

# **Organising Household Consumption and Occupational Proportions: Evidence from Nigeria**

## **Purpose**

The purpose of this paper is to contribute to the occupational status and entrepreneurship research in developing countries by proposing that there are implications for household consumption depending on the occupational status proportion of households. When the occupational proportion of the household changes, household consumption is affected. This effect also changes depending on what quantile level the household is in terms of household consumption.

## **Design/methodology/approach**

The paper makes use of OLS and quantile regressions to examine 6,919 Households comprising of 40,294 Individuals from the 2009 Nigerian Living Standards Measurement Survey.

## **Findings**

The paper finds that there are implications for household consumption based on the proportion of individuals in each occupational category. The contributions of each employment proportion changes at different quantiles with self-employed individuals increasing household consumption at the lower quantiles but reducing household consumption at the upper quantiles. Crucially, having a higher proportion of unemployed individuals in the household is oftentimes better than having a higher proportion of self-employed individuals.

## **Research limitations/implications**

This paper offers new insights into how occupation proportion influences household consumption in developing countries. As a result, the household could seek to organize its members in such a way as to maximize combined household consumption since diverse occupational statuses contribute differently to the household consumption at different quantile levels.

## **Practical implications**

The proportion of employment statuses in the household has implications for household consumption and so the mix of employment in the household is important. The self-employed could also be involved in activities to enhance household consumption that are not captured by labour income. However, self-employment does not seem to always have a positive effect on household consumption and sometimes unemployment might be better.

## **Originality/value**

The paper provides a new way to view the household as an organizing entity in terms of how it can allocate employment proportions to maximise household consumption.

## **Keywords**

Occupation, Entrepreneurship, Self-employment, Household Consumption, Nigeria, Africa

## **Introduction**

Though the occupational status (consisting of the paid work, self-employment and entrepreneurship) literature is replete with studies that examine this condition from an individual motivational point of view, the view that households could be strategic in terms of how they participate in the labour force is yet to be researched. Most models currently available in the literature make use of individual variables - where the employment choice depends on the relative earnings of an individual being either in self-employment or finding paid work (Günther and Launov, 2012; Bosch and Maloney, 2010; Poschke, 2013).

Since occupational statuses are rewarded differently (Kremer and Maskin, 1996; Krugman, 1989; Bosch and Maloney, 2010), the differentials in income distribution should, in theory, impact the household when individuals take home their work incomes (Bertrand et al., 2015; Thomas, 1993). Furthermore, the literature on developing countries points to a collectivist approach to decision making in such contexts as opposed to an individualistic one (Fapohunda and Todaro, 1988; Acharya and Bennett, 1983), with huge implications for decision making within such households (Davis, 1976; Hauwa et al., 2016). Given the nature of collectivist decision making and organising that households in developing countries engage in, combined with a fixed number of occupations that employable individuals can engage in, the proportion of household members that are engaged in each occupational activity could in turn have implications for household consumption.

### **Households, Occupational Status and Entrepreneurship**

Recent research suggests that families and businesses are inextricably intertwined, and should not be treated as separate institutions. These researchers point to long-term changes in family composition and business roles for entrepreneurial families in North America, saying that such transformations in the institution of the family have implications for the emergence of new business opportunities, opportunity recognition, business start-up decisions, and the resource mobilization process (Aldrich and Cliff, 2003).

Cagetti and De Nardi (2006) construct and calibrate a parsimonious model of occupational choice that allows for entrepreneurial entry, exit, and investment decisions in the presence of borrowing constraints, in a model that helped to show the wealth distribution for entrepreneurs and workers. Voluntary bequests allowed some high-ability workers to establish or enlarge an entrepreneurial activity. Carter (2011) propounds that the financial rewards of entrepreneurship are multifaceted and include different types and amounts of rewards at different stages of the business life cycle. She argues that accurate reflections of entrepreneurial rewards require researchers to move away from the use of narrow and static measures and instead focus on a broad set

of indicators that collectively contribute to overall economic well-being because entrepreneurial rewards are not only determined by business rationality, but are influenced by household needs that evolve over time.

Zhou and Kockelman (2009) use a three stage least squares estimation procedure to test the predictive distribution of employments for households and confirmed that job densities and transportation access plays a significant role, as anticipated. Related to this, Demirci-Kunt et al. (2009) examine the factors affecting the transition to self-employment in Bosnia and Herzegovina, using the World Bank Living Standard Measurement Survey panel household survey for the years 2001-2004. The results suggested that wealthier households are more likely to become entrepreneurs and survive in self-employment.

Cruz et al. (2012) analysed the effect of family employment on performance in micro and small enterprises and showed that employing family members increased sales but decreased profitability as measured by Return on Assets. This effect also resulted in improved performance for women-led firms and for firms that had received family funding. Gentry and Hubbard (2004) provides interesting insights into entrepreneurial saving decisions and their role in household wealth accumulation showing that studies on household saving decisions in general and of the savings decisions of wealthy or high-income households in particular have paid insufficient attention to the role of entrepreneurial decisions and their role in household wealth accumulation.

In other developing contexts, Lebanese entrepreneurs have also been found to rely heavily on family member participation to establish, develop, and grow their enterprises. Entrepreneurs in such countries tend to use family finances as the primary source of start-up capital and family participation in the form of employment and investment has been found to have a positive impact on entrepreneurial growth intentions and expansion plans (Sarkis et al., 2009). Importantly, the family entrepreneurship literature itself is a developing field which shows great promise in disentangling the complex relationships that characterize behaviours in the family business context although many questions remain unanswered (Randerson, Bettinelli et al., 2015).

### **Occupational Status in Developing Countries**

This paper approaches the occupational status debate by distinguishing between occupational statuses in developing countries. This is pertinent because closely related to the problems of 'employment' in developing countries is the question of income distribution, in the sense of how much income different occupational groups of the population receive (Jolly, Singer et al., 1973; Ravallion, 2014). In other words, "How does having any particular employment status affect income?" Due to the scarcity of highly paid work in developing countries, self-employment is increasingly viewed as an alternative to paid employment, serving as an option facing both the potential entrant into the labour market and the unemployed (Reynolds et al., 2005; Maloney, 2004). Thus,

individuals in developing countries could choose not to accept the patterns of work opportunities and the prospective labour wage offered by the labour market and resort to working on their own; the other alternatives would be unemployment and not belonging to the labour force (Reynolds Bosma et al., 2005; Fields, 2004).

Jacobs (2004) propounds that since human capital endowments are varied, workers will choose which employment sector (paid work or self-employment) to enter depending on their preferences and expected incomes. Other studies have attempted to link earnings and employment exclusively, for example Bernhardt (1994) in a Canadian study found that comparative potential earnings were the dominant determinant of the occupational choice for individuals. In the US, researchers reported that returns to self-employment relative to paid work earnings were central themes in the reason for occupational choice (Brock and Evans, 1989; Lofstrom, 2013; Evans and Leighton, 1989).

