

Households' Vulnerability to Poverty in Ibadan Metropolis, Oyo State, Nigeria

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Abstract: A household's observed poverty status is an ex-post measure of its well-being (or lack thereof). But in thinking about forward-looking anti-poverty interventions that aim to prevent rather than alleviate poverty, what really matters is the vulnerability of households to poverty that is the ex-ante risk that a household will, if currently non-poor, fall below the poverty line, or if currently poor will remain in poverty. This study empirically assessed vulnerability to poverty at household level using a two-period panel data set obtained from 150 households, sampled from two local government areas within Ibadan Metropolis. The study also examined the socio-economic characteristics of the respondents that affect a household's vulnerability to poverty. Data were analysed using descriptive statistics, poverty indices and probit regression analysis. Analysis of the socio-economic characteristics and their relationship with vulnerability to poverty revealed that large-sized households headed by men who were old, widowed, self-employed, uneducated or who had only primary school education and who had no access to any form of credit, were more vulnerable than other households. The estimated probit regression equation showed that marital status and tertiary education status of respondents reduced vulnerability to poverty while primary education status and household size enhanced households vulnerability to poverty.

Key words: Vulnerability, poverty, longitudinal data, probit

INTRODUCTION

The high incidence of poverty in Nigeria, despite myriads of interventions by governments and NGOs to reduce it through poverty alleviation/reduction programmes and projects has brought the issue of vulnerability to the attention of policy makers.

Vulnerability, a new research interest has been defined as the likelihood that at a given time in the future, an individual will have a level of welfare below some norm or benchmark^[1]. One likely reason poverty has been on the increase may be that it has been seen by several researchers as a static phenomenon rather than a dynamic one. Recent studies have however observed movements in and out of poverty of households in developing countries^[2]. Hence indicating that poverty is not a static phenomenon as people can move out of and fall into poverty. According to Bob and Neil^[3] a high percentage of households move into poverty due to temporary shocks (such as illness or loss of employment) that are reversed just one or two years later. Similarly, many of the people who escape poverty or who are not vulnerable now only succeed in doing or being so for one or two years before a reverse in their circumstances forces them back below poverty line which makes them vulnerable.

Ligon and Schechter^[4] define essence of vulnerability as the uncertainty of future income streams and associated loss of welfare caused by this uncertainty. They noted that a household with very low expected consumption expenditures but with no chance of starving may well be poor but it still might not wish to trade places with a household having a higher expected consumption but greater consumption risk. However, it is not every time people are exposed to risk that they are vulnerable i.e., a shock might occur, but may not necessarily lead to the households being vulnerable. The concept of vulnerability therefore, is dynamic and is broadly an ex-ante or forward looking measure of a household's well being or (lack thereof). Hence, for thinking about forward-looking anti-poverty interventions that aim to prevent rather than alleviate poverty, what really matters is the vulnerability of households to poverty.

Poverty assessments draw on cross-sectional household survey to provide a detailed profile of the poor and to document the incidence of poverty in various segments of the population. The incidence of poverty in Nigeria however remains high. The World Bank^[5] statistics on income and social indicators show poverty in Nigeria to be widespread, severe and most certainly increasing. There are suggestions that the major issue is not that households are poor but the probability that a

household if currently poor, will remain in poverty or if currently non-poor will fall below the poverty line i.e., household vulnerability to poverty. That it is vulnerability to poverty that explains the ever-increasing level of poverty.

Vulnerability however, which suggests an ex-ante exposure to the possibility of an adverse outcome, has not been widely used alongside poverty in discussions of poverty reduction strategies even though the risks that households face are an important aspect of their wellbeing. This shows a limited understanding of a household vulnerability to poverty.

While it is commonly asserted that the poor are among the most vulnerable in any society^[6] the overlap between poverty and vulnerability is not perfect. There seems to be general agreement that poverty is a static concept, defined at a single point in time, while the concept of vulnerability situated in a dynamic context is less well defined. Clarifying the distinction between poverty and vulnerability is important especially since social protection strategy is moving from ex-post poverty strategies to ex-ante vulnerability considerations^[7].

