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Examining Socio-Demographic Corelates of Land and Livestock Ownership Access Poverty in Nigeria Using the Core Welfare Indicator Questionnaire Survey Data

Innocent A. Ifelunini¹, Ifeanyi Attama², Ambrose Omeje³

1,2,3 Department of Economics, University of Nigeria, Nsukka, Enugu State, Nigeria

* E-mail of the corresponding author: <u>innocent.ifelunini@unn.edu.ng</u>

Abstract

The aim of the study is to examine the socio-demographic variables that correlate with land and livestock ownership access poverty in Nigeria using the Core Welfare Indicator Questionnaire (CWIQ) survey data, a non-monetary welfare indicator survey. A composed sample of 77,400 (seventy-seven thousand, four hundred) housing units drawn from the 36 States and Federal Capital Territory-FCT was used for the study. Principal Component Analysis (PCA), Adapted-Foster Greer and Thorbecke, and binary logit model were used to analyze the data. The PCA was used to derive the land and livestock ownership access poverty line.

The study revealed that land access poverty incidence is high across all the geo-political zones in Nigeria although the northern geo-political zones have land access poverty below the national incidence while the southern geo-political zones have land access poverty incidence above national incidence region. Household size, polygamous marriage and gender more significantly increase poverty across the various indicators used while attaining post secondary school, living in an urban area significantly reduced poverty across the composite indicators used. The study recommends that beyond the institutional reform advocated by some researchers, there is the immediate policy needs therefore to address some socio-demographic issues in Nigeria as they concern access to land. Such critical issues include rural-urban dichotomy as well as the gender imbalance in access to land and livestock ownership.

Key words: Socio-Demographic Correlates, Land and Livestock Access Poverty

1. Introduction

Poverty reduction has remained one of the greatest challenges facing the Nigerian government today. With an estimated 69 percent of Nigerians currently classified as being absolutely poor (National Bureau of Statistics, 2010), the situation is getting worse and continues to affect larger segment of the people in spite of the tremendous effort of government. From the estimated 54.4% of the people being poor in 2004, this situation needs serious attention. (Jayne, Zulu, Kajoba and Weber 2009) maintained that relatively egalitarian land distribution patterns have tended to generate higher rates of economic growth than highly concentrated ones. The basic reason for this is that broad-based agricultural growth tends to generate second-round expenditures in support of local non-tradable goods and services in rural areas and towns. These multiplier effects tend to be much weaker when the source of agricultural growth is concentrated in relatively few hands. Thus the rate of growth is likely to be affected by the distribution of assets in the agricultural sector, particularly land.

Secure access to productive land is critical to the millions of poor people living in rural areas and depending on agriculture, livestock or forests for their livelihood. It reduces their vulnerability to hunger and poverty; influences their capacity to invest in their productive activities and in the sustainable management of their resources; enhances their prospects for better livelihoods; and helps them develop more equitable relations with the rest of their society, thus contributing to justice, peace and sustainable development (International Food and Agricultural Development-IFAD 2008).

Given the strategic importance of access to land in the fight against poverty, the first strategic objective of IFAD in her Strategic Framework in 2007-2010 was to help "ensure that, at the national level, poor rural men and women have better and sustainable access to natural resources (land and water), which they are then able to manage efficiently and sustainably.

It has been observed that economic growth tends to be higher and more broadly shared when people have equitable and secure access to land. A 2005 World Bank analysis of land policies in 73 countries between 1960 and 2000 shows that countries with more equitable initial land distribution achieved growth rates two to three times higher than those where land distribution was less equitable.3 Similarly, Griffin, Khan, and Ickowitz (2002) argue that "Successful land reforms contributed to rapid economic growth.

The direction of causality according to IFAD (2008) runs both ways. There is evidence that a more equal distribution of land leads subsequently to faster growth, and rapid growth increases the likelihood that a redistributive land reform will help reduce rural and even urban poverty."Land reform in China, in the late 1970s and early 1980s, has contributed to the largest and fastest rate of rural poverty reduction in modern times.5 Land is an economic resource and an important factor in the formation of individual and collective identity, and in the day-to-day organization of social, cultural and religious life. It is also an enormous political resource that defines power relations between and among individuals, families and communities under established systems of governance

In recent time, there has been a constant call from several interest groups for the diversification of the Nigerian economy from the sole dependent of oil revenue (monoculture economy) to and making other sectors of the economy more productive. Improved access to land has been identified as one potent tool in the agricultural-led development strategy as advocated by many scholars. However, beyond the diversification of the economy, agriculture remains an important source of livelihoods for majority of the rural population in Nigeria.

