

# Income Status and Homeownership: Micro-econometric Evidence on Nigerian Households

Prince C. Nwakanma<sup>1</sup> and Kelechi C. Nnamdi<sup>2</sup>

<sup>1</sup>Department of Finance and Banking, University of Port Harcourt, Nigeria

<sup>2</sup>Department of Economics, University of Port Harcourt, Nigeria

## Abstract

*One of the core ambition of Federal Government staff of Nigeria is to own a home in urban areas. Generally, Income status plays a very significant role in the determination of home ownership in modern economies. Given the prominence of home ownership as a micro-economic success (utility) in Nigeria, Government and financial institutions in Nigeria has made considerable efforts to extend home ownership opportunities to low income earners through various channels. Based on the simplistic Linear Probability Model (LPM) of the Ordinary Least Squares procedure, the study elucidates information on 120 household income status and their chances of owning a house in urban Nigeria. Interviews, questionnaire and documents were used to collect data. As expected, Results revealed a positive and significant effect of salary on the probability of owning a home. These results suggest that ceteris paribus, at a very low income, a household will not own a house, but at a sufficiently high level of annual income (salary), say at about ₦4,331,367 {dollar equivalents of \$28,684.55}, it most likely will own a house. This clearly suggests that the chances of affording a house in the Urban Areas of Nigeria by a public staff can be possible for highest grade level senior staff (salary), but probably unaffordable for the ordinary grade level senior staff in Nigeria. This paper thus suggests fiscal policies that will promote staff participation in mortgage scheme and increase staff salary to enhance housing affordability as a tool for public staff motivation.*

**Key words:** Home ownership, income status, Simplistic Linear Probability Model, fiscal Policies

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## Introduction

Household income level is a core determinant of homeownership. By home ownership, we mean the right to exclusively use of land and buildings. Thus, the owner of the land or building has the right to decide what use shall be made of it, and cannot be deprived of it except by law. This

is synonymous to owner-occupied housing, whereby the house is owned by its occupants. The type of income considered in this paper is the income from employment, while the type of home considered is the owner-occupied housing system. In this paper, house (home) may otherwise be

referred to as real property. This property rights is the right of an owner over property, and to exclude others from it. This *good-home* are bought and sold at the property market, which works through an informal network. These property prices are liable to large fluctuations depending on their characteristics and *rational expectations* (price), in most cases in Nigeria, property prices are influenced by the usual *ratchet effect* syndrome, this is because, property ownership, especially in urban areas, is an indication of economic success in Nigeria.

The rationale for this study is due to personal observations that home ownership awareness has increased in the last decades, given the increase in urban population without a commensurate increase in household income (salaries) level; however, there exist a relationship between household income and home ownership.

Despite considerable efforts by government and financial institutions to extend home ownership opportunities to low income earners through various channels, yet there is no significant proof of such housing policy achievements. Coupled with the above problem, Nigeria is characterized with a continued increase in property price. Meanwhile, property ownership in urban areas is an indication of economic success in Nigeria.

Also, the United Nations Human Settlements Programme has clearly compared the cost of home ownership in developed and developing economies, according to them, the cost of a home can be 2.5 to 6 times the average annual salary of a worker in a developed economy, while the average cost of a decent low-income family house in developing nation is more than 10-times the average annual salary of a worker.

The purpose of this research *ceteris paribus* is to test household income as a determinant of home ownership in urban-Nigeria.

## Literature Review

Recent paper by Collins and Margo [10] on race and homeownership from the civil war to the present for African- American and white households from 1870 to 2007, found that, during the period studied (In the short- run), African- American households increased their homeownership rate by 46 percentage, whereas, the rate for white households increased by 20 percentage.

Also, Holian [23] explores the relationships between home-ownership, dissatisfaction with city services and voting turnout using a sample survey data. He found that homeowners are more likely than renters to vote, and the pure effect of ownership does not decrease when controlling for duration of stay. Further, He found that dissatisfaction has a positive and significant effect on likelihood of voting. In essence, he found that dissatisfied homeowners are significantly more likely to vote than dissatisfied renters.

White [37] suggests that most homeowners choose not to strategically default as a result of two emotional forces he identified; the desire to avoid the same and guilt of foreclosure; exaggerated anxiety over foreclosure's perceived consequences.

Fitzgibbon [13] examined the socio-economic benefit of home ownership in low and moderate income communities, he employed the independent sample t- tests and regression analyses, thus, his results revealed no significant relationship between low and moderate home ownership rate and the rates of the studied socio-economic indicators (rates of crime, unemployment, high school graduation and standardized test scores).

Vestman [36] studied the relationship between homeownership and stock market participation; they found that homeownership has a positive effect on stock market participation, in their words, "most of the positive effect arises because

homeownership is persistent and lumpy and therefore carries information about past net worth.”