In most developing economies, estimation of vulnerability has been mainly through the use of cross-sectional household survey data but in principle the use of panel data permits the estimation of vulnerability within a more general framework and allows for the inclusion of time-invariant household effects and dynamic effect and in some cases to get a sense of the magnitude of biases in estimates of vulnerability generated from cross-sectional data^[8]. This study will attempt to contribute to an understanding of vulnerability of households to poverty in Nigeria since a pre-condition for successful anti-vulnerability policies is the identification of the group of vulnerable households, together with an understanding of the sources of vulnerability. Consequently, there is a need for governments to proactively take measures to protect vulnerable households and in order to do so, vulnerable households have to be identified. The nature of their vulnerability also needs to be examined.

The main objective of the study is to assess the vulnerability of households to poverty in Ibadan Metropolis. The rest of the paper is in four sections. Section two presents the literature review while section three is on the methodology of the study. Section four presents the empirical findings and section five concludes the paper.

Literature review:

Risks, vulnerability and poverty: There are many definitions of vulnerability and seemingly, no consensus

on its definition and measurement^[8]. Christiaensen and Subbarao^[9] define vulnerability as the ex-ante potential of a decline in future well being, or the ex-ante probability of falling below the poverty line at some future date. In support of this McCulloch and Calandrino^[10] view vulnerability as the probability of being below the poverty line in any one year.

Vulnerability is multidimensional and households face a number of risk. The risk faced by an individual/household relates to events possibly occurring i.e., with less than certainty. Individuals/households have a priori some sense of the likelihood of these events occurring, without direct control over this likelihood. The lack of direct control over the risk they face is crucial and distinguishes it from the responses one can observe from individuals, households and communities given the risk they face. While the concept of risk refers to uncertain events that can damage the well being of people such as falling ill^[9] vulnerability is a function of the risk characterization of a person's environment-the nature, frequency and severity of the shocks he is exposed to, his exposure to these risks as well as his ability to cope with it when the shock materializes which is determined by his asset endowments and his ability to insure himself (formally or informally)^[11]. Vulnerability is therefore the product of risk, but also of household conditions and actions^[12].

A World Bank study on risk management in South Asia also defines vulnerability as the likelihood of being adversely affected by a shock that usually causes consumption levels, or other factors that affect well-being to drop^[6]. On the other hand, Chambers^[13] opined that vulnerability is one among the different dimensions of deprivation, which include such other concepts as physical weakness, isolation, poverty and powerlessness. Therefore in addition to risk exposure, which signifies the probability that a person will be affected by uncertain events which may lead to welfare loss, vulnerability reflects the lack of capacity to cope with a shock ex-post. It is concerned with the ex-ante potential of a decline in well-being in the future. Thus, it is a dynamic concept that generally involves a sequence of events following some shocks^[11].

Concepts of vulnerability and poverty (which is also multidimensional) are linked but not identical. For example, Chaudhuri *et al.*^[14], submit that vulnerability is an ex-ante (forward-looking) rather than an ex-post concept. Whereas poverty status can be observed at a specific time period, given the welfare measure and the poverty threshold, household vulnerability is not directly observed, rather it can only be predicted. The observed poverty status of a household (defined simply by whether

or not the household's observed level of consumption expenditure is above or below a pre selected poverty line) is the ex-post realization of a state, the ex-ante probability of which can be taken to be the household's level of vulnerability. Therefore, while it is possible to make statements about whether or not a household is currently poor, it is not possible make statements about household's level of vulnerability. Also, we can estimate or make inferences about whether a household is currently vulnerable to future poverty, but we can never directly observe a household's current vulnerability level^[14].

According to Ligon and Schechter^[4] traditional poverty measures neglect several important dimensions of household welfare while vulnerability measures allow the quantification of welfare loss associated with poverty as well as the loss associated with any of a variety of different sources of uncertainty. While poverty is concerned with not having enough now, vulnerability is about a high probability now of suffering a future shortfall^[15].

However, it is pertinent to say that though in practice, the poor are often also vulnerable, both groups (poor and vulnerable) are not typically identical^[16].

According to Alayande^[11] the measurement of vulnerability has two elements. First is one due to a low level of and limited variance in consumption and a second due to high level of and much variance of consumption. However, measuring income and consumption dynamics and variability requires specific types of data: These include cross sectional data and longitudinal data.