A new school of thought has recently risen in the literature, from researchers who report that the informal self-employed sector in developing countries might not be a homogenous group (Paulson and Townsend, 2004; Guha and Ostrom, 2006; Günther and Launov, 2012). For instance, Fields (2004) reports that the informal sector is made up of two distinct parts: an “upper” and “lower” tier. The upper tier consists of individuals who voluntarily enter this sector because given their characteristics, they expect to earn more in the informal sector or self-employment than they would earn in the formal sector or wage-employment, while the lower tier is made up of individuals who expect to earn less but have no choice but to persist in self-employment and this view is also increasingly being supported by the extant literature (Bargain and Kwenda, 2014; Cunningham and Maloney, 2001).

However, recent research argues that employers belong to an employment category distinct from self-employed own account workers. A claim now being accepted in the labour force literature because perhaps ‘employers’ belong to the so-called “Upper Tier” and ‘self-employed own account’ workers belong to the “Lower Tier” (Tamvada, 2010; Earle and Sakova, 2000; Fields, 2014). This paper sides with such literature and will make a distinction among employers, paid workers and self-employed “own account” individuals when carrying out its analysis: an empirical and theoretical exercise very much needed in the developing country literature.

Employers are usually placed in the same class as the self-employed in the developing country literature but this paper argues that they should be treated as a distinct group because they are essentially self-employed individuals who employ other individuals. Thus, they can be described as “the successful self-employed”, since they have moved out of “own account” self-employment (where a self-employed individual essentially works for himself/herself) to hiring other people, which suggests a higher turnover, larger budget and more business. Indeed, the findings of this paper proves that these occupational statuses confer different levels of consumption to the household. The central question answered by this paper is: “How is household consumption affected by household occupational proportions in a developing country?” This paper thus makes a further contribution to

the developing country debate by allocating each household into proportionate groups showing employers, paid workers, self-employed “own account”, unemployed and non-labour force individuals, and determining how each proportion impacts on household consumption.

### **Household and Consumption**

Income should in theory, have a direct and positive relationship with household consumption (Morduch, 1995; Blundell and Pistaferri, 2003). Households have been described as the consumption unit of society, and consumption is viewed as a stage in a process that begins with the acquisition of inputs for household production (Bigelow, 1938). These inputs are used primarily to produce commodities for consumption in the household, thus consumption can be described as the use of commodities by the household (Magrabi, 1991).

Interestingly, Nelson (1988) confirms the existence of economies of scale for household consumption and Souleles (1999) finds excess sensitivity in the response of household consumption to their income tax refunds, proving that households respond to signals that affect their consumption. Dreze and Srinivasan (1997) report from India that households that are female headed are more likely to suffer from lower household consumption and Jensen (2010) propounds that households should experience premiums (albeit sometimes low) for education – variables also controlled for in this paper with the same results. Miles (1997) also reports that educational levels, location and earnings uncertainty could affect household consumption using UK data, once again confirming the importance of this research in the developing country context.

Many authors report that because Africa’s economic performance in the last century has been very dismal, it is not surprising that households there currently report such low consumption levels (Collier and Dercon, 2014; Hopkins, 2014; Fields, 2014). Other authors speak against the blanket perception of poverty used in research and policy when addressing households in developing countries and call for robustness checks in the forms of proper weights via adult equivalent scales – a technique also used in this paper (Demoussis and Mihalopoulos, 2001; Tamvada, 2010; Ravallion, 2014).

## Research Problem

This paper implies that household occupation proportion correlates with household consumption in developing countries. It makes this contribution chiefly for the following reasons. (i) Research from the population and development literature has confirmed that the structure of households in developing countries affects household decision making especially with regard to fertility (Omariba and Boyle, 2007; Hauwa et al., 2016). (ii) Research from developing countries also highlights greater poverty levels in such contexts (Fields, 2014; Fosu, 2015; Bhagwati and Panagariya; 2013, Sarkis, 2009). (iii) Patterns of household (and family) life are changing radically, leading sociologists to develop new conceptualisations and understandings of the relationships involved. Families are started when people form partnerships or marry, or when they have children. The term “Households” on the other hand, as used in this paper, refers to occupants of a house as a unit (Allan and Crow, 2001; Beaumont, 2011).

This paper is also timely because of sparse research into the changing nature of the traditional family evolving into households. Recent research shows that there is a decline of the nuclear family form (consisting of father, mother and children), giving rise to increasingly heterogeneous household structures. The growing importance of multigenerational bonds demands new research into how households organise scarce resources (Bengtson, 2001; Strong and Cohen, 2013). This research is further needed given the polygynous context, complex family structure and demand for employable household members in the country of study – Nigeria (Fapohunda and Todaro, 1988; Strong and Cohen, 2013).

The practical implication of these recent changes in society motivates this paper into arguing that the proportion of occupational statuses in the household has implications for household consumption and so the mix of employment in the household is important. For example, in a household of 5 individuals who are eligible for employment, the household could decide to send 3 individuals into paid work and 2 individuals into entrepreneurship; because the household is being strategic about how to organise family members to achieve a maximum household consumption. What would happen to household consumption for that household however, if it decided to send 2 individuals into paid work and 3 individuals into entrepreneurship instead? Or indeed if this happened without the household’s volition? This leads to the first hypothesis as a set of two alternatives:

H1a: Household occupation proportion influences household consumption.

H1b: Household occupation proportion does not influence household consumption.

Given the infamous levels of inequality in the developing country context that is evidenced in Nigeria (Fields, 2014; Ravallion, 2014; Wood, 1997; WorldBank, 2016), it would be beneficial for our enquiry if the hypothesized influence that household occupation proportion has on household consumption is observed across different levels of household consumption. This is important because household proportions could have differing implications due to the heterogeneity of household consumption. For example, a higher proportion of self-employed own account workers could imply a premium for richer households in terms of household consumption because of the nature of work that the household members are engaged in while a poorer household could have the same proportion of self-employed own account workers but experience a penalty for household consumption because of the nature of work that their household members are engaged in. This leads to the second hypothesis as a set of two alternatives:

H2a: Household occupation proportion influences household consumption differently across the consumption distribution.

H2b: Household occupation proportion does not influence household consumption differently across the consumption distribution.

### **Context**

With a population of about 181 million people, Nigeria is currently the most populous country in Africa and the seventh most populous in the world, it is currently classified as a lower-middle-income country and is the largest economy in Africa. It is also the biggest oil exporter on the continent with the largest natural gas reserves. Crucially for the purpose of this research, about 66% of the Nigerian population are active in the labour force with 44.8% of Nigerian labour in agriculture, 13.5% in industry, and 41.7% in services. A significant majority, consisting of about 70.9% of men and 74.8% of women in the economically active group reported being self-employed (WorldBank, 201; NBS, 2016).

From 2003 – 2008, Nigeria set out an ambitious reforms program; the most important element of the program is to base the budget on a conservative reference price for oil, with the excess saved in a special 'Excess Crude Account' (ECA) because there were and still are concerns that the economy is over reliant on revenue from oil. Following these measures, the economy responded with strong growth from 2003 till 2010, and the study falls within this period. However, during this period, Nigeria also had a less favourable profile in terms of poverty, government corruption, illiteracy and poor infrastructure (Falola and Heaton, 2008; WorldBank, 2016; NBS, 2016).