Kramer [25] showed that, the volatility of house prices underestimates the true risk of owner occupation, especially for longer occupation periods and with high initial loan- to- value ratios.

Brown, Lafrance and Hou [6] found that housing services make an important contribution to household income.

Nordvik and Aarland [29] employed the bivariate probit framework to model the transition rate from renting into ownership. They used money household and changes in household characteristics (low- income households) as independent variables, thus, they established that low income households are more dependent on past savings for successful entry. They also showed that short- term variations in income have effect on people’s capacity to enter owner occupation.

In Nigeria, Udechukwu [34] investigated the obstacles to individual home ownership; he found that the dominant informal sector in the national economy does not augur well for housing delivery. He further stated that job creation and economic empowerment are the primary catalysts for increased disposable incomes and savings that will boost investment in homeownership.

Murasko [27] used the 1996 to 2005 medical expenditure panel surveys to evaluate the age profile in the relationship between household income and the health of children in the United States, his analysis shows that poor health is more persistent in older children, and that the income gradient is substantially flattened over age groups when controlling for baseline health.

Jacoby had suggested that legal scholarship should no longer discuss mortgage enforcement primarily in terms of foreclosure law, instead should include other debtor- creditor’s laws such as bankruptcy,

industry loss mitigation efforts and third-party intervention such as delinquency housing counseling.

According to Constant, Roberts and Zimmermann [11], assimilated or integrated households are more likely to own a house than those separated or marginalized. Thus, the probable determinants of homeownership as identified in various literatures include; Employment status; Income; Education; Marital status; Family composition; Access to Home financing; Discrimination etc.

In another study in Nigeria, Onyike [30] examined the affordability of housing by public servants in owerri city in Nigeria, under the new salaries and allowances regime, he considered a market value survey of 66 bungalows and houses, he found out that only those on salary grade levels 13 and above in the federal public service and grade levels 16 and above in the Imo state civil service can afford the cheapest adequate bungalows in owerri at 6% interest rate. At 18% interest rate only those on grade level 17 and above in the federal service and none in the Imo state service can afford adequate housing. In his conclusion, majority of public servants cannot afford adequate housing without substantial assistance.

Shiller [32] examined the recent trends (boom) in house prices and homeownership in the UK. In his view, there are variety of considerations and emotions that impact on a decision to own a house, such as fears of war or terrorism or fears of environmental destruction, thus there may be changes in home prices or construction activity even if there is no change in the traditional list of fundamentals.

In his conclusion, he stated that institutional changes tend to come in connection to the speculative psychology, not just as exogenous advances in financial or bureaucratic technology.

Hilbert [20] used fixed effects-specifications to identify the main determinants of equilibrium housing tenure outcomes across Europe between 1994 and 2001. He found that the accommodation type which affects both the relative supply of and demand for owner-occupied housing has the strongest impact. Also, he identified the housing stock composition and the share of public rental housing as the main determinants of the vast homeownership rate differentials. He however concludes that tax policy reforms have only had relatively minor effects on homeownership attainment and counter to widespread perception.

Munch, Rosholm and Svarer [26] investigated the impact of homeownership on individual job mobility and wages in Denmark. They found that homeownership has a negative impact on job-to-job mobility both in terms of transition into new local jobs and new jobs outside the local market. In addition, they found that home ownership has a negative effect on the unemployment risk and a positive impact on wages.

Painter, Lihong and Yu [31] examined Chinese homeownership rates in the Los Angeles consolidated Metropolitan statistical area adjusted by socioeconomic and housing market characteristics, on average are 18 percentage points higher than those of native white households. This suggests that immigrants (Chinese) usually lag behind the host society in measures of economic well-being. They found that high homeownership rates cannot be explained by the English skills of households. They also observed a great diversity among Chinese sub-groups with respect to their likelihood of owning a home, with very little diversity in respect to the education and income level of Chinese households across subgroups.

Hirono [21] studied the extent to which homeownership investment are caused by differences in information known about the

property. They found that the reduction in home ownership investment can increase consumption or investment in other assets.

Similarly, Bushee et al [7] examines the relationship between accounting choice home bias and investment by US institutional investors in non- U.S. firms. They found that firms with higher degrees of conformity with U.S. GAAP have greater levels of U.S. institutional ownership.

Painter et al (2004) found a positive relationship between ethnic enclaves and homeownership. Similarly, Friedman and Rosenbaum [15] identified race and ethnicity as determinants of homeownership.

Follain and Struyk [14] stated that widespread adoption of instruments that causes larger payment reductions would allow around one million more households to become owner-occupants. Thus, increasing the demand for new single-family homes in the long-run.