Cross sectional data: Relying on single cross-sectional data requires making stringent assumptions regarding the stochastic process generating consumption e.g., that cross sectional variability proxies interpersonal variation. These sets of data are always available because they are relatively cheaper to obtain especially for developing countries. According to carefully collected cross-sectional data reveal much about risk and vulnerability, particularly if they are augmented by use of secondary sources, community and qualitative field work.

Longitudinal data: The scope of risk and vulnerability assessment is greatly enhanced if longitudinal household data are available because longitudinal data allow the same household to be tracked over a sufficient length of time. These permit the direct estimation of the inter-temporal variance of consumption at the household level without the need for strong assumptions. However, this should not be taken to imply that longitudinal data are both necessary and sufficient for vulnerability

assessments because their dearth and limited cross-sectional coverage render them not quite useful for policy analysis that requires nationally representative samples. They are also time-consuming to collect and their collection requires strong data documentation skills so that interviewers can find individuals and households in order to re-interview them.

However, the consensus in literature^[8,17] is that longitudinal data are most appropriate for the study of vulnerability. It is in this context that this study utilized the longitudinal data in the examination of vulnerability of households in Ibadan Metropolis.

MATERIALS AND METHODS

The study area and data sources: The study was conducted in Ibadan metropolis, the capital of Oyo State. The metropolis is composed of 11 Local government areas, 6 at the outskirts and 5 at the centre. The latter are: Ibadan South East, Ibadan North East, Ibadan North West, Ibadan South West and Ibadan North Local Government Areas.

Geographically, Ibadan is located between longitude 7° 20" and 7° 40" East of the Greenwich meridian and between latitude 3° 55" and 4°10' North of the equator. The city is in the equatorial rain forest belt and has a land area of between 445 and 455km² with an estimated population of 1, 991, 367 persons according to the 1991 population census.

Ibadan metropolis is an important commercial centre and it comprises of people of different cultural and socio-economic backgrounds. Predominantly, food crops such as yam, maize, cowpea, okro, melon which reflect the dietary habits of the inhabitants are grown as is clearly seen in the type of meals taken by the people.

Data used in this survey were collected from a two-round panel survey undertaken at 3-month interval to allow measurement of seasonal variation in behaviour and outcome and to balance both the cross-sectional and time series requirements of panel data. The first round was in May 2005, while the second survey was in August 2005. The primary source of data were collected with the use of structured questionnaire containing both open- and close-ended items. The questionnaire administration was cross-sectional in nature.

Sampling procedure: The study used the multistage sampling technique for selecting the representative households. The first stage was the selection of two local government areas in Ibadan city, namely, Ibadan North and Ibadan South West. The second stage involved

random sampling of areas within these local government areas. These areas include: University of Ibadan, Agbowo, Bodija, UCH, Orogun for Ibadan North and Odo Ona, Oluyole, Oluyole Extension, Iyaganku for Ibadan South West. In the third stage, the households surveyed were then randomly selected to make them representative of the two local governments.

In the second survey round, sampling was used in order to track the characteristics of the households at the two different periods. A hundred and fifty households were interviewed in the first survey exercise but only 133 households could be re-interviewed in the second round. Hence, only the data from these 133 households were used for analysis in this study.

Analytical tools

Poverty measures: The Foster, Greer *et al.*,^[18] weighted poverty index was used for the quantitative poverty assessment, the FGT measure for the *i*th sub group (*P_i*) is given as:

$$P_{\alpha i}^i = \frac{1}{n} \sum_{j=1}^q \left[\frac{(z-y)}{Z} \right]^{-\alpha}$$

when $\alpha = 0, P_0 = \frac{1}{n} \sum_{j=1}^q \left[\frac{(z-y)}{Z} \right]^0$
 $= \frac{q}{n} \rightarrow$ Poverty incidence or head count

$$\alpha = 1, P_1 = \frac{1}{n} \sum_{j=1}^q \left[\frac{(z-y)}{Z} \right]^1$$

\rightarrow Poverty gap or depth

$$\alpha = 2, P_2 = \frac{1}{n} \sum_{j=1}^q \left[\frac{(z-y)}{Z} \right]^2$$

\rightarrow Poverty severity

Where:

- $P_{\alpha i}$ = weighted poverty index for the *i*th sub group
- n_i = total numbers of the *i*th subgroup in poverty
- y_{ji} = Per capita expenditure of households in subgroups
- Z_i = Poverty line for the subgroup
- α_i = degree of concern for the depth of poverty
- $\alpha = 0$ gives incidence of poverty (Head count index) and is used to determine the percentage of the poor.
- $\alpha = 1$ gives depth of poverty which is defined as the difference between poverty line and mean expenditure of the poor as a ratio of the poverty line.