1.1 Problem Statement

Access by the poor to natural resources (land, forests, water, fisheries, pastures, etc.), is essential for sustainable poverty reduction. Majority of the poor people depend on agriculture and related activities for their livelihoods, but the majority of this group of people have limited access to land. This makes agriculture a difficult solution to poverty for people who have few assets and limited alternative ways of making an income (Raihan, Fatehin and Haque, 2009). The livelihoods of the people without access, or with very limited access to natural resources are vulnerable because they have difficulty in obtaining food, accumulating other assets, and recuperating after natural or market shocks or misfortunes. Land is a capital asset offering opportunities for social and economic empowerment and thereby a springboard from which to escape from poverty. Secure rights to land are a basis for shelter, for access to services and for civic and political participation; they and can also provide a source financial security furnishing collateral to raise credit, as a transferable asset which can be sold, rented out, mortgaged, loaned or bequeathed.

Moreover secure access to land creates incentives for the user to invest labour and other resources in it so as to maintain its value and sustain its productivity, and allow the user access to social and economic development opportunities. Carter (2003) summarizes the poverty reducing effects of land access as including household income gains; of food security benefits from making food more easily and cheaply available; the safety net and investment effects, where land assets provide a buffer against external shocks and frees up resources for investment e.g. in children's education; and the dynamic income distribution effects of more equitable land distribution across society. Access to land remains a key determinant of poverty in many developing countries. Despite the importance of land access in the fight against poverty, significant majority of the Nigerian population still do not have access to land. The World Bank Doing Business in Nigeria report of 2010 ranked Nigeria 178th in terms of access to land out of the 183 economies used for the survey. The survey compared regulations in the countries studied. The present study differs in the sense that it examines the socio-demographic factors that determine land access poverty in Nigeria. Specifically, the study carried out: *land access poverty decomposition across region and socio-demographic groupings as well as examined the socio-demographic correlates of land and livestock ownership access in Nigeria, using data from the Nigerian Core Welfare Indicator Questionnaire carried out by National Bureau of Statistics (NBS-CWIQ).*

2. Literature Review

The past few decades have witnessed tremendous disparity in the distribution of income across the globe. The ratio of GDP per capita between the riches and the poorest regions of the world has widened considerably from a modest 3 to 1 ratio in 1820 to an 18 to 1 ratio in 2001 (Maddison, 2001). The role of geographical and institutional factors, human capital formation, colonialization and globalization has been the center of a debate about the origin of the differential timing of the transition from stagnation to growth and the remarkable change in the world income distribution. Galor, Moav and Vollrath (2008) suggests that inequality in the distribution of land ownership adversely affect the pace and the nature of transition from an agricultural to an industrial economy, contributing to the emergence of the great divergence in income per capita across countries. They further suggests that some land abundant countries that were characterized by unequal distribution of land, were overtaken in the process of industrialization by land scarce countries in which land distribution was rather equal. This assertion tends to strengthen further the importance of land in economic growth.

The close correlation between landlessness and poverty has been well documented (Habibur Rahman and Manprasert 2006). In fact, landlessness is the major determinant of rural poverty in many developing countries. In the same vein, economic evidence indicates a strong and negative and empirical link between asset inequality and growth. An unequal distribution of assets, especially land capital and land, affects overall growth, affecting the income growth of the poor disproportionately. A better distribution of assets increases the income of the poor, increased aggregate growth and reduces poverty, but the evidence suggests better income distribution, without asset distribution will not accelerate income growth (Sabates-Wheeler 2005, Deininger and Squire 1998). On the other hand increased and more secure land access for the poor can assist them to meet their own basic social and economic needs (Quan 2006).

Land is fundamental to development and growth in any society. Land is a crucial element in the property development process and its accessibility is vital to achieving efficient and sustainable development of the urban environment (Oyedokun, Adewusi, Ojo, Onokoya and Akinbogun 2012).