As regards entrepreneurship and self-employment in the country, indices from the Global Entrepreneurship Monitor (GEM) survey are useful in laying the foundation for our empirical analysis. The survey reports that 68%

and 63% of male and female entrepreneurs respectively surveyed in Nigeria, were opportunity entrepreneurs, while the remaining 32% and 37% respectively of entrepreneurs surveyed were necessity entrepreneurs (Bosma and Levie, 2010). Traditional labour theories e.g. the Harris and Todaro (1970) and Ranis and Fei (1961) models suggest that Nigeria should have a higher level of necessity driven entrepreneurship given its relatively low GDP per capita. However, GEM reports indicate that it has a higher opportunity entrepreneurship rate than many developed countries with significantly greater GDPs (Reynolds et al., 2005; Bosma and Levie, 2010). This disparity may be explained by insufficient attention being paid in the traditional development literature to institutions and political institutions in particular and also forms an motivational reason for this paper (Berger et al., 2013; Estrin et al., 2013).

The high proportion of opportunity entrepreneurs may appear puzzling, as *Doing Business* (DB) ranked Nigeria 170<sup>th</sup> out of 189 countries in its index; this low score was primarily due to the low scores on getting electricity supply and registering property. It is therefore not surprising that the informal sector in Nigeria consisting of unregistered businesses is quite substantial (World Bank Group, 2014).

Based on the context and extant literature, we would thus expect a higher proportion of opportunity entrepreneurs to have a positive relationship with household consumption while a higher proportion of necessity entrepreneurs should have a negative relationship with household consumption. We would also expect a higher proportion of unemployed persons and persons not participating in the labour force to have a negative relationship with household consumption.

## Methodology

This paper denotes the adult equivalent household consumption expenditure as the dependent variable as shown in equation [1.1] via  $C_h$ . To test for robustness, the per-capita household consumption was also used as the dependent variable in an identical estimation. Various employment states of the adult members of each household enter the regression as independent variables via  $SE_h$ ,  $Emp_h$ ,  $UnEm_h$ , and  $NonLab_h$ , and a series of controls that influence household consumption in current the literature are also introduced into the estimation via  $x_h$ . The limitation of this method is that non-pecuniary household goods for example household leisure are not taken into consideration and only household consumption is considered.

The OLS estimation can be written simply as:

$$C_h = x_h\beta + SE_h + Emp_h + UnEm_h + NonLab_h + \mu_h \quad [1.1]$$

Estimated coefficients  $SE_h$ ,  $Emp_h$ ,  $UnEm_h$ , and  $NonLab_h$ , represent the proportions of household members in the self-employment (own-account), employer, unemployment and nonlabour force categories respectively.



Thus, the proportion of employment that is left out of this estimation are paid employees and the results can be interpreted as the relative household consumption premiums or penalties in comparison to the paid employee proportion.

The total household consumption amount for each household in the analysis  $C_h$  is derived by adding together the naira (monetary) value of total household food purchases, total household food produced, total sundries, and total capital expenditure by households within the year, and then adjusting for adult equivalents. Recent studies suggest that a better measure of household consumption would be the adult equivalent scaled consumption<sup>1</sup> instead of the indiscriminate per-capita consumption (Demoussis and Mihalopoulos 2001; Tedford et al., 1986; Tamvada, 2010). The total household consumption per capita value is expressed in logged form to introduce symmetry and comparability in the data.

$x_h\beta$  consists of standard controls that are found in the extant literature to influence household consumption. They include the household head characteristics (the occupational industry of the household head, dummies to indicate if the household head works in the private or public sector and gender of household head), the demographics of the household, location in terms of urbanity, regional dummies, dummies for household wealth, the size of the employable household and the educational attainment of household members. [1.1] will test the first set of two alternative hypotheses thus answering the 1<sup>st</sup> research problem:

H1a: Household occupation proportion influences household consumption.

H1b: Household occupation proportion does not influence household consumption.

The insight generated from [1.1] is to determine if households with a greater proportion of any of the occupational states experience household consumption premiums or penalties, relative to having a higher proportion of paid employees.

The author realises that OLS estimators will observe the relationship between household consumption and employment proportions only at the mean (Rosen, 1981). The second approach adopted by this paper will allow for insights at different household consumption levels because of the heterogeneity in household consumption that is yet to be fully explored by current studies (Tamvada, 2010). Quantile regressions allow for testing the

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<sup>1</sup> Adult Equivalent Scales are measures that show how much an individual household member of a given sex and age contributes to the household expenditures relative to a standard household member: TEDFORD, J. R., CAPPS, O. & HAVLICEK, J. 1986. Adult equivalent scales once more—A developmental approach. *American Journal of Agricultural Economics*, 68, 322-333.

hypothesis of heterogenous returns across a distribution (Koenker and Hallock, 2001). This paper’s second approach makes use of quantile regressions because they compute several different regression curves corresponding to the various percentage points being observed, thus giving a more complete picture of the set. In the case of quantile regressions, we can express for any household  $h$  on the  $\tau^{\text{th}}$  quantile in the  $C_t$  distribution:

$$F_{C_h}^{-1}(\tau|x_h) = x_h\beta(\tau) + SE(\tau)_h + Emp(\tau)_h + UnEm(\tau)_h + NonLab(\tau)_h, \forall \tau \in [0,1] \quad [1.2]$$

To gain a proper insight from this investigation, the quantile percentage points that are observed in this estimation follows standard practice and are: .10, .25, .50, .75, *and* .90 (Tamvada, 2010). Therefore, the effects of the covariates reflect the quantiles of interest. [1.2] will test the second set of two alternative hypotheses thus answering the 2<sup>nd</sup> research problem:

H2a: Household occupation proportion influences household consumption differently across the consumption distribution.

H2b: Household occupation proportion does not influence household consumption differently across the consumption distribution.

The insight generated from this is to determine if households with a greater proportion of any of the occupational states are bound to suffer, relative to having a higher proportion of paid employees, at different quantiles (Olarewaju, 2016). The methodology and data used in this paper follows and expands upon the innovative data analysis technique pioneered by (Tamvada, 2010).

## **Data**

The database used for this analysis is from the Nigerian Living Standards Survey (NLSS) otherwise known as the Living Standards Measurement Survey (LSMS) for the year 2009. The NLSS is an extensive micro-level household survey detailed in its coverage of various topics; it provides a solid basis for an in-depth analysis of households and individuals in the country. The Nigerian Bureau of Statistics (NBS) conducted the survey and the data covers both rural and urban areas of all the 36 states of Nigeria and the Federal Capital Territory (NBS, 2016).

In order to encourage full disclosure, respondents were assured that their responses were to be used for research, planning and statistical purposes alone and not for taxation. The final sample is restricted to individuals who are between the ages of 16 to 60 in the survey and is made up of a total of 40,294 individuals from 6,919 households. The variables used and what they capture are presented in Table 1 with descriptive statistics shown in Table 2. The Variance Inflation Factor (VIF) test for multicollinearity proved satisfactory by

yielding an absolute value of 2.32; the rule of thumb is that the VIF test should yield absolute values below 10 to be satisfactory for empirical use.

{Tables 1 and 2}

The summary statistics indicate the following. The total consumption for households' averages around ₦71,496.921 and a huge proportion of that is spent on household feeding. On average, households have more adult members in self-employment (own-account) and then in paid work, followed by unemployed individuals and then those not in labour force; the employer category is the smallest cluster as expected from the literature. The educational proportions reveal that most households have adults with medium to low education, followed by the high and no educational categories: the very high education category is the smallest group. As for household demographics, most households have members in the lower age categories and the mean age of household members is 35 years. About half of the average household is female and most adults report being married.