The households were subdivided into two based on the measures of poverty as follows:

- The probability of being always poor defined as being poor in the two survey rounds.

- The probability of becoming poor defined as being non-poor in the first round but poor in the second survey.

Vulnerable households were then defined as a combination of those becoming poor and always poor i.e., vulnerable = (becoming poor+always poor).

Transitional matrix box

	Vulnerable	Non-vulnerable	Total
Vulnerable	n_1	n_2	$n_1 + n_2$
Non-vulnerable	n_3	n_4	$n_3 + n_4$
Total	$n_1 + n_3$	$n_2 + n_4$	Y

Where n_1 = numbers of households that were vulnerable in the two survey rounds

n_2 = numbers of households that were vulnerable in the first survey round but non-vulnerable in the second survey round.

n_3 = numbers of households that were non-vulnerable in the first survey round but vulnerable in the second survey.

n_4 = numbers of households that were non vulnerable in the two survey rounds.

Y = Total numbers of respondents i.e. ($n_1 + n_2 + n_3 + n_4$).

Vulnerability index: Vulnerability index for each subgroup is calculated as:

- Number of vulnerable households in the subgroup
- Total numbers of households in the subgroup

Model specification for vulnerability measurement: In order to ascertain the effect of certain factors on the vulnerability of households to poverty, a probit model was estimated using data from the panel. The probit regression analysis was used since the OLS estimation procedure will not be appropriate, especially when most of the independent variables are dichotomous. This arises due to the following reasons:

- Non normality of the disturbances u_i
- Heteroscedasticity of the disturbance-term
- The predictions of the logit-probit model offered by OLS lack boundedness since nothing constrains it from being either less than 0 or greater than 1.

The probit model assumes that while we observe the values of 0 and 1 for the variable Y_i there is a latent, unobserved continuous variable Y^* that determines the value of Y_i , we assume that Y^* can be specified as follows:

$$Y^* = B_0 + B_1 X_{1i} + B_2 X_{2i} + \dots + B_k X_{ki} + U_i \quad (1)$$

and that:

$$Y_i = 1 \text{ if } Y^* > 0$$

$$Y_i = 0 \text{ otherwise}$$

Where

$$Y_i = \text{poverty level (poor} = 1, 0 = \text{non poor)}$$

$$X_{i1}, \dots, X_{ik} = \text{Vector of Independent variables}$$

$$B_0 = \text{constant}$$

$$B_1 = \text{coefficient estimates}$$

$$U_i = \text{random disturbance term from equation Y.}$$

$$P_r(Y_i = 1) = (B_0 + B_1 X_{i1} + B_2 X_{i2} + \dots + B_k X_{ik} + U_i > 0) \quad (2)$$

Rearranging terms

$$\begin{aligned} P_r(Y_i = 1) &= P_r[U_i > -(B_0 + B_1 X_{i1} + B_2 X_{i2} + \dots + B_k X_{ik})] \\ &= 1 - P_r[U_i < -(B_0 + B_1 X_{i1} + B_2 X_{i2} + \dots + B_k X_{ik})] \end{aligned}$$

If we make the usual assumption that U is normally distributed, we have

$$\begin{aligned} P_r(Y = 1) &= 1 - \Phi[-(B_0 + B_1 X_{i1} + B_2 X_{i2} + \dots + B_k X_{ik})] \\ &= 1 - \Phi(-X_1 B) \\ &= \Phi(X_1 B) \end{aligned}$$

where

Φ = standard cumulative normal distribution using data from panel

X_i = vector of independent variables

B 's = estimates of coefficients which give the impact of the independent variables on the latent variable Y^* .

