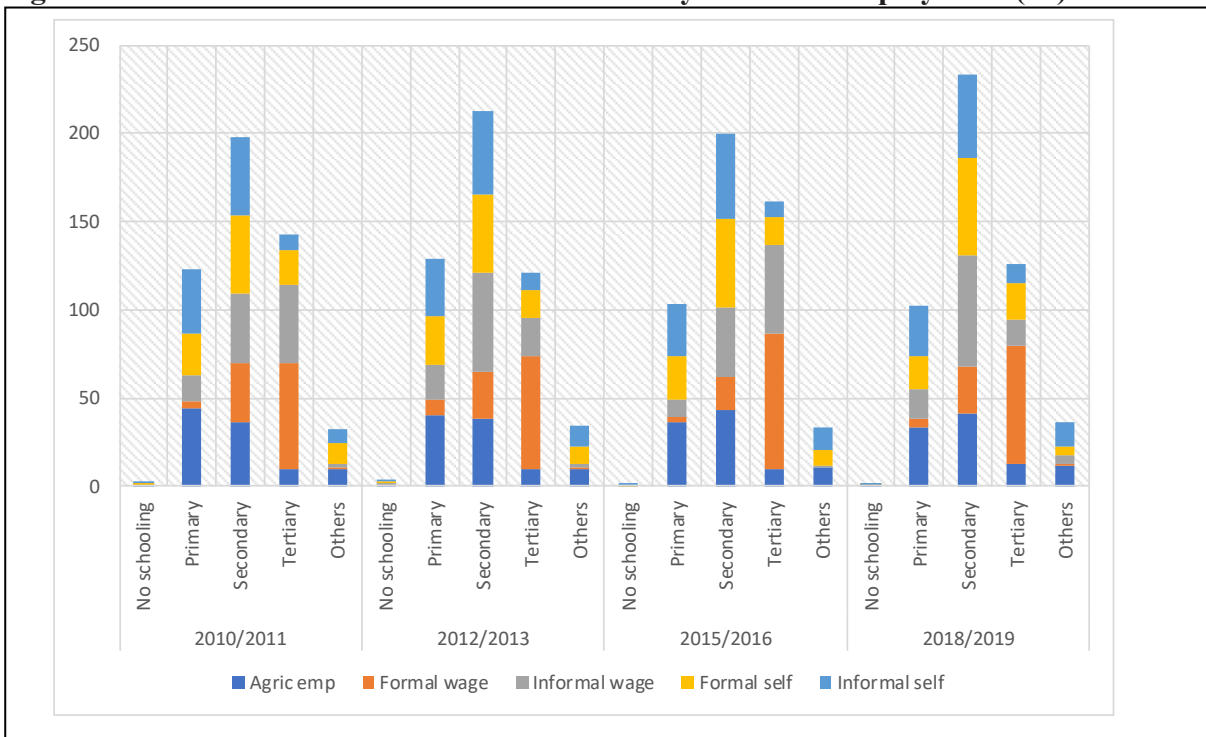
**Source: Authors' computation using Nigeria GHS datasets**

**Figure B.2: Gender distribution of workers by nature of employment (%)**





**Figure B.3: Educational distribution of workers by nature of employment (%)**



Source: Authors' computation using Nigeria GHS datasets