The sample is balanced across urban and rural locations and most household heads seem to work in the public sector (for the government). The regional controls also reveal that our sample is adequately balanced across regions, and most household heads once again report belonging to the real/manufacturing industry sector (The real sector in this paper consists of industries encompassing manufacturing, construction, mineral extraction and mining).

Furthermore, the literature on household consumption in developing countries recommends the use of "Adult Equivalent Scales" (AES) when engaging in estimations involving household consumption. Adult equivalent scales are measures that show how much an individual household member of a given sex and age contributes to the household expenditures relative to a standard household member (Demoussis and Mihalopoulos, 2001; Tedford et al., 1986). This allows investigators to properly probe into the household consumption of each household member instead of the indiscriminate use of per-capita or total household consumption. This paper makes use of both adult equivalent scaled household consumption and per capita consumption without adult equivalents as robustness checks.

For example, in two households of five individuals with the same household consumption value, the ratio of adults to children and their genders could have implications for the actual amount of consumption obtainable

by each individual. If a household has more male adults than children, the actual consumption each individual can enjoy is reduced as male adults typically need to consume more than children: thus, the household with more children would actually enjoy more consumption if the household consumption value for both households is the same, and the per-capita value of total consumption used in our estimation as the dependent variable would be a wrong indicator. To test for robustness therefore, the estimations were also run to specifications with adult equivalence scales. The adult equivalence scales used are presented in Table 3.

{Table 3 here}

### Discussion of Results

The log of total adult equivalent per-capita household consumption expenditure expressed in naira amounts is the first dependent variable considered with the occupational status proportion of households included as independent variables in addition to the control variables in estimation [1.1]. Estimated coefficients  $SE_h$ ,  $Emp_h$ ,  $UnEm_h$ , and  $NonLab_h$ , represent the proportions of household members in the self-employment (own-account), employer, unemployment and nonlabour force categories respectively.

The base category for occupation is the proportion of economically active individuals in the household who are in paid work; for education, it is the household proportion with no education; for marital status, it is the unmarried; for region, it is the mid-belt; for age group, it is the household proportion aged between 16 to 30; for location, the rural area; and for sector, the private sector.

The results are of the OLS estimation are presented in Table 4 and indicate that every increase in the proportion of employers in the household compared to the proportion of paid workers, is associated with an increase in household consumption by as much as 12%. Increasing the proportion of self-employed “own account” workforce is associated with a reduction in household consumption by 4.9%, while increasing the proportion of unemployed and non-labour force individuals is associated with a reduction in household consumption by 4.5% and 6.9% respectively. This could indicate that looking at the entrepreneurial workforce through the lens of the family could offer new insights.

The results of the control variables are consistent with expectations from the literature. For example, female headed households are significantly poorer as has been found in some similar contexts (Dreze and Srinivasan, 1997), and the characteristics of the household head in terms of industry and employer has significant effects on household consumption as expected by (Jensen, 2010). In addition, increasing the proportion of educated household members has a positive relationship with household consumption and this increases with more advancements in educational attainments as expected by (Miles, 1997). Living in the northern region of the country also has a significant negative relationship with household consumption in line with statistics from the country as reported by other data gathering agencies, while living in an urban area can increase household consumption by as much as 18.6% (WorldBank, 2016; NBS, 2016).

A direct implication of these results is that household's occupational proportions influence household consumption confirming hypothesis H1a. Increasing the proportion of employers has a positive significant relationship with household consumption while increasing the proportion of the self-employed, unemployed and non-active workforce has a negative significant relationship. It is interesting to discover that self-employment is even slightly worse than unemployment for household consumption, after controlling for many household characteristics.

{Table 4 here}

In order to test the second hypothesis, estimation [1.2] is performed for adult equivalent household consumption as the dependent variable, this time using quantile regressions. The base category for occupation is once again the proportion of economically active individuals in the household who are in paid work; for education, it is the household proportion with no education; for marital status, it is the unmarried; for region, it is the mid-belt; for age group, it is household proportion aged between 16 and 30; for location, the rural area; and for sector, the private sector.

The results of the quantile regressions performed on adult-equivalent consumptions are presented in Table 5 and Figure 1. The horizontal y-axis in Figure 1 represents the conditional adult equivalent consumption premiums/penalties of the paid worker proportion, while the thick, dash, dotted and thick-dotted black lines show the conditional adult equivalent premiums/penalties of the employer, self-employed own account, unemployed and non-labour force individuals respectively.

The results of the quantile regressions in Table 5 and Figure 1 again indicate that increasing the proportion of employer individuals in the household is associated with the highest household consumption expenditure compared to any other category; this finding is consistent and significant across the household consumption distribution. Households with a higher proportion of employers have significantly higher consumption levels than any other occupational proportion at all household consumption quantiles; this is consistent with the findings already highlighted by the OLS results in Table 4.

Comparing paid worker proportions and self-employed “own account” proportions, the estimation once more crucially shows that increasing the proportion of self-employed “own account” workers equated to the proportion of paid workers is associated with an increase in household consumption at the lower quantiles i.e. the 10<sup>th</sup> and 25<sup>th</sup> quantiles by 2.2% and 1.6% respectively, and is then associated with a reduction in household consumption at the higher quantiles i.e. the 50<sup>th</sup> and 75<sup>th</sup> quantiles by 16% and 8.3% respectively. The 90<sup>th</sup> quantile differences are positive but insignificant.

These results indicate that a greater proportion of self-employed “own account” individuals has a significant positive relationship with household consumption at lower quantiles but a significant negative relationship at higher quantiles confirming hypothesis H2a. Note that the OLS estimation [1.1] results do not offer us this insight. This highlights the importance of this paper’s quantile regression estimations as opposed to settling for the OLS estimations commonly found in the literature. Once again, the estimation reveals regional and locational disparities in line with the country’s statistics (NBS, 2016; WorldBank, 2016). For example, living in an urban area increases household consumption by 44.7% at the lowest quantile to 26.5% at the highest quantile, while increasing the proportion of educated household members increases household consumption at the 10<sup>th</sup> quantile by 22.8% for the proportion of medium educated, 51.9% for the proportion of highly educated, and 56.9% for the proportion of very highly educated individuals respectively confirming location and educational effects (Zhou and Kockelman, 2009; Miles, 1997).

Tamvada (2010) dropped unemployed individuals from his analysis due to lack of data. This estimation includes the unemployed and thus offers new insights. For example, from the 50<sup>th</sup> quantile, having a higher proportion of unemployed individuals is preferable for household consumption than having a higher proportion of self-employed “own account” individuals. Also, at the 50<sup>th</sup> quantile, every increase in the proportion of unemployed individuals is associated with a reduction in household consumption by 9.2% while increasing the proportion of self-employed “own account” by the same measure is associated with a reduction in household consumption by 16%, confirming that the household occupational proportion influences household consumption differently across the household consumption distribution. This effect becomes insignificant at the upper quantiles.

{Table 5 and Figure 1}

As a robustness check, estimation [1.2] is performed with the dependent variable as the log of total household consumption expenditure (per-capita household consumption) expressed in naira amounts without adult equivalent scales. The base category for occupation once more is the proportion of economically active individuals in the household who are in paid work; for education, it is the household proportion with no education; for marital status, it is the unmarried; for region, it is the mid-belt; for age group, it is the household proportion aged between 16 to 30; for location, the rural area; and for sector, the private sector.

The results of the quantile regressions performed on per-capita consumptions are presented in Table 6 and Figure 2. As before, the horizontal y-axis in Figure 2 represents the conditional per-capita consumption premiums/penalties of the paid worker proportion, while the thick, dash, dotted and thick-dotted black lines show the conditional per-capita premiums/penalties of the employer, self-employed own account, unemployed and non-labour force individuals respectively.

The results of the quantile regressions in Table 6 and Figure 2 indicate that increasing the proportion of employers compared to the proportion of paid workers increases per-capita household consumption expenditure by more than any other category; this finding is once again positive, consistent and significant. Households with a higher proportion of employers have significantly higher consumption levels than any other occupational proportion at all quantiles.

Comparing paid worker proportions and self-employed “own account” proportions, the estimation crucially shows that increasing the household proportion of self-employed “own account” individuals equated to the proportion of paid workers is associated with an increase in household consumption at lower quantiles i.e. between the 10<sup>th</sup> and 25<sup>th</sup> quantiles by 7% and 1.9% respectively and then is associated with a reduction in household consumption at higher quantiles i.e. from the 50<sup>th</sup> to the 90<sup>th</sup> quantiles by 6.5% and 9.4% respectively, thus having a higher proportion of self-employed “own-account” workers is advantageous for household consumption at lower quantiles but becomes disadvantageous at upper quantiles, once again confirming hypothesis H2a. Interestingly, increasing the proportion of unemployed individuals has a more positive effect on household consumption than increasing the proportion of self-employed “own-account” workers, because their premiums range from 16% at the 10<sup>th</sup> quantile to 12.1% at the 90<sup>th</sup> quantile. This contrasts with the 7% and -9.4% contribution of the self-employed “own-account” individuals at the same quantile levels respectively.

Living in an urban area is associated with an increase in household consumption by 21.7% at the lowest quantile to 12.9% at the highest quantile, while increasing the proportion of educated household members is associated with a reduction in household consumption at the 10<sup>th</sup> quantile by 14.6% for the proportion of low educated, 7.5% for the proportion of medium educated, and 7.4% for the proportion of very highly educated, while increasing the highly educated proportion is associated with an increase in household consumption by 6.9% respectively, confirming location and education effects (Miles, 1997).

In summary, the results from both quantile regressions imply that poorer households (situated at the lower household consumption quantiles) are better off with having a higher proportion of self-employed “own account” individuals. However richer households (situated at the higher household consumption quantiles) are better off with having a higher proportion of paid employee workers; hence looking at the occupational status debate from the angle of OLS estimates or labour wage alone would be insufficient. Having a higher proportion of employers is beneficial for household consumption throughout all the estimations.

Furthermore, unemployment is often better than own account self-employment from a household consumption perspective because increasing the proportion of own account self-employed individuals is worse for household consumption than increasing the proportion of unemployed individuals. This effect is not repeated for the proportion of individuals who are not in the labour force. Other variables in all estimations produced results that are expected from the literature. For example, having a higher proportion of more educated individuals is advantageous for household consumption and so is living in an urban area (Miles, 1997). Households with female heads are worse off in terms of consumption (Dreze and Srinivasan, 1997), as are households in the northern region of the country (which is the significantly poorer region of the country) (NBS, 2016; WorldBank, 2016). The estimations in this paper have rigorously controlled for variables that are likely to influence household consumption (Tamvada, 2010).

{Table 6 and Figure 2}



## Conclusion

This research was conducted to see if household occupational proportions correlate with household consumption. It has found that having a higher proportion of employers compared to paid workers is associated with significantly increased household consumption at all quantile levels. However, higher proportion of the self-employed “own account” workers in the composition of the household is associated with significantly increased household consumption at lower quantile levels, while having a higher of the self-employed “own account” workers in the composition of the household is associated with significantly reduced household consumption levels at upper quantiles.

Crucially, unemployment is often better than self-employment from a household consumption perspective. In some cases, increasing the proportion of the unemployed is accompanied by an increase in household consumption, while increasing the proportion of the “own-account” self-employed is accompanied by a reduction in household consumption or an increase in household consumption with lower premiums than the unemployed. This might imply for instance that the unemployed do not use up as much household resources as the “own-account” self-employed or that the unemployed and “own-account” self-employed are engaged in activities that can contribute to household consumption in different ways. The contribution of self-employed “own account” individuals to household consumption could also be negligible compared to the unemployed or/and paid worker proportions although employers do much better in this context.

The results in their entirety suggest that since there are implications for household consumption based on the proportion of individuals in each employment category, particularly employers, self-employed “own-account” and unemployed individuals; the household could seek to organize its members in such a way as to maximize combined household consumption. The nature of the data used in this study however does not allow for causality tests.

Given the context of developing countries like Nigeria, the paper opens the door for future research and also points to some policy lessons. First, the proportion of employment statuses in the household has implications for household consumption and so the mix of employment in the household is important. High intentioned entrepreneurship in the form of being an employer of labour becomes a major policy tool to enhance household welfare in terms of consumption as increasing this proportion significantly improves household consumption. Second, unemployment seems to be often better than “own account” self-employment. Third, the self-employed and unemployed could be involved in activities to enhance household consumption that are not captured by labour income especially in the lower quantiles. Therefore, blanket policies regarding the ‘self-employed’ as one distinct group could yield unwanted consequences. More research is greatly encouraged in

this field, particularly research that can capture minute micro indicators not captured by the data used in this paper.

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**Table 1: Variables**

Variable	What It Measures	How
<b>Consumption</b>		
Food Purchase	Total Value of Food Purchased by Household during the year in Nigerian Naira	Naira <sup>2</sup> Value of Food Purchased by Household during the Year
Food Produced	Total Value of Food Produced by Household during the year in Nigerian Naira	Naira Value of Food Produced by Household during the Year
Sundry Expenditure	Total Value of Household Sundry Expenses during the year in Nigerian Naira	Naira Value of Sundry Household Expenditure during the Year
Capital Expenditure	Total Value of Household Capital Expenses during the year in Nigerian Naira	Naira Value of Capital Household Expenditure during the Year
Total Consumption	Total Value of Household Consumption during the year in Nigerian Naira	Sum of Food Purchase, Food Produced, Sundry Expenditure and Capital Expenditure
<b>Labour Force Proportion</b>		
PropSE(Own Account)	Proportion of Self-Employed Household "Own-Account"	Number of Household Members in Self-Employment (Own-Account) / Number of Household Adults.
PropPaidWorker	Proportion of Paid Worker Household	Number of Household Members in Paid Employment / Number of Household Adults.
PropEmployer	Proportion of Employer Household	Number of Household Members who are Employers / Number of Household Adults.
PropUnemployed	Proportion of Unemployed Household	Number of Household Members in Unemployment / Number of Household Adults.
PropNonLabourForce	Proportion of Non Labour Force Household	Number of Household Members not in Labour Force / Number of Household Adults (i.e. unemployed but not looking for work).
<b>Location</b>		
Urban	Urban location	Dummy = 1 if Household is in an Urban location
Rural	Rural location	Dummy = 1 if Household is in a Rural location
<b>Education</b>		
PropNoEd	Adult Proportion of Household with No Education	Number of Adult Household Members with No Education / Number of Household Adults.
PropLowEd	Adult Proportion of Household with Low Education	Number of Adult Household Members with Low Educational Attainments [Primary to Junior Secondary] / Number of Household Adults.
PropMidEd	Adult Proportion of Household with Medium Education	Number of Adult Household Members with Medium Educational Attainments [Senior Secondary to 'O' level] / Number of Household Adults.
PropHighEd	Adult Proportion of Household with High Education	Number of Adult Household Members with High Educational Attainments [Bsc/First degree University] / Number of Household Adults.
PropVeryHighEd	Adult Proportion of Household with Very High Education	Number of Adult Household Members with Very High Educational Attainments [Master's degree and above] / Number of Household Adults.