The model is stated explicitly as:-

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}, X_{13})$$

Where

$$Y = 1 \text{ if vulnerable (becoming poor + always poor)} = 0 \text{ if otherwise}$$

$$X_1 = \text{sex of household head (D} = 1 \text{ If male, 0 otherwise)}$$

$$X_2 = \text{age of household head (years)}$$

$$X_3 = \text{Marital status of household head (D} = 1 \text{ if married, 0 otherwise)}$$

$$X_4 = \text{Marital status of house old head (D} = 1 \text{ if widowed 0 otherwise)}$$

$$X_5 = \text{Household size}$$

$$X_6 = \text{Primary Education (D} = 1 \text{ with primary education and 0 otherwise)}$$

$$X_7 = \text{Secondary Education (D} = 1 \text{ with secondary education and 0 otherwise)}$$

$$X_8 = \text{Tertiary Education (D} = 1 \text{ with tertiary education and 0 otherwise)}$$

$$X_9 = \text{Occupation of household (D} = 1 \text{ if wage earning and 0 if otherwise)}$$

$$X_{10} = \text{Exposure to covariate shocks dummy of household head}$$

$$X_{11} = \text{Exposure to idiosyncratic shocks dummy of household head}$$

$$X_{12} = \text{Number of risk exposed to by the household head}$$

$$X_{13} = \text{Access to formal credit dummy of the household head}$$

This section benefits from the works of Chauduri^[8] Quisumbing^[1] and Skoufias *et al*^[19].

RESULTS AND DISCUSSION

Poverty line was computed differently for the two survey rounds. On the basis of relative poverty, the Mean per Capita Household Expenditure (MPCHHE) for the respondents stood at N8, 292.21 while the two-thirds MPCHHE amounted to N5, 528.14 for the first survey round. Likewise, in the second survey, the MPCHHE stood at N9, 917.95 while the two-thirds MPCHHE amounted to N6, 612.

This means that any household that had MPCHHE below or equal to N5,528.14 or N6,612 was considered to be poor for first and second survey rounds respectively, while households with per capita expenditure above the amounts were considered to be non-poor.

The transitional matrix box reveals that 63 households were vulnerable in both surveys while 7 households were vulnerable in the first survey but non-vulnerable in the second survey round. It can also be seen that seven households which were non-vulnerable in the first survey round had become vulnerable in the second survey and fifty six households were non-vulnerable in the 2 survey rounds.

In all, the total number of vulnerable households in the study area stood at 70 and that for non-vulnerable households at 63 (Table 1).

Source: Field survey, may and august 2005: The incidence of poverty and vulnerability were found to be higher in the second survey period as presented in Table 2. In the first and second survey rounds, households with heads older than 65 years were found to be the poorest also, while male-headed households were found to be poorer compared with their female counterparts in the first round, the reverse was the study in the second round. This implies that both male and female-headed households can indeed be poor depending on their level of exposure to risks. Poverty was also found to increase with increase in household size. This may be due to the fact that a large household size tends to reduce

Table 1: Transitional matrix box of households in study area

	Vulnerable	Non-vulnerable	Total
Vulnerable	63	7	70
Non-vulnerable	7	56	63
Total	70	63	133

Table 2: Poverty incidence and vulnerability by socio-economic characteristics

Age	Poverty Incidence		Vulnerability index
	May	August	
25-45	0.29	0.48	0.48
46-65	0.44	0.61	0.62
> 65	0.90	0.75	0.75
Sex:			
Male	0.38	0.45	0.56
Female	0.20	0.52	0.44
Household size			
1-4	0.25	0.35	0.42
5-9	0.32	0.50	0.65
7 - 9	0.39	0.53	0.75
Education Level			
No education	0.45	0.64	0.54
Primary	0.47	0.47	0.87
Secondary	0.30	0.44	0.46
Tertiary	0.28	0.35	0.44
Marital status			
Single	0.58	0.60	0.58
Married	0.34	0.43	0.51
Widowed	0.80	0.80	0.60
Occupational Status			
Wage earners	0.26	0.36	0.51
Non-wage earners	0.32	0.44	0.54
Access to credit			
None	0.39	0.50	0.63
Formal	0.33	0.34	0.56
Informal	0.31	0.47	0.39
Overall situatio	0.36	0.44	0.47(May), 0.53(Aug)

Source: Field Survey, May and August 2005

per-capita expenditure although it can enhance it depending on the distribution of household members between adult and children and whether such adults are working. This means that having a family which includes more income earning members thus a lower dependency ratio reduces poverty. In support of this, vulnerability of a household to poverty was found to increase with age of the household head with vulnerability index highest for both household head aged above 65 years and also large sized households.