A study by Borjas [5] found a large homeownership gap between natives and immigrants, even after controlling for a range of socio-economic and household characteristics.

Ahearne et al [1] examined the cross-sectional variation of U.S. holdings of equities in a wide range of countries to gain insight into the equity home bias phenomenon, they found a direct barrier to international investment- restrictions on foreign ownership of equities significantly affects the country distribution of U.S. equity holdings, but has a small effect on the overall level of home bias.

Mudd and Tesfaghiorghis [33] analyzed home ownership rates from ABS statistics for 1981 to 1996, which suggest that the decline in homeownership could reflect a trend towards deferring ownership, but not a reduction in the lifeline achievement of owning a home.

Chiuri and Jappelli [8] explore the determinants of the international pattern of home ownership using the Luxembourg Income Study (LIS), using a collection of microeconomic data on fourteen (14) OECD countries, they found that the availability of mortgage finance as measured by outstanding mortgage loans and down payment ratios affects the age-profile of home ownership especially at the young end.

Green and Hendershott [16] scrutinize Oswalds evidence that home-ownership and unemployment are correlated across the U.S. states. They estimated the relationship for six different age-classes and for household heads and total population. They however found that the relationship is non-existent for both young households and old households, but exists for middle-aged households. Also, young households have accumulated little wealth and have had less time to become attached to the geographical area than middle-aged households and thus are more likely to respond to unemployment by relocating, whereas, older households employment cannot be greatly affected by home-ownership because their members are largely not in the labour force.

Hoff and Sen [22] stated that residents have an incentive for home improvement and civic participation only if they own sufficient home equity, also that capital market imperfection may bar poorer households from becoming home-owners.

Asiedu [3] carried out an empirical analysis of homeownership determinants in Ghana. He also found that permanent income is the most critical factor influencing the probability of owning a home in Kumasi- Ghana, although he identified other factors as age, job, occupation and the mobility level of household.

Coulson [12] in his study of Hispanic and Anglo households in the U.S., reveals that being a homeowner, even after controlling

for income, age, education, family size, marital status and housing market conditions such as price, urban location and vacancy rates. Also, Myers et al [28] discovered that temporal factors such as cohort membership, ageing and duration of U.S. residence are strong predictors of homeownership attainment of native-born, non-Hispanic whites, native-born Mexican Americans. In the same line, Logan and Alba [2] found that immigrants who were more integrated by language proficiency were more likely to own a home.

Clark et al [9] identified housing market conditions such as rent levels, interest rates, property prices, new construction and other factors that impact on housing availability and affordability as determinants of homeownership. Hence, there is a significant gap between the homeownership decisions of natives and immigrants, with native-born households much likelier to own their own homes, even after controlling for a broad range of life-cycle and socio-economic characteristics and housing market conditions [11].

Haurin et al [18] examined expected home ownership and real wealth accumulation of youth age 20 to 33 for the years 1985 through 1990, they found that the combined direct and indirect impact of variations in real constant-quality house price on wealth is modest for changes near the average real house price, but youths wealth declines substantially in areas with high real house price.

Hood [24] examined the determinants of homeownership by applying the human capital investment theory to the homeownership decision. His results are consistent with the findings of previous studies. All variables excluding family size and parental homeownership were significant and positive. They concluded that due to rising initial costs of home ownership, minority families may have a

difficult time meeting the wealth constraints without the assistance of intergenerational transfers or a housing loan. They also concluded that large families would benefit from homeownership assistance.

Hendershott [19] considers the data on home ownership and real house prices, his result indicates that other factors such as rising income for ownership and negative construction productivity growth for real prices were responsible for at least half of the increase in ownership and real price.

### Methodology: The Linear Probability Model (LPM)

The study used mainly primary data from household surveys of 120 public service staff. The households considered in this study were federal civil servants (Government workers). The data employed is the consolidated public service salary structure for senior staff of the federal republic of Nigeria. The survey was carried out during January and February 2011 in a Federal Government citadel. This is because, it is located in an urban area, besides, and the respondent dwells in the urban areas as well.

The question is basically on the level of income, also each respondent was asked whether his/ her household occupies a house owned by them.

Hence, the Linear Probability Model (LPM) which is a linear regression model with a binary dependent variable was introduced because of its simplicity unlike the logit and a probit model, the linear probability model is stated thus:

$$\hat{Y}_i = \alpha_1 + \alpha_2 \chi_i + \mu_i \quad (1)$$

Thus, we can estimate the actual probability of owning a house as:

$$(\hat{Y}_i/\chi=5.09 \text{ ie } \$5,097.36 \text{ Or } \text{N}769, 701) == 0.4427 \quad (3)$$

$$(\hat{Y}_i/\chi=6.41 \text{ ie } \$6409.69 \text{ Or } \text{N}967, 863) == 0.4823 \quad (4)$$

$$(\hat{Y}_i/\chi=28.68 \text{ ie } \$28,684.55 \text{ Or } \text{N}4, 331,367) == 1.1504 \quad (5)$$

Where

X = Household Income (Public Staff Salary)

Y = 1 if the family owns a house and 0 if it does not own a house

$\mu$  = error term

$\alpha_i$  = estimation parameters

Qualitative Response Regression Model specifically known as model (1) above is a Linear Probability Model (LPM), this is because the dependent variable is binary or dichotomous (See Gujarati, 2004).

### Results and Discussion

This study shows data (see Table 1) that illustrate home ownership (1= owns a house, 0= does not own a house) and staff salary (income)  $\chi$  for 120 staff households. From the data, the Linear Probability Model (LPM) estimated by Ordinary Least Squares (OLS) procedure is;

#### Homeownership=

$$0.29 + 0.03(\text{Salary}) \quad (2)$$

(4.40) (6.62)

$\rho$ - Value [0.0000]

[0.0000]

R- Squared ( $R^2$ ) = 0.271

F- Statistic = 43.81

$\rho$  (F- Statistic) = 0.000000

From equation (2), the intercept of 0.29 gives the probability that a staff household with zero income will own a house. The slope value of 0.03 means that for a unit change in staff salary (income), on the average, the probability of owning a house increases by 0.03. From equation (2), we thus estimate the actual probability of owning a house, thus for a Federal Government staff.

( $\chi^2/\chi=33.99$  ie\$33,935.11 Or ₦5, 124,202)==  
( $\chi^2/\chi=36.04$  ie\$36,035 Or ₦5, 441,336)==

1.3082  
1.3712

(6)  
(7)

The  $R^2$  (0.271) is significant on the basis of the F-test (43.81). Although, Gujarati (2004:586) noted that the computed  $R^2$  is of limited value in the dichotomous response models.

Similarly, Aldrich and Nelson in Gujarati [17] contend the use of coefficient of determination as a summary statistic should be avoided in models with qualitative dependent variable.

From equation (3), the probability that a Federal Government staff with an annual salary of ₦769, 701 equivalents to \$5,097.36 {at the prevalent Consolidated Public Service Salary Structure (CONPSS) Grade 7, level 15} will own a house is about 44 percent.

Also, equation (4) illustrates the probability that a Federal Government of Nigeria staff with an annual salary of ₦967, 863 equivalents to \$6409.69 {At the prevalent Consolidated Public Service Salary Structure (CONPSS) Grade 8, level 15} will own a house is about 48 percent.

But the estimated probability of owning a house by a Federal Government staff with an annual salary of ₦5, 441,336 equivalents to \$36,035 {at the prevalent Consolidated Public Service Salary Structure (CONPSS) Grade 17, level 9} which is the highest Grade level in CONPSS, will own a house is 137 percent.

Similarly, equation (6) reveals the estimated probability of owning a house by a Federal Government staff with an annual salary of ₦5, 124,202 equivalents to \$33,935.11 {at the prevalent Consolidated Public Service Salary Structure (CONPSS) Grade 17, level 7} will own a house is 131 percent.

Further, equation (5) also shows the estimated probability of owning a house by a Federal Government staff with an annual

salary of ₦4, 331,367 equivalents to \$28,684.55 {at the prevalent Consolidated Public Service Salary Structure (CONPSS) Grade 17, level 2} will own a house is about 115 percent.

In sum, the result establish the facts that the chances of affording a house in the Urban Areas of Nigeria by a public staff can be possible for highest grade level senior staff (salary), but probably unaffordable for the ordinary grade level senior staff in Nigeria.

Obviously, the result shown in equation (2) reveals that staff salary (income) have a positive effect on the probability of home ownership, statistically speaking, the effect of staff salary (income) is significant as the computed t- statistic is 6.62, whose  $\rho$ - Value is 0.0000, which is significant. In addition the null hypothesis that all the slope coefficients are simultaneously equal to zero. Given the null hypothesis, the F- test follows the F- distribution with df equal to the number of explanatory variable and the intercept term. However, together all the estimating parameter have a significant impact on the probability of homeownership as the F- statistic is 43.8, whose associated  $\rho$ - Value is 0.0000, which is infinitesimally small.

To conclude our discussion, these results suggest that *ceteris paribus*, at a very low income, a household will not own a house, but at a sufficiently high level of annual income (salary), say at about ₦4, 331,367 {dollar equivalents of \$28,684.55}, it most likely will own a house. This confirms Onyike's [30] conclusion that majority of public servants cannot afford adequate housing without substantial assistance. This paper clearly suggests fiscal policies that will promote staff participation in mortgage

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