Dutse Business Review (DBR): Volume 1, Issue 1 (2026) *ISSN Print: 3156-4062* *eISSN:3156-4852*

HOUSEHOLD VULNERABILITY AND POVERTY DYNAMICS IN NORTHERN NIGERIA: EVIDENCE FROM DUTSE METROPOLIS

Rukayya Wada Kura[1], Aminu Muhammad Mustapha[2], Badamasi Muhammad[3], Bello Ahmed Abba [4]
[1234] Department of Economics and Development Studies, Federal University Dutse – Jigawa State, Nigeria.
Co-author: wadarukayya@yahoo.com

Abstract

The study aims to examine household vulnerability to poverty in Dutse Metropolis, with particular emphasis on the relationship between economic vulnerability and poverty status, as well as the socio-economic factors influencing household vulnerability. Using primary data collected from 400 households through a structured survey, the study employs Ordinary Least Squares (OLS) regression and Analysis of Variance (ANOVA) to analyze welfare dynamics. The findings reveal that economic vulnerability has a statistically significant effect on household Poverty status, indicating that exposure to income instability, limited asset ownership, and economic shocks increases the likelihood of welfare deterioration. Furthermore, socio-economic factors such as education, employment status, income level, household size, and access to productive assets significantly influence household vulnerability. Households with stronger socio-economic characteristics exhibit greater resilience and a lower probability of falling into Poverty. The findings underscore the need for policy interventions that prioritize human capital development, employment generation, asset access, and social protection to reduce vulnerability and promote sustainable Poverty reduction. The study contributes to the literature by integrating vulnerability into Poverty analysis, thereby providing a dynamic and forward-looking perspective on welfare. It also offers context-specific evidence from Northern Nigeria, addressing gaps in localized empirical research.

Keywords: Household, Vulnerability, Poverty Dynamics, Dutse Metropolis, Nigeria.

Introduction

Poverty remains one of the most persistent socio-economic challenges in developing economies, particularly in sub-Saharan Africa, where structural inequalities, economic instability, and limited access to productive resources continue to constrain household welfare. In Nigeria, despite decades of policy interventions and abundant natural resources, Poverty incidence remains high and multidimensional, affecting income, health, education, and living standards (NBS, 2022; UNDP, 2022). Evidence suggests that Poverty in Nigeria is not merely a static condition but a dynamic

process shaped by exposure to risks and shocks, including income volatility, health-related expenditures, and macroeconomic instability (Chaudhuri, 2003; Deressa et al., 2009).

While conventional Poverty analysis focuses on observed deprivation at a given point in time, increasing scholarly attention has shifted toward the concept of vulnerability to Poverty**,** which captures the ex-ante probability that households may fall into or remain in Poverty in the future (Ligon & Schechter, 2003; Calvo & Dercon, 2005). This forward-looking perspective provides a more comprehensive understanding of welfare dynamics, particularly in contexts characterized by uncertainty and weak social protection systems. Recent empirical studies have shown that a significant proportion of households in developing countries are vulnerable to Poverty even when they are not currently poor, largely due to exposure to idiosyncratic and covariate shocks (Azam & Imai, 2012; Günther & Harttgen, 2009). In the Nigerian context, factors such as household size, education, employment status, and access to assets have been identified as critical drivers of vulnerability (Nwosu & Orji, 2017; NBS, 2022).

Despite the growing recognition of vulnerability as a critical dimension of Poverty, existing studies in Nigeria have largely focused on static Poverty measurement or broad national-level analyses, with limited attention to localized and context-specific dynamics. Moreover, many empirical investigations examine Poverty and vulnerability in isolation, with insufficient integration of welfare transitions and socio-economic determinants within a unified analytical framework (Adewumi et al., 2023; Mohammed et al., 2024). This limitation constrains a comprehensive understanding of how households move across welfare states and the underlying factors influencing such transitions. The gap is particularly evident at the sub-national level, including Dutse Metropolis in Jigawa State, where high Poverty incidence, income instability, and dependence on informal economic activities heighten household exposure to future deprivation (NBS, 2022; Central Bank of Nigeria [CBN], 2021).