The education status of the respondents shows that poverty, hence vulnerability decreases with increase in educational attainment although vulnerability index was found to be highest for those with primary education. This may be because their level of education may tempt them to seek paid employment, thereby ending up in low cadre positions e.g., messengers, which earn low level of income., Households where the respondents are married and living with their spouses (especially if both of them are working) were found to be less poor and less vulnerable than households with either single or widowed household heads. This is because the husband and wife are expected to jointly cater for the household needs. The occupational status of the respondents reveal that wage earners are less poor and less vulnerable than non wage earners in the 2 survey rounds. This may be unconnected to the fact that being employed with a stable income

reduces the likelihood of being poor and of sever welfare loss whenever confronted with a risk.

Table 2 also reveals that household heads without access to any form of credit in the two survey rounds were found to be the poorest and most vulnerable implying that access to credit reduces the likelihood of being poor. However, those with access to formal credit were found to be more vulnerable than those with access to informal credit. This may be due to the timely access to informal credit as against the lengthy appraisal of applications for formal credit and requests for collateral made by financial institutions which is practically non-existent for the poor.

Vulnerability to poverty of households sampled:

Following the outlined analytical procedure, the probit model was used. This model has been used in many vulnerability studies e.g., Skoufias and Quisumbing^[19] in their work on consumption insurance and vulnerability and Byett in his research on measures of household vulnerability in which the probit regression was used to model the probability of a bank crisis. Farrington *et al.*^[20] also used the probit regression analysis to estimate the effects of several different variables on the probability that any given household will participate in the land market.

The result of the Probit Analysis is presented in Table 3 Large household size invariably reduces welfare of household members and therefore can be said to enhance vulnerability to poverty.

Expectedly, the result of the probit analysis shows that married household heads are less vulnerable considering the negative sign of the coefficient representing marital status. The possible reason for this is that in case of a shock, they (husband and wife) are not likely to be adversely affected especially if they are working. Hence, the ease of risk sharing and pooling of resources together helps them to jointly cater for household needs better than single or widowed households Table 4.

Also, the sign of the coefficient of tertiary educational status was negative. This is an indication that the higher the years of formal education obtained by household heads the lower the odds of the household heads being vulnerable. This implies that an increase in educational attainment assists households heads in getting good jobs and taking opportunities which otherwise would not have been possible. The overall effect of this is increased income which translates to increased per capita expenditure hence improved welfare and standard of living of household members.

In summary, it can be inferred from the result obtained that low level of educational attainment, large household size and being widowed or single-all increase or enhance vulnerability to poverty in the study area.

Table 3: Result of probit analysis (1)

Var-iable	Variable name	Coefficient	B/St.Er.
X ₁	Constant	.2825	-.215
X ₂	Sex	.5268	1.447
X ₃	Age	-.0329	-1.819*
X ₄	MS1	-.6079	-1.147
X ₅	MS2	.7437	.631
X ₆	HHS	.4364	3.870***
X ₇	EDUST1	1.6234	2.343**
X ₈	EDUST2	-.5969	-.879
X ₉	EDUST3	-1.2288	1.299
X ₁₀	HHOCC	-.2288	-.754
X ₁₁	EXPTOCO	1.1669	1.299
X ₁₂	EXPTOIDI	.04541	.113
X ₁₃	NOSOFRIS- ACCESSTO	-.2037 .09327	-1.272 .321
	Log likelihood function		
	Restricted log likelihood	-63.94655	
	Chi-squared	-92.00428	
	Degrees of freedom	56.11546	
		13	
	Significance level	.0000000	

Source: Computer print out, 2005. ***, ** and * denote significance of coefficient at 1, 5 and 10%, respectively.

Table 4: Result of probit analysis (Final)

Variable	Variable name	Coefficient	Standard error	B/St.Er.	P[Z >Z]	Mean of X
	Constant	-.5209797479	.46731840	-1.115	.2649	
X ₃	MS1	-.8239075107	.43587991*	-1.890	.0587	.87218045
X ₅	HHS	.3293564157	.88071086E-01***	3.740	.002	4.9097744
X ₆	EDUST1	1.362501500	.63378777**	2.150	.0316	.11278195
X ₈	EDUST 3	-.7895470386	.25738462***	-3.068	.0022	.42857143

Source: Computer print out, 2005. ***, ** and * denote significance of coefficient at 1, 5 and 10%, respectively. Log likelihood function -67.66796, Restricted log likelihood -92.00428, Chi-squared 48.67265, Degrees of freedom 4, Significance level .0000000

CONCLUSION

The key conclusions from this study are highlighted below.

- Most of the households in the study area were vulnerable. However, household heads were found to be more vulnerable in the second survey round with 53% vulnerability compared with the first survey round with 47% vulnerability.
- Vulnerable household heads were found to be mostly uneducated or have at least primary education.
- Whereas primary education status and household size enhanced vulnerability to poverty, marital status and tertiary educational status reduced it.

Considering the level of vulnerability in the two periods, having in mind the various risks exposed to by the respondents, (which may easily reverse their situations-especially macroeconomic risks) a lot need to be done to improve the factors that reduce vulnerability to poverty. If it is possible to target the currently poor, a large proportion of the households will move out of poverty between one period and the other. However, with

the imperfect overlap between the vulnerable and the poor, it cannot be assumed that policy interventions that help the currently poor will also lead to a reduced incidence of poverty in the next period ahead (i.e., vulnerability to poverty). This suggests that different policies may be needed for poverty reduction because focusing anti-poverty efforts on the correlates of current poverty status (which could be as a result of exposure to a shock at that time) may not have any significant impact on the probability of being poor in the future but forward looking anti-poverty interventions that aim to prevent rather than alleviate poverty could be embarked upon.

The implication of the above findings is that the large sized households with old, widowed heads who have no access to credit, earn low income and have no or low educational qualification are most vulnerable to poverty in the study area.

Following from the above, the following policy prescriptions are made:

- Improvement in level of educational attainment.
- Awareness on benefit of small family size.
- Access to credit facilities

- Since having primary education predisposes people to vulnerability in urban areas according to this study, it is envisaged that the government and all concerned will follow through the Universal Basic Education Programme (UBE) which prescribed a nine-year mandatory education for all citizens. This will enable people to acquire better education which can lead to improved income and by extension reduced vulnerability to poverty. This is amply demonstrated by the fact that those that have tertiary education are less vulnerable to poverty.

There is a need for improved awareness of the impact of large family size on households' vulnerability to poverty. This can be incorporated into the family planning activities.

Credit/loan facilities should be made available and accessible to target households at moderate interest rates to reduce the impact of income risks and Government could assist through relaxation of any stringent guidelines in securing such assistance (especially in the case of formal credit).

Appendix

Var-iable	Variable name	Coefficient	Standard error
X ₁	Constant	.2824972952	1.3127595
X ₂	Sex	0.5268493007	0.36412587
X ₃	Age	-.3299983333E-01	.18139519E-01
X ₄	MS1	-.6079415949	.52981364
X ₅	MS2	.7437069210	1.1785438
X ₆	HHS	.4364218328	.11276800***
X ₇	EDUST1	1.623451538	.69290681**
X ₈	EDUST2	-.5968519278	.6706468
X ₉	EDUST3	-1.2288119320	.68181866*
X ₁₀	HHOCC	-.2288119320	.30329459
X ₁₁	EXPTOCO	1.166936910	.89820458
X ₁₂	EXPTOIDI	.4540781837E-01	.40247669
X ₁₃	NOSOFRIS-ACCESSSTO	-.2036894281	.16018944
		.9327256218E-01	.29079525

Var-iable	B/St.Er	P[Z >Z]	Mean of X
X ₁	-.215	.8296	
X ₂	1.447	.1479	42.037594
X ₃	-1.819	.0689	42.037594
X ₄	-1.147	.2512	.87218045
X ₅	.631	.5280	.375939985E-
X ₆	3.870	.0001	4.9097744
X ₇	2.343	.0191	.11278195
X ₈	-.879	.3794	.48872180
X ₉	1.299	.0648	.56390977
X ₁₀	-.754	.4506	.56390977
X ₁₁	1.299	.1939	.97744361
X ₁₂	.113	.9102	.78195489
X ₁₃	-1.272	.2035	2.9022556
	.321	.7484	.30827068

Source: Computer print out, 2005. ***, ** and * denote significance of coefficient at 1, 5 and 10%, respectively. Log likelihood function -63.94655, Restricted log likelihood -92.00428, Chi-squared 56.11546, Degrees of freedom 13, Significance level .0000000

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