Ominrin (2002) opines that access to land and property rights is a major key in economic growth and development. It is now increasingly being realized that economic development of any country depends on how efficiently land is distributed among citizenry and competing urban uses.

As Mellor (1966) observes, the potential for agricultural development to increase welfare in low-income countries derives from the fact that large proportions of the population engage in farming for subsistence needs and to generate cash incomes. Chirwa (2004) observed several ways through which agricultural development will affect the welfare of the population. First, the landless or near landless may benefit from agricultural development through paid employment opportunities in off-farm activities created by technological change. Secondly, those who have land may benefit from higher productivity brought about by technological changes. The extent to which agricultural development can have greater impact on poverty also depends on the availability of land.

Shambel (2012) investigated the determinants of women's engagement in productive activities in south Wollo, Ethiopia especially, land and credit. The study found that women's access to and control over productive assets is seriously constrained by various social, cultural, economic, political, psychological and ideological versions of analogy. Access to and control of land and financial services is crucial to relieve women from their economic dependency and enhance their engagement in productive activities (UNDP 2000:36).

However, available evidence shows that solution to land accessibility especially to the urban residents is yet to be in sight in Nigeria. Aluko and Amidu (2006) observe that the State intervention in land ownership and administration through the promulgation of the Land Use Act of 1978 has merely created a dual structure of land delivery systems.

Oyedokun et al (2012) opined that considerable research efforts in Nigeria have concentrated on housing market while a few empirical studies exist on the general ordeals involved in attempt to secure land. Ominrin (2002) confirms that much attention has been devoted to housing problem but not enough attention is paid to the constraints of accessibility to land which in fact constitutes serious obstacle to efficient housing provision.

Ominrin (2002) in another reaction opine that while indeed land has become easier and cheaper for public use under the Land Use Act of 1978, access to land for private developments appears to have become even more difficult than ever before. Ominrin (2002) further maintained that the negative effect of inadequate and inequitable access to land in Nigeria is manifest in inefficient use of land resources, inequitable distribution of wealth, worsened housing condition, environmental degradation, poverty aggravation and regional imbalance in economic development. In the same vein, Mabogunje (2003) documents that the experience of inaccessibility which characterized urban land market have forced most urban dwellers into abject poverty owing to lack of legal titles for securing loans to invest either in construction of desirable shelter or purchase of equipment for economic pursuit. Bello (2007) also found out that the participants in the informal sector were highly marginalized. Enemark (2007) in his study on integrated approach to land management in developing countries identified land policies and land information as ingredient that can facilitate access to land.

3.0 Methodology

3.1 Data for the study

The data for the present study was obtained from the 2006 National Core Welfare Indicator Questionnaire (CWIQ) Survey conducted by National Bureau of Statistics (NBS). A two-stage stratified sampling design was

adopted. The first stage involves the Enumeration Areas (EAs), while Housing Units (HUs) constitute the 2nd stage. The projected sample size was 100 HUs at the LGA level. The sample size using other defined reporting domains (FC, senatorial, state and geo-political zone) varied, depending on the number of the LGAs that made the reporting domain. Overall, 77,400 HUs were drawn at the national level, 59567 were from the rural areas while 17,495 were from urban area. Also, sampling weights were constructed for each sample, thus making the data representative of the entire population in Nigeria. The core welfare indicator questionnaire did not contain data on expenditure; as such some discrete non-monetary variables were used to construct the land and livestock ownership access poverty line. Such variables include: ownership of land, area of land (hectares) owned, number of cattle and other large animals owned, number of sheep, goat, etc owned.

3.2 Construction of Poverty Index

Principal Component Analysis (PCA) multivariate statistical technique was used to reduce the number of variables in the data set into a smaller number of 'dimensions' without losing too much information in the process. PCA technique achieves this by creating a fewer number of variables which explain most of the variation in the original variables. The new variables which are created are linear combinations of the original variables. The first new variables will account for as much as possible of the variation in the original data.