Against this backdrop, this study assesses household vulnerability to Poverty in Dutse Metropolis, Nigeria. Specifically, it pursues two main objectives: (i) to examine the relationship between household economic vulnerability and Poverty status among rural households within dutse metropolis, and (ii) to identify the key socio-economic determinants influencing household vulnerability to Poverty. By integrating welfare dynamics with econometric analysis, the study

provides a nuanced understanding of household exposure to Poverty and the factors shaping vulnerability.

The contribution of this paper is threefold. First, it advances the empirical literature by adopting a vulnerability-based approach that extends beyond static Poverty measurement to capture the dynamic nature of household welfare (Chaudhuri, 2003; Ligon & Schechter, 2003). Second, it provides location-specific evidence from northern Nigeria, thereby addressing the limitation of generalized national-level studies. Third, the study offers policy-relevant insights by identifying key drivers of vulnerability, which are essential for designing preventive and resilience-oriented Poverty reduction strategies in developing economies.

Literature Review

Conceptual Issues: Vulnerability and Poverty

Poverty is widely recognized as a multidimensional phenomenon encompassing deprivations in income, health, education, and living standards (UNDP, 2022; NBS, 2022). Traditionally, Poverty has been conceptualized as a static condition measured at a specific point in time using income or consumption thresholds. However, such measures fail to capture the dynamic nature of welfare and the uncertainty surrounding future livelihood outcomes.

In response to this limitation, the concept of vulnerability to Poverty has gained prominence in development literature. Vulnerability is defined as the ex-ante probability that a household will fall into Poverty or remain poor in the future due to exposure to risks and shocks (Chaudhuri, 2003; Ligon & Schechter, 2003). Unlike static Poverty measures, vulnerability incorporates uncertainty, risk exposure, and the capacity of households to cope with adverse events (Calvo & Dercon, 2005). This distinction is particularly relevant in developing economies where households frequently experience income volatility, environmental shocks, and limited access to formal safety nets.

Empirical evidence suggests that Poverty and vulnerability, while related, are not identical. Households that are not currently poor may still be highly vulnerable due to weak asset bases, unstable income sources, or exposure to shocks (Azam & Imai, 2012). Conversely, some poor households may exhibit resilience if they possess coping mechanisms or access to support systems.

This highlights the importance of integrating both concepts in Poverty analysis to better inform policy interventions aimed at prevention rather than mere alleviation.

Theoretical Review

Vulnerability Theory

Vulnerability Theory provides the central conceptual lens for this study by emphasizing the role of risk, uncertainty, and exposure to shocks in shaping household welfare outcomes. Within this framework, vulnerability is conceptualized as a function of three interrelated components: exposure to shocks, sensitivity to those shocks, and adaptive capacity (Füssel & Klein, 2006). Households with limited assets, weak institutional support, and high exposure to economic or environmental risks are more likely to experience welfare deterioration and persistent Poverty.

This perspective shifts the analysis of Poverty from a purely static condition to a forward-looking process, recognizing that households may face significant risk of future deprivation even when they are not currently poor. In the context of rural and peri-urban Nigeria, where income instability, informal employment, and limited social protection mechanisms prevail, vulnerability becomes a critical determinant of long-term welfare outcomes (Deressa et al., 2009; World Bank, 2023). By situating vulnerability at the core of the analysis, this study examines how socio-economic characteristics such as education, income, household size, and access to productive assets shape households' exposure and resilience to Poverty-inducing shocks.

Vulnerability as Expected Poverty (VEP)

Building on the general principles of Vulnerability Theory, this study adopts the Vulnerability as Expected Poverty (VEP) framework as its primary analytical foundation. The VEP approach defines vulnerability as the probability that a household will fall below the Poverty line in the future, given current socio-economic conditions and exposure to risk (Chaudhuri, 2003).

The VEP framework is particularly relevant for empirical analysis because it allows vulnerability to be linked directly to observable household characteristics and estimated using econometric techniques. Although the present study employs regression and ANOVA methods rather than

probabilistic logit estimation, the VEP approach still provides the conceptual basis for interpreting vulnerability as a function of measurable socio-economic factors.

In this context, vulnerability is operationalized as a welfare condition influenced by factors such as income variability, employment status, education, and asset ownership. The regression framework is therefore used to examine: the relationship between vulnerability and observed Poverty status, and the extent to which socio-economic characteristics explain variations in household vulnerability.