<sup>2</sup> The currency exchange rate was \$1 : ₦ 158 at the time of writing.



**Table 1 Cont'd: Variables**

Variable	What It Measures	How
<b>Demographics</b>		
Btw16to30	Proportion of Household between 16 to 30 years old	Number of Household Members aged 16 to 30 years/ Number of Household Adults.
Btw31to40	Proportion of Household between 31 to 40 years old	Number of Household Members aged 31 to 40 years/ Number of Household Adults.
Btw41to50	Proportion of Household between 41 to 50 years old	Number of Household Members aged 41 to 50 years/ Number of Household Adults.
Btw51to60	Proportion of Household between 51 to 60 years old	Number of Household Members aged 51 to 60 years/ Number of Household Adults.
Above60	Proportion of Household above 60 years old	Number of Household Members above 60 years / Number of People in Household.
MeanHHAge	Mean Household Age	Sum of Household Age / Number of Household Adults.
PropFemale	Employable Female Proportion of Household	Number of Adult Females in Household / Number of Household Adults.
FemaleHHead	A Female Household Head	Dummy = 1 if Household head is Female.
PropMarried	Married Proportion of Household	Number of Married Individuals in Household / Number of Household Adults.
<b>Head Employment Sector</b>		
Household Head is in Public Sector	Household Head is in Public Sector	Household Head is in Public Sector (i.e. government employed)
Household Head is in Private Sector	Household Head is in Private Sector	Household Head is in Private Sector (i.e. non-government employed)
<b>Regional Controls</b>		
North	Northern Region	Dummy = 1 if Household is in the Geographic North of Nigeria.
Mid-belt	Mid-belt Region	Dummy = 1 if Household is in the Geographic Middle-belt of Nigeria.
South-East	South-East Region	Dummy = 1 if Household is in the Geographic South – East of Nigeria.
South-West	South-West Region	Dummy = 1 if Household is in the Geographic South –West of Nigeria.
<b>Head Industry Class</b>		
Real	Manufacturing	Dummy = 1 if Employment of Household Head is in Manufacturing Industry.
Agriculture	Agricultural Industry	Dummy = 1 if Employment of Household Head is in Agricultural Industry.
Trade	Trade Industry	Dummy = 1 if Employment of Household Head is in Trade Industry.
Service	Service Industry	Dummy = 1 if Employment of Household Head is in Service Industry.

**Table 2: Descriptive Statistics**

Variable	Mean (Std Dev)	Variable	Mean (Std Dev)
<b>Consumption</b>		<b>Demographics</b>	
Food Purchase	53,357.958 (16,775.461)	MeanHHAge	34.858 (0.057)
Food Produced	246.799 (2.544)	PropFemale	0.472 (0.002)
Sundry Expenditure	4,979.831 (51.897)	FemaleHHead	0.055 (0.001)
Capital Expenditure	12,912.332 (161.838)	PropMarried	0.730 (0.002)
Total Consumption	71,496.921 (16,776.484)	PropDivWidow	0.030 (0.001)
Log Value of Total Consumption	9.762 (0.005)	<b>Location</b>	
<b>Labour Force Proportion</b>		Urban	0.516 (0.002)
PropSE(Own Account)	0.414 (0.002)	Rural	0.484 (0.002)
PropPaidWorker	0.265 (0.002)	<b>Head Employment Sector</b>	
PropEmployer	0.028 (0.001)	Public	0.213 (0.002)
PropUnemployed	0.156 (0.002)	Private	0.058 (0.001)
PropNonLabourForce	0.136 (0.002)	<b>Regional Controls</b>	
<b>Education</b>		North	0.191 (0.002)
PropNoEd	0.057 (0.001)	Mid-belt	0.168 (0.002)
PropLowEd	0.349 (0.002)	South-East	0.297 (0.002)
PropMidEd	0.461 (0.002)	South-West	0.345 (0.002)
PropHighEd	0.128 (0.002)	<b>Head Industry Class</b>	
PropVeryHighEd	0.005 (0.000)	Real	0.304 (0.002)
<b>Demographics</b>		Agriculture	0.381 (0.000)
Btw16to30	0.442 (0.002)	Trade	0.142 (0.001)
Btw31to40	0.258 (0.002)	Service	0.092 (0.001)
Btw41to50	0.180 (0.002)	<b>N:</b> 6,919 Households; 40,294 Individuals	
Btw51to60	0.097 (0.001)		
Above60	0.023 (0.001)		

**Table 3: Adult Equivalent Scales (AES)**

Individual Characteristics (Age and Gender)	Adult Equivalent Conversion Factor
Less than 1year	0.29
Between 1year and 3years	0.51
Between 4years and 6years	0.71
Between 7years and 10years	0.78
Male (age) 11-14	0.98
Male (age) 15-18	1.15
Male (age) 18-50	1
Male above (age) 50	0.9
Female (age) 11-14	0.86
Female (age) 15-18	0.9
Female (age) 18-50	0.96
Female above (age) 50	0.75

**Table 4:** OLS Regression; AES Household Consumption and Household Proportion – Estimation [1.1]

Dependent Variable (Log of Household Adult Equivalent Consumption)	
Variable	
<b>Labour Force Proportion</b>	
PropEmployer	0.122*** (0.003)
PropSE(Own Account)	-0.049** (0.020)
PropUnemployed	-0.045* (0.024)
PropNonLabourForce	-0.069*** (0.023)
<b>Education</b>	
PropLowEd	-0.022 (0.023)
PropMidEd	0.085*** (0.023)
PropHighEd	0.315*** (0.026)
PropVeryHighEd	0.356*** (0.075)
<b>Demographics</b>	
Btw31to40	0.105*** (0.022)
Btw41to50	0.176*** (0.039)
Btw51to60	0.240*** (0.056)
Above60	0.567*** (0.076)
MeanHHAge	-0.008*** (0.002)
PropFemale	0.059*** (0.012)
FemaleHHead	-0.186*** (0.025)
PropMarried	0.018 (0.018)
PropDivWidow	0.206*** (0.036)
<b>Location</b>	
Urban	0.186*** (0.010)
<b>Head Employment Sector</b>	
Public	0.064*** (0.018)

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  standard errors are reported in parenthesis.

**Table 4 Cont'd:** OLS Regression; AES Household Consumption and Household Proportion – Estimation [1.1]

Dependent Variable (Log of Household Adult Equivalent Consumption)	
Variable	
Regional Controls	
North	-0.135*** (0.016)
South-East	0.332*** (0.015)
South-West	0.389*** (0.015)
Head Industry Class	
Real	-0.028* (0.016)
Agriculture	-0.186*** (0.070)
Trade	-0.013 (0.028)
Service	-0.004 (0.020)
C	9.553*** (0.051)
R <sup>2</sup>	0.08

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  standard errors are reported in parenthesis.

**Table 5: Quantile Regression; Dependent Variable: Log of Adult Equivalent Household Consumption – Estimation [1.2]**

Variable	Q(.10)	Q(.25)	Q(.50)	Q(.75)	Q(.90)
<b>Labour Force Proportion</b>					
PropEmployer	0.365*** (0.061)	0.304 (5.140)	0.164*** (0.063)	0.140*** (0.045)	0.661*** (0.202)
PropSE(Own Account)	0.022** (0.042)	0.016** (.046)	-0.160*** (0.032)	-0.083* (0.044)	0.067 (0.885)
PropUnemployed	-0.022 (0.068)	-0.083 (0.839)	-0.092* (0.050)	-0.030 (0.039)	0.215 (1.668)
PropNonLabourForce	-0.065 (0.052)	-0.022 (6.270)	-0.167*** (0.035)	-0.132*** (0.037)	-0.186 (1.280)
<b>Education</b>					
PropLowEd	-0.049 (0.050)	-0.032 (4.848)	-0.056 (0.038)	0.062 (0.052)	0.150 (0.785)
PropMidEd	0.228*** (0.046)	0.236 (0.783)	0.190*** (0.036)	0.339*** (0.055)	0.400 (0.505)
PropHighEd	0.519*** (0.067)	0.613 (4.222)	0.680*** (0.048)	0.861*** (0.062)	0.947*** (0.285)
PropVeryHighEd	0.569** (0.247)	0.248 (13.247)	0.415** (0.180)	0.562* (0.337)	2.101** (0.948)
<b>Demographics</b>					
Btw31to40	0.026 (0.048)	0.124 (0.587)	0.002 (0.029)	0.171*** (0.035)	0.260 (1.009)
Btw41to50	-0.296*** (0.102)	-0.025 (4.820)	-0.179*** (0.046)	0.231*** (0.069)	0.411 (0.839)
Btw51to60	-0.446*** (0.098)	-0.065 (8.532)	-0.390*** (0.072)	0.193* (0.100)	0.492 (2.053)
Above60	-0.336** (0.168)	0.087 (10.574)	-0.390*** (0.109)	0.331*** (0.119)	0.625 (2.515)
MeanHHAge	0.032*** (0.004)	0.013 (0.325)	0.024*** (0.003)	0.003 (0.003)	-0.009 (0.032)
PropFemale	0.176*** (0.043)	0.161 (0.857)	0.109*** (0.017)	0.135*** (0.021)	0.073 (0.822)
FemaleHHead	-0.602*** (0.062)	-0.443 (5.017)	-0.376*** (0.024)	-0.454*** (0.036)	-0.415 (0.497)
PropMarried	0.281*** (0.043)	0.337 (0.776)	0.216*** (0.032)	0.211*** (0.052)	0.166 (0.723)
PropDivWidow	0.471*** (0.075)	0.436 (5.323)	0.396*** (0.050)	0.455*** (0.101)	0.516 (0.462)
<b>Location</b>					
Urban	0.447*** (0.021)	0.431 (3.034)	0.332*** (0.021)	0.230*** (0.020)	0.265*** (0.093)
<b>Head Employment Sector</b>					
Public	0.104* (0.061)	0.104 (1.987)	0.009 (0.023)	0.130*** (0.031)	0.145** (0.057)

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  standard errors are reported in parenthesis.

**Table 5 Cont'd:** Quantile Regression; Dependent Variable: Log of Adult Equivalent Household Consumption – Estimation [1.2]

Variable	Q(.10)	Q(.25)	Q(.50)	Q(.75)	Q(.90)
<b>Regional Controls</b>					
North	-0.380*** (0.048)	-0.349 (6.957)	-0.173*** (0.016)	-0.067* (0.036)	0.050 (0.049)
South-East	0.298*** (0.055)	0.344 (4.229)	0.370*** (0.028)	0.406*** (0.029)	0.406 (0.274)
South-West	0.130** (0.062)	0.294 (2.479)	0.469*** (0.028)	0.497*** (0.031)	0.480 (0.909)
<b>Head Industry Class</b>					
Real	0.056 (0.041)	0.039 (2.461)	0.022 (0.028)	0.033 (0.021)	-0.132 (1.306)
Agriculture	-0.303 (0.347)	0.390 (0.466)	0.031 (0.109)	0.106 (0.128)	-0.255 (0.211)
Trade	-0.076 (0.056)	0.006 (1.783)	0.106*** (0.036)	-0.001 (0.049)	-0.041 (1.648)
Service	-0.023 (0.029)	0.055 (0.856)	0.108*** (0.037)	0.040 (0.027)	-0.154 (0.426)
C	8.841*** (0.125)	9.871*** (1.698)	10.497*** (0.090)	11.553*** (0.078)	12.473*** (0.810)
Pseudo R <sup>2</sup>	0.0567	0.056	0.0809	0.0819	0.0875

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  standard errors are reported in parenthesis.

**Table 6:** Quantile Estimation; Dependent Variable: Log of Household Per-Capita Consumption – Estimation [1.2]

Variable	Q(.10)	Q(.25)	Q(.50)	Q(.75)	Q(.90)
<b>Labour Force Proportion</b>					
PropEmployer	0.360*** (0.057)	0.262*** (0.058)	0.121** (0.050)	0.161*** (0.022)	0.243*** (0.067)
PropSE(Own Account)	0.070* (0.036)	0.019** (0.032)	-0.084*** (0.026)	-0.065*** (0.024)	-0.094** (0.047)
PropUnemployed	0.160** (0.028)	0.042 (0.045)	0.082* (0.033)	0.057* (0.025)	0.121* (0.058)
PropNonLabourForce	0.130** (0.026)	0.002 (0.051)	-0.005 (0.032)	-0.115*** (0.023)	-0.218*** (0.029)
<b>Education</b>					
PropLowEd	-0.146*** (0.028)	-0.120*** (0.036)	-0.022 (0.021)	-0.007 (0.058)	-0.021 (0.033)
PropMidEd	-0.075** (0.034)	0.026 (0.035)	0.089*** (0.021)	0.086 (0.055)	0.080** (0.033)
PropHighEd	0.069* (0.038)	0.178*** (0.043)	0.333*** (0.030)	0.338*** (0.063)	0.456*** (0.051)
PropVeryHighEd	-0.074 (0.152)	-0.042 (0.219)	0.211** (0.104)	0.349*** (0.102)	1.535*** (0.060)
<b>Demographics</b>					
Btw31to40	-0.033 (0.040)	-0.004 (0.037)	0.080*** (0.026)	0.098*** (0.031)	0.357*** (0.054)
Btw41to50	-0.136* (0.076)	-0.026 (0.056)	0.120*** (0.040)	0.284*** (0.055)	0.501*** (0.070)
Btw51to60	-0.128 (0.095)	0.070 (0.072)	0.170*** (0.050)	0.318*** (0.077)	0.785*** (0.124)
Above60	0.132 (0.136)	0.285*** (0.093)	0.342*** (0.093)	0.574*** (0.101)	1.202*** (0.177)
MeanHHAge	0.008*** (0.003)	-0.001 (0.002)	-0.007*** (0.002)	-0.013*** (0.003)	-0.030*** (0.003)
PropFemale	0.036 (0.023)	0.055*** (0.016)	-0.015 (0.012)	0.030* (0.015)	0.074*** (0.025)
FemaleHHead	-0.234*** (0.067)	-0.075 (0.048)	-0.182*** (0.023)	-0.215*** (0.046)	-0.163*** (0.041)
PropMarried	-0.036 (0.031)	0.001 (0.018)	0.052*** (0.020)	0.006 (0.022)	0.137*** (0.025)
PropDivWidow	0.048 (0.044)	0.114** (0.056)	0.326*** (0.046)	0.256*** (0.051)	0.362*** (0.060)
<b>Location</b>					
Urban	0.217*** (0.017)	0.200*** (0.021)	0.202*** (0.016)	0.184*** (0.014)	0.129*** (0.020)
<b>Head Employment Sector</b>					
Public	0.081** (0.036)	0.092** (0.037)	0.041* (0.022)	0.128*** (0.018)	0.015 (0.031)

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  standard errors are reported in parenthesis.

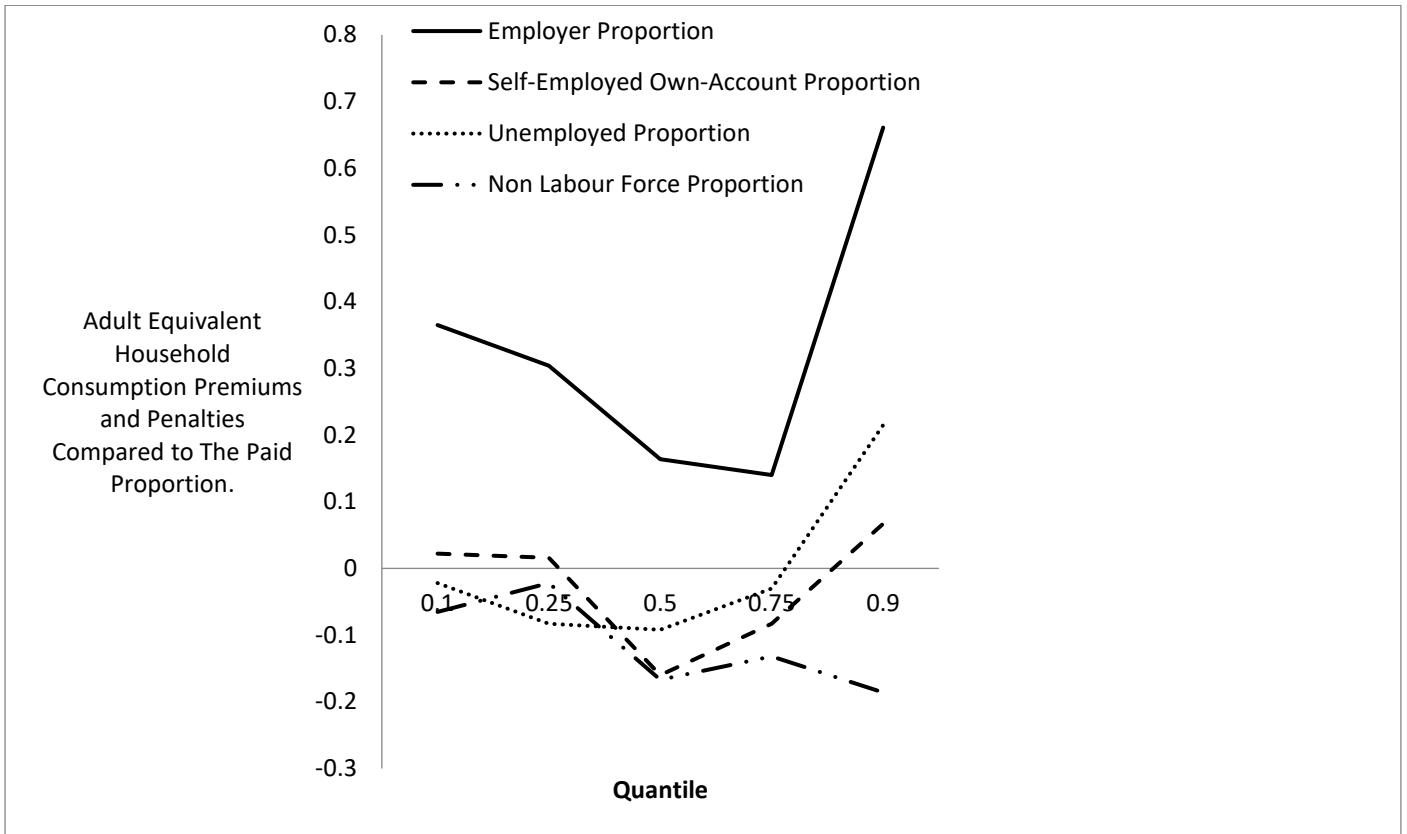


**Table 6 Cont' d:** Quantile Estimation; Dependent Variable: Log of Household Per-Capita Consumption – Estimation [1.2]

Variable	Q(.10)	Q(.25)	Q(.50)	Q(.75)	Q(.90)
<b>Regional Controls</b>					
North	-0.309*** (0.029)	-0.226*** (0.024)	-0.153*** (0.022)	-0.065*** (0.018)	0.039 (0.034)
South-East	0.307*** (0.022)	0.250*** (0.019)	0.324*** (0.019)	0.395*** (0.015)	0.274*** (0.024)
South-West	0.198*** (0.028)	0.322*** (0.021)	0.440*** (0.016)	0.494*** (0.021)	0.444*** (0.021)
<b>Head Industry Class</b>					
Real	-0.030 (0.020)	0.010 (0.026)	0.032 (0.025)	-0.019 (0.022)	-0.081* (0.043)
Agriculture	0.105 (0.407)	-0.060 (0.102)	0.172 (0.209)	-0.150*** (0.046)	-0.573*** (0.044)
Trade	-0.213*** (0.046)	0.058 (0.073)	0.023 (0.032)	0.047** (0.024)	-0.087* (0.052)
Service	-0.061** (0.026)	-0.018 (0.040)	0.076*** (0.025)	0.069** (0.034)	-0.006 (0.045)
Constant	8.180*** (0.056)	8.847*** (0.072)	9.467*** (0.047)	10.213*** (0.075)	11.224*** (0.057)
Pseudo R <sup>2</sup>	0.0564	0.0479	0.0509	0.0519	0.0465

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  standard errors are reported in parenthesis.

**Figure 1:** Quantile Regression; Adult Equivalent Household Consumption Premiums and Penalties – Estimation [1.2]



**Figure 2:** Quantile Regression; Per-Capita Household Consumption Premiums and Penalties – Estimation [1.2]