Given *P* variables $X_{1,...}$, X_p measured in *n* households, the *P* principal components $Z_{1,...,}Z_p$ are uncorrelated linear combinations of the original variable, $X_{1,...}$, X_p , given as

$Z_1 = a_{11}X_1 + a_{12}X_2 + \dots + a_{1p}X_p$.1
$Z_2 = a_{21}X_1 + a_{22}X_2 + \ldots + a_{2p}X_p$	2
$Z_{p} = a_{p1}X_{1} + a_{p2}X_{2} + \ldots + a_{pp}X_{pz}$	3

This system of equations can be expressed as $\mathbf{z} = \mathbf{A}\mathbf{x}$, where $\mathbf{z} = (Z_{1,...,}Z_p), \mathbf{x} = (X_{1,...,}X_p)$ and \mathbf{A} is the matrix of coefficients.

The coefficients of the first principal component, $a_{11},...,a_{1p}$, are chosen in such a way that the variance of Z_1 is maximized subject to the constraint $a_{11}^2,...,a_{1p}^2=1$. The variance of this component is equal to λ_1 , the largest eigenvalue of A. The second principal component is completely uncorrelated with the first component and has variance equal to λ_2 , the largest eigenvalue of A. This component explains additional but less variation in the original variable than the first component subject to the same constraint. Further, principal components (up to the maximum of p) are defined in a similar way. Each principal component is uncorrelated with all the others and the squares of its coefficients sum to one. The principal component analysis involves finding the eigen values and eigen vectors of the correlation matrix.

3.3 Estimation of Socio-demographic Correlates of Land and Livestock Ownership Access Poverty

Our goal in this section is to decompose land and live stock ownership poverty across region and sociodemographic groupings as well assess the correlates of land and livestock ownership poverty. Foster, Greer and Thorbecke (1984) adapted for non-monetary measure (Adapted-FGT) was first applied to carry out land and live stock ownership poverty sensitivity analysis. This is a family of poverty indexes, based on a single formula capable of incorporating any degree of concern about poverty through "poverty aversion" parameter, α . This is called p-alpha measure of poverty or poverty gap. This involves measuring the poverty headcount, poverty gap and severity.

The FGT index of poverty measures can be represented in general form as:

where Z is the poverty line, q is the number of households/persons below the line, N is the income (nonmonetary indicator) of the ith household, and α is the FGT parameter which takes the value of 0,1 and 2 depending on the degree of concern about poverty. The quantity in parenthesis is the proportionate shortfall of income (non-monetary indicator) below the line. By increasing the value of α , the "aversion" to poverty as measured by the index is increased. For example, where there is no aversion to poverty, $\alpha = 0$, the index is simply

Po=
$$\frac{1}{N}q = \frac{q}{N}$$
 =H= Head-count index (ratio of number of poor to the total population). If α is =1, the index

becomes $P_1 = \frac{1}{N} \sum_{i=1}^{q} \left(\frac{z-y_i}{z}\right) = H1$ which is the head-count index multiplied by the income (non-monetary

indicator) gap between the average poor person and the line. The index measures the depth of poverty; it is also referred to as income (non-monetary indicator) gap' measure. If α is =2, then P₂ is the income (asset) gap squared

index and it captures the severity of poverty.
$$P_2 = \frac{1}{N} \sum_{i=1}^{q} \left(\frac{z-yi}{z}\right)^2$$
.

Consequently, the result obtained from the poverty index through the system of equations enabled us to build a dichotomous variable stating whether a person belongs to a group of poor or non-poor. Here one important issue is the question of choice of determinants of variable. Clearly, as much as possible variables considered to be potential causes of poverty were included. Variables pertaining to human capital as well as variable that may capture discrimination in the labour market, such as age, gender, etc. In the same vein, variables that may be more causes of social exclusion such as household composition, marital status were included. We also included location (urban or rural).

To analyse the correlates of land and livestock ownership poverty, the study employed a dichotomous choice model- binary logistic model. This is the simplest probability model, having only two categories in the response variable – event A or non – A. (LiaoT. 1994), the logit model usually takes two forms. It may be expressed in terms of logic; it may be expressed in terms of event probability. When expressed in logit form, we adopt DeMaris (1992), specification

$$\log\left[\frac{P(Y=1)}{1-P(Y=1)}\right] = \sum_{k=1}^{K} \beta_k X_k - \dots - 5$$

Where the probability of an event occurring is specified thus:

$$\Pr(Y=1) = \frac{\sum_{e^{k=1}}^{K} \beta_k X_k}{\sum_{1+e^{k=1}}^{K} \beta_k X_k} \dots 6$$

For a non event, the probability is just 1 minus the event probability.

In view of our study, the probability of being poor is specified as a function of exogenous explanatory variables: $Pr(poor = 1) = F(z) = F(\beta_0 + \beta_1 X)$

Where, $F(z) = \frac{e^z}{1 + e^z}$ is the cumulative logistic distribution, representing the probability of being poor.

X represents the vector of explanatory variables. Alternatively, a clearer specification for this model can be written thus:

$$P_i = \beta_0 + \beta_i X_i + \varepsilon_i - 8$$

Where

 P_i = is the binary function denoting the probability of being poor.

 β = is the parameter denoting the K-parameters to be estimated for the explanatory variables.

 β_0 = denotes the level of poverty determined by other factor not considered in the model and

 \mathcal{E}_i = is the error specification of the model

 β 's = are the coefficients denoting the amount the dependent variable p_i changes when the independent variable changes.

Hence in our study, the regression model is transformed thus:

$$\log it(P) = \ln \left\lfloor \frac{p}{1-p} \right\rfloor = \beta_0 + \beta_1 hhsz + \beta_2 loc + \beta_3 hgen + \beta_4 hmst + \beta_5 hage + \beta_6 hedu + \varepsilon_i - \dots - 9$$

Where :

 $P_{i=}$ probability of being poor Hhsz=household size (composition) Loc= location or sector (urban/rural) Hgen=gender of household head Hmst=marital status Hage=age of household head Hedu=education level of household head

 \mathcal{E}_i = the stochastic disturbance term

 β_0 = the constant term

With rural, male and non-formal education standing as reference/base categories for the dummies.

4. Discussion on Findings

4.1 Land and Livestock Ownership Poverty Decomposition

The results in Table 1 show the land and livestock ownership poverty decomposition across geo-political zones. The result indicates a national land & livestock poverty incidence of 79.8%. The south-south region recorded the highest land/livestock poverty incidence of 86.2% followed by south-east and south-west with 85.1% and 82.6% respectively. The north-east region has the lowest land & livestock poverty incidence of 59.2% followed by north-west with an incidence of 64.8% while the north-central recorded ownership of land & livestock poverty incidence of 73.3%. In the same vein, the south-south geo-political zone has the highest land & livestock poverty depth while the north-east recorded the lowest land & livestock poverty depth.

The result depicts a north-south dichotomy in the ownership of land & livestock. While all the regions in the southern zones have incidence well above the national land & livestock poverty incidence, the regions in the northern zones all have incidence below the national poverty incidence. As a result of this, serious effort should be made by the government/policy makers to improve on the bottlenecks to land acquisitions as this is one of the ways land can become more accessible and consequently improve the productivity of the agricultural sector.

The result in Table 2 shows the decomposition of land and livestock ownership poverty across some sociodemographic groupings. The result shows that land poverty is more prevalent in the urban sector than in the rural sector. In the same vein, the result suggests that land poverty is more prevalent among female headed households than among their male counterpart. The result revealed that land poverty is most prevalent among those households who are into informal/loose union while those households that have completed primary school recorded the highest land & livestock poverty incidence. In the same vein, the result revealed that land & livestock poverty is most prevalent among the bottom 20 percent or the poorest. The result showed that the rural sector recorded higher contribution to overall poverty the same way as male headed households. Households with no formal education recorded the highest contribution to overall land access poverty the same way as the bottom 20 percent.

Correlates of Land and Livestock Ownership Access Poverty

The result of the socio-demographic correlates of land and livestock ownership poverty is as shown in Table 3. The result revealed that increase in the household size, having attained primary school, and gender (being female as against male) all significantly increase land ownership/access poverty. On the contrary, the result suggests that living in an urban area as against rural, age, having attained secondary, post secondary as against non formal education, all significantly reduce land access/ownership poverty.

Conclusion and Recommendation

There has been an increasing worry about the low level of accessibility to land in developing countries. The low level of accessibility to land has been linked to be partially responsible for poor rate of diversification of the economies of the developing countries. These have led to series of research to unravel the factors that are responsible for this situation. Among the ways identified to improve access to land, restructuring of the land tenure system and improving some socio-cultural factors were found more applicable to in Nigeria.

This study therefore, holding institutional factors constant, seek to examine the factors that correlate with land and livestock ownership access poverty in Nigeria by decomposing land and livestock ownership access poverty across geo-political zones and socio-demographic groupings and examining the socio-demographic factors that correlates with land and livestock ownership access poverty in Nigeria.

The logistic regression result showed that household size, polygamous marriage and gender more significantly increase poverty across the various indicators used while attaining post secondary school, living in an urban area were discovered to have significantly reduced poverty across the composite indicators used. In essence, some social and demographic factors did contribute significantly to land and livestock ownership access poverty in Nigeria.

The result shows that beyond the institutional reform advocated by some researchers, there is the immediate policy needs therefore to address some socio-demographic issues in Nigeria as they concern access to land. Such critical issues include rural-urban dichotomy as well as the gender imbalance in access to land and livestock ownership.

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Group	Categories	headcount	Poverty gap	poverty severity	Contribution
Geo-political zone	North-west	0.64776	0.47969	0.41905	0.14488
	North-east	0.59208	0.37253	0.29796	0.24395
	North-central	0.73323	0.67948	0.61762	0.15732
	South-east	0.85073	0.78604	0.71328	0.12309
	South-west	0.82572	0.83835	0.80099	0.17525
	South-south	0.86186	0.89063	0.85922	0.15551
	National	0.79821	0.64944	0.59235	

Source: Author's computation from CWIQ data, 2006.

Table 2: Decomposition of Ownership of land & livestock poverty across Sector, Education of level of Household Head, Gender, Marital Status, and Welfare quintile

Group	Categories	Headcount	Poverty	Poverty severity	Contribution
			gap		
Sector	Rural	0.66376	0.59846	0.53603	0.77415
	Urban	0.81628	0.82419	0.78539	0.22585
Education level of	None	0.60763	0.81469	0.76143	0.51188
Household Head	Some primary	0.80264	0.75157	0.68715	0.03738
	Completed primary	0.76691	0.72190	0.66235	0.16507
	Some secondary	0.69877	0.78305	0.73480	0.03893
	Completed secondary	0.61198	0.65469	0.77651	0.13618
	Post secondary	0.54995	0.53123	0.46592	0.11056
Sex of H-Head	Male	0.67411	0.61861	0.56032	0.86587
	Female	0.85378	0.84848	0.79911	0.13413
Marital Status of	Single/never married	0.85040	0.89123	0.86575	0.06941
Household Head	Monogamous	0.70239	0.64285	0.58139	0.60104
	Polygamous	0.51957	0.44180	0.38145	0.18838
	Informal/loose union	0.88630	0.94092	0.91839	0.00589
	Widowed/divorced/	0.84204	0.83104	0.78009	0.13528
Welfare Quintile	1 st quintile	0.84394	0.70932	0.65459	0.25050
	2 nd quintile	0.78750	0.63631	0.57813	0.21402
	3 rd quintile	0.77638	0.61936	0.56038	0.19550
	4 th quintile	0.76903	0.60626	0.54605	0.17752
	5 th quintile	0.79993	0.65781	0.60419	0.16246

Source: Author's computation from CWIQ 2006

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Vol.4, No.3, 2014 Table 3: Parameter Estimates of Correlates of Land and Livestock Ownership Poverty						
hhsize	-0.080501***	0.0038550	-20.88	0.000		
urbrur_	-0 .8036679 ***	0.0288997	27.81	0.000		
monog	-0.6423629	0.0599993	-10.71	0.423		
polygam	-1.119986	0.0657316	-17.04	0.184		
informal	0.188782	0.1944059	0.97	0.332		
widowed	-0.0960554	0.0776316	-1.24	0.216		
prim incompl	1.118468	0.0613965	18.22	0.130		
prim compl	0.9285629*	0.0287002	32.35	0.090		
second incompl	-1.042849	0.0594728	-17.53	0.106		
second compl	-1.144099 ***	0.0355757	-32.16	0.000		
post second	-1.052105***	0.0373407	28.18	0.000		
hgender_	0.7764331 ***	0.0559879	13.87	0.000		
hage	-0.0080276***	0.0006780	11.84	0.000		

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Table 3

Source: Author's computation from CWIQ 2006

0.2265254 **

Variables in parenthesis are standard errors, ***, **, and * indicate significance at 1%, 5% and 10% levels respectively

 $0.091223\ 0$

-2.48

0.013