This approach is consistent with empirical applications of the VEP framework, which emphasize that vulnerability can be approximated through observable determinants of welfare and statistically analysed using cross-sectional data (Ligon & Schechter, 2003; Günther & Harttgen, 2009). While the VEP framework is probabilistic in nature, this study adopts a linear econometric approach to approximate vulnerability through observable welfare determinants, consistent with cross-sectional applications in developing country contexts.

Sustainable Livelihoods and Capability Approach

The Sustainable Livelihoods Framework emphasizes that household welfare depends on access to a portfolio of assets namely human, financial, physical, social, and natural capital and the ability to utilize these assets within a given institutional context (Scoones, 1998). The framework highlights the importance of livelihood diversification, access to resources, and institutional support in enhancing resilience to shocks. In the context of Dutse Metropolis, where livelihoods are largely informal and resource-constrained, limited access to these forms of capital significantly increases vulnerability to Poverty.

Complementing this, the Capability Approach, as developed by Sen (1999), conceptualizes Poverty as a deprivation of capabilities that is, the ability of individuals to achieve valued functionings such as education, health, and economic participation. This perspective extends beyond income-based measures by emphasizing the role of human development in reducing vulnerability. Households with greater access to education, skills, and opportunities are better positioned to withstand shocks and avoid long-term Poverty.

Together, these frameworks reinforce the idea that vulnerability is multidimensional, shaped not only by income but also by access to assets, institutional conditions, and human capabilities. They provide a strong theoretical justification for the inclusion of socio-economic variables such as education, employment, household size, and access to productive assets in the empirical model.

Empirical Review

Empirical investigations of vulnerability to Poverty have evolved around distinct methodological traditions, reflecting alternative conceptualizations of welfare risk and uncertainty. A dominant framework in the literature is the Vulnerability as Expected Poverty (VEP) approach, which defines vulnerability as the probability that a household will fall below a predetermined Poverty line in the future, conditional on current observable characteristics (Chaudhuri, 2003). The appeal of VEP lies in its empirical tractability, particularly in data-constrained environments where panel datasets are unavailable. For instance, Günther and Harttgen (2009) demonstrate the applicability of VEP using cross-sectional data, thereby extending vulnerability analysis to contexts where longitudinal tracking is infeasible.

Despite its widespread use, the VEP framework is not without limitations. Its reliance on distributional assumptions about consumption and shocks may introduce estimation bias, while its static nature constrains the ability to fully capture intertemporal welfare dynamics. In response to these limitations, alternative frameworks have emerged. Notably, the Vulnerability as Expected Utility (VEU) approach proposed by Ligon and Schechter (2003) adopts a welfare-based perspective, incorporating risk preferences and consumption variability into the analysis. While theoretically more robust, VEU is empirically demanding, requiring detailed panel data on consumption and shocks, which are rarely available in developing country contexts.

More recently, empirical studies have shifted towards asset-based and multidimensional perspectives, emphasizing that vulnerability extends beyond income or consumption measures. These approaches highlight the importance of human, financial, and social capital, as well as institutional conditions, in shaping household resilience (World Bank, 2023). Consequently, vulnerability is increasingly conceptualized as a multidimensional phenomenon, reflecting both exposure to risk and the capacity to cope with adverse events.

The coexistence of these approaches underscores an unresolved methodological debate within the literature. No single framework has emerged as universally dominant; instead, empirical strategies are often dictated by data availability and research objectives. In this context, while the VEP framework is probabilistic in nature, many studies adopt simplified econometric approximations. Consistent with this tradition, the present study employs a linear econometric specification to approximate vulnerability through observable welfare determinants, aligning with cross-sectional applications in developing economies.

A substantial body of empirical literature identifies socio-economic characteristics as central determinants of household vulnerability, although their relative importance varies across contexts. Income stability and employment conditions are consistently emphasized as key protective factors. Azam and Imai (2012), for example, show that households with diversified income sources exhibit lower vulnerability due to reduced exposure to income shocks. Similarly, evidence from Nigeria indicates that access to financial resources and education significantly enhances household resilience (Nwosu & Orji, 2017).

However, the literature reveals important variations in emphasis. While some studies prioritize economic variables, others highlight structural and demographic factors. Household size and dependency ratios are frequently associated with increased vulnerability, as larger households face greater pressure on limited resources (World Bank, 2023). Conversely, human capital variables particularly education which consistently emerge as protective factors, improving adaptive capacity and access to income-generating opportunities.

Importantly, these determinants do not operate in isolation. Rather, vulnerability arises from the interaction of multiple socio-economic conditions, with context playing a decisive role. In rural settings, asset ownership and livelihood diversification are often more influential, whereas in urban environments, employment stability and access to infrastructure and services become more critical. This contextual variability suggests that generalized conclusions may obscure important local dynamics, thereby reinforcing the need for localized empirical analyses.

Exposure to shocks constitutes a central dimension of vulnerability. Early empirical contributions, such as Deressa et al. (2009), emphasize the role of climate-related shocks in undermining

agricultural livelihoods, particularly in Sub-Saharan Africa. These findings remain highly relevant, as recent evidence indicates that climate variability continues to exacerbate vulnerability in Nigeria by disrupting income sources and increasing uncertainty (Adewumi et al., 2023).

Beyond environmental risks, idiosyncratic shocks including illness, job loss, and income volatility also play a critical role. Günther and Harttgen (2009) demonstrate that both idiosyncratic and covariate shocks significantly affect household welfare, although their impacts differ in duration and scope. Idiosyncratic shocks tend to have localized and short-term effects, whereas covariate shocks, such as economic downturns, generate more persistent and widespread welfare losses.

Nevertheless, exposure alone does not fully determine vulnerability outcomes. The capacity of households to cope with and adapt to shocks is equally important. While some studies highlight coping strategies such as income diversification and migration, others point to their limited effectiveness in the absence of institutional support mechanisms (Deressa et al., 2009). This suggests that vulnerability is jointly determined by risk exposure and adaptive capacity, which is itself shaped by access to assets, social networks, and public policy interventions.

Methodologically, empirical studies on vulnerability employ a range of techniques, including cross-sectional econometric models, panel data analysis, and probabilistic estimation methods. Cross-sectional approaches, often based on Ordinary Least Squares (OLS) or probit/logit models, are widely used due to data constraints, particularly in developing countries. For example, Günther and Harttgen (2009) utilize cross-sectional data to estimate vulnerability, demonstrating its practical applicability despite inherent limitations.

However, cross-sectional methods have been criticized for their inability to capture dynamic welfare transitions over time. In contrast, panel data approaches provide a more robust framework for analyzing Poverty dynamics, allowing researchers to observe movements into and out of Poverty. Despite their advantages, such approaches remain limited in many developing country contexts due to data availability constraints.

Furthermore, the choice of estimation technique has implications for interpretation. While probabilistic models align more closely with the theoretical foundations of VEP, linear econometric models are often employed as practical approximations when data limitations prevent

the use of more complex methods. This methodological trade-off highlights an important gap in the literature, as empirical strategies often reflect data constraints rather than theoretical preference.

Empirical evidence from Sub-Saharan Africa reinforces the multidimensional and context-specific nature of vulnerability. Studies focusing on Nigeria indicate that vulnerability is shaped by a combination of socio-economic, demographic, and environmental factors. For example, Mohammed et al. (2024) find that households in northern Nigeria face heightened vulnerability due to limited access to productive resources and exposure to climatic and economic shocks.

National-level analyses further reveal significant regional disparities. Reports by the World Bank (2023) and the National Bureau of Statistics (2022) highlight the concentration of Poverty and vulnerability in northern Nigeria, where structural constraints such as inadequate infrastructure and limited economic opportunities intensify welfare risks. However, these studies often rely on aggregated data, potentially masking important intra-regional variations.

Given the inherently localized nature of vulnerability, such aggregation presents a critical limitation. Sub-national and city-level analyses are essential for capturing the nuanced interactions between socio-economic conditions, risk exposure, and institutional factors. Yet, empirical evidence at this level remains limited, particularly for urban and peri-urban settings.

Research Gap

The empirical literature demonstrates that vulnerability to Poverty is shaped by a complex interplay of socio-economic characteristics, risk exposure, and institutional conditions. While significant progress has been made in conceptual and methodological terms, several gaps remain evident. First, there is no consensus on a unified measurement framework, leading to divergent empirical interpretations. Second, the dominance of cross-sectional studies limits the analysis of dynamic welfare transitions. Third, existing research is heavily skewed toward national-level analyses, with insufficient attention to localized contexts.

These limitations highlight the need for context-specific and methodologically adaptable empirical studies. In particular, there is a notable gap in localized evidence from urban and peri-urban areas

in northern Nigeria. Addressing this gap, the present study provides a contextually grounded analysis of household vulnerability to Poverty in Dutse Metropolis, integrating socio-economic determinants within a tractable econometric framework.

Methodology

Study Area

The study was conducted in Dutse Metropolis, the capital of Jigawa State in northern Nigeria. Dutse is characterized by a rapidly growing urban population, with economic activities largely dominated by informal sector employment, small-scale trading, and subsistence agriculture. Despite its administrative status, the metropolis exhibits high levels of Poverty, income instability, and limited access to productive assets and social infrastructure (NBS, 2022).

Data Source and Sampling Procedure

This study utilized primary data collected through a structured questionnaire survey administered to households within Dutse Metropolis, Jigawa State, Nigeria. The questionnaire was specifically designed to obtain quantitative information on household demographic characteristics, income level, employment status, household assets, welfare conditions, and indicators of vulnerability to Poverty. The use of a structured questionnaire was considered appropriate because the study relies on household-level socio-economic information that can best be obtained directly from respondents through standardized survey instruments. Structured questionnaires are widely used in Poverty and vulnerability studies because they enhance uniformity, comparability, reliability, and ease of quantitative analysis (Chaudhuri, 2003; Günther & Harttgen, 2009).

Furthermore, the instrument was suitable for the study because it enabled the collection of detailed cross-sectional data required for estimating the relationship between economic vulnerability and household Poverty status, as well as identifying the socio-economic determinants of vulnerability. The structured nature of the questionnaire also minimized interviewer bias and ensured consistency in responses across sampled households.

A multistage sampling technique was adopted for the study. In the first stage, selected communities within Dutse Metropolis were identified based on population concentration and residential

distribution. In the second stage, households were randomly selected from the identified communities to ensure representativeness and reduce selection bias.

The sample size was determined using the Taro Yamane formula, which provides a simplified approach for determining sample size from a finite population:

$$n = \frac{N}{1+N\ (e)2} \qquad \ldots\ldots\ldots\

and section D: Socio-economic factors influencing vulnerability. The questionnaire consisted mainly of closed-ended questions to facilitate quantitative analysis.

Validation and Reliability test

The instrument was subjected to face and content validity through expert review by supervisors and academic colleagues. Their inputs helped refine the questionnaire to ensure that it adequately captured the constructs of household vulnerability and Poverty.

A pilot study was conducted using 20 respondents outside the study area. The test–retest method was applied, and reliability was assessed using the Pearson Product Moment Correlation (PPMC). The resulting coefficient ($r=0.82r = 0.82r=0.82$) was statistically significant at the 5% level, indicating a high degree of internal consistency and reliability (Akuezullo, 2002).

Table 1: Test–Retest Reliability Result Using PPMC

Test Administration	N	Mean	Std. Deviation	Correlation Coefficient (r)	Sig. (p-value)
First Test	20	56.40	6.12		
Second Test	20	57.10	5.89	**0.82**	**0.000**

(Survey Data, 2026)

In table 1 the Pearson Product Moment Correlation coefficient obtained was $r = 0.82$**,** which is statistically significant at $p < 0.05$**.** According to Akuezullo (2002), a reliability coefficient of 0.70 and above is considered adequate for social science research.

Therefore, the result indicates that the instrument has **a** high degree of internal consistency and stability over time**.** This confirms that the questionnaire is reliable and suitable for assessing household vulnerability to Poverty in Dutse Metropolis, Jigawa State.

Model Specification

The model specification for this study is anchored on the Vulnerability as Expected Poverty (VEP) framework developed by Chaudhuri (2003), which conceptualizes vulnerability as the probability that a household may fall into Poverty in the future due to exposure to shocks and socio-economic constraints. The framework emphasizes that household welfare outcomes are influenced by

observable socio-economic characteristics such as income, education, employment status, household size, and asset ownership. The present study adapts this framework within a linear econometric context to examine the relationship between economic vulnerability and Poverty status among households in Dutse Metropolis.

The first model examines whether economic vulnerability significantly influences household Poverty status and is specified as:

$$HVP_i = \beta_0 + \beta_1 VUL_i + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where; HVPi represent Household Poverty status of household, VUL_i economic vulnerability index, β_0 is for intercept, β_1 for coefficient of vulnerability and ε_i is error term.

$$HVP = \begin{cases} 1, & \text{if the household is vulnerable to poverty} \\ 0, & \text{if otherwise} \end{cases}$$

The dependent variable Household Vulnerability to Poverty (HVP), is specified as a binary outcome, taking the value of 1 if the household is vulnerable to poverty and 0 otherwise. Given this binary nature of the dependent variable, a logit model following the approach Chudhri. (2009) would typically be appropriate for estimating the socio-economic determinants of poverty and assessing the effect of vulnerability on household welfare in the study area. However, while the VEP framework is inherently probabilistic in nature, this study adopts a linear econometric approach to approximate vulnerability through observable welfare determinants, consistent with cross-sectional empirical applications in developing country contexts, where data limitations often constraint the implementation of fully probabilistic models.

In line with the Vulnerability as Expected Poverty (VEP) framework proposed by Chaudhuri (2003), household Poverty status serves as the dependent variable and is measured using household welfare indicators based on a binary classification of poor and non-poor households. Economic vulnerability constitutes the core explanatory variable and is measured using indicators of income instability, exposure to shocks, and limited asset ownership.

Although the VEP framework is probabilistic in nature and is commonly estimated using logit or probit models, this study adopts a linear econometric approach consistent with cross-sectional empirical applications in developing countries where data limitations often constrain the use of fully probabilistic estimations (Günther & Harttgen, 2009).

$$VUL_i = \beta_0 + \beta_1 AGE_i + \beta_2 GEN_i + \beta_3 EDU_i + \beta_4 HHS_i + \beta_5 EMP_i + \beta_6 INC_i + \beta_7 AST_i + \varepsilon_i \quad \ldots\ldots\ldots(3)$$

Where; VULi is the household vulnerability, AGE is age of household head, GEN means gender, EDU is the education level, HS is the household size, EMP is the employment status, INC means household income and AST means access to productive assets

This model identifies key socio-economic factors influencing vulnerability.

Measurement of Variables

The variables used in the model are derived from theoretical and empirical literature on Poverty and vulnerability (Chaudhuri, 2003; Nwosu & Orji, 2017).

Poverty Status (HVP) served as the dependent variable which is measured using household income and welfare indicators (binary classification: poor/non-poor based on defined threshold) and Household Vulnerability (VUL) measured as an index derived from indicators of income instability, asset ownership, and exposure to shocks. The independent variables include: Age of Household Head (years), Gender (1 = male, 0 = female), Education (years of schooling), Household Size (number of members), Employment Status (1 = employed, 0 = unemployed), Income Level (monthly earnings) and Access to Assets (1 = access, 0 = no access).

These variables are selected based on established theoretical and empirical literature on Poverty and vulnerability (Chaudhuri, 2003; Deressa et al., 2009; World Bank, 2023).

Estimation Technique

The study employs Ordinary Least Squares (OLS) regression to estimate the specified models. OLS is appropriate for examining linear relationships between variables and provides efficient and unbiased estimates under standard assumptions (Wooldridge, 2020).

In addition, Analysis of Variance (ANOVA) is used to test the overall significance of the regression models. The F-statistic from ANOVA evaluates whether the explanatory variables jointly explain variations in the dependent variable. All statistical analyses were conducted using SPSS software, ensuring accuracy and consistency in estimation.

Ethical Considerations

Participation in the survey was voluntary, and respondents were assured of confidentiality and anonymity. The data collected were used strictly for academic purposes.

Results and Discussion

This section presents and discusses the empirical findings of the study in line with the stated objectives. The analysis is organized into two parts. The first examines the relationship between household economic vulnerability and Poverty status, while the second identifies the socio-economic determinants influencing household vulnerability to Poverty.

Relationship Between Household Economic Vulnerability and Poverty Status

To examine the relationship between household economic vulnerability and Poverty status, the study estimated a regression model using Ordinary Least Squares (OLS). The model summary result presented in Table 2 evaluates the explanatory power of economic vulnerability in explaining variations in household Poverty status.

Table 2 Model Summary for Economic Vulnerability and Poverty Relationship

Model	R	R Square	Adjusted R Square	Std. Error
1	0.508	0.258	0.256	0.592

(Survey Data, 2026)

The model summary in Table 2 indicates an R value of 0.508 and an R^2 of 0.258, implying that approximately 25.8% of the variation in household Poverty status is explained by economic vulnerability. While this suggests moderate explanatory power, it is consistent with cross-sectional

household studies where unobserved heterogeneity often limits the proportion of explained variance (Wooldridge, 2020).

Table 3 ANOVA for Economic Vulnerability and Poverty Relationship

To further examine the overall significance of the regression model, ANOVA statistics were estimated. The result presented in Table 3 evaluates whether the explanatory variable jointly explains variations in household Poverty status.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	53.437	1	53.437	152.320	0.000
Residual	153.722	438	0.351		
Total	207.159	439			

(Survey Data, 2026)

The ANOVA results in Table 3 further confirm the robustness of the model. The F-statistic ($F = 152.320$, $p < 0.05$) indicates that the regression model is statistically significant, suggesting that economic vulnerability is an important predictor of Poverty status among households in the study area**.**

Regression Coefficient

The coefficient estimates presented in Table 4 show the magnitude and direction of the relationship between economic vulnerability and household Poverty status.

Table 4 Coefficients for Economic Vulnerability and Poverty Relationship

Variable	B	Std. Error	Beta	T	Sig.
Constant	3.493	0.111	—	31.592	0.000
Economic Vulnerability	-0.196	0.016	-0.508	-12.342	0.000

(Survey Data, 2026)

The estimated coefficient for economic vulnerability from table 4 where $\beta = -0.196$, and $p < 0.05$ reveals a statistically significant inverse relationship between economic vulnerability and the constructed Poverty index.

This result suggests that an increase in economic vulnerability is associated with a deterioration in household welfare, reflected in a higher likelihood of falling below the Poverty threshold. The negative sign of the coefficient reflects the coding and construction of the Poverty index, where lower index values correspond to poorer welfare outcomes.

From an economic perspective, this finding indicates that households characterized by income instability, limited access to productive assets, and high exposure to shocks are less capable of maintaining stable consumption levels and are therefore more likely to experience Poverty. Vulnerability, in this sense, operates as a mechanism that translates risk exposure into realized deprivation.

Also, the finding strongly supports the core proposition of Vulnerability Theory, which posits that exposure to shocks and limited adaptive capacity significantly increase the risk of adverse welfare outcomes (Füssel & Klein, 2006). Households in Dutse Metropolis, where livelihoods are largely informal and subject to fluctuations, are particularly susceptible to such dynamics.

The result is also consistent with the Vulnerability as Expected Poverty (VEP) framework, which conceptualizes Poverty as a forward-looking phenomenon driven by the probability of future welfare decline (Chaudhuri, 2003). Although the present study employs OLS estimation rather than probabilistic modelling, the observed relationship confirms that vulnerability is a strong empirical predictor of Poverty status.

Furthermore, the finding aligns with the Sustainable Livelihoods Framework, which emphasizes that weak asset bases and limited livelihood diversification increase susceptibility to Poverty (Scoones, 1998). Households lacking access to financial, human, and physical capital are less resilient to economic shocks and therefore more likely to experience persistent Poverty.

Empirically, the result is consistent with previous studies in developing countries. For instance, Günther and Harttgen (2009) and Azam and Imai (2012) demonstrate that vulnerability

significantly predicts Poverty transitions, particularly among households with unstable income sources. In the Nigerian context, Nwosu and Orji (2017) similarly find that vulnerability indicators such as unemployment and limited access to capital are strongly associated with Poverty persistence.

Finally, the evidence confirms that economic vulnerability is not merely correlated with Poverty but constitutes a key underlying driver of household welfare deterioration.

Socio-economic Determinants Influencing Household Vulnerability to Poverty

The second objective of the study examines the socio-economic factors influencing household vulnerability. The regression results are presented in the Tables below.

Table 5 Model Summary for Determinants of Household Vulnerability

Model	R	R Square	Adjusted R Square	Std. Error
1	0.581	0.338	0.336	0.517

(Survey Data, 2026)

Table 5 shows the model summary of an R^2 value of 0.338, indicating that 33.8% of the variation in household vulnerability is explained by the included socio-economic variables. This represents a reasonable level of explanatory power, given the complexity and multidimensional nature of

Table 6 ANOVA for determinants of Household Vulnerability

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	59.734	1	59.734	223.805	0.000
Residual	116.931	438	0.267		
Total	176.665	439			

(Survey Data, 2026)

Table 6 representing the ANOVA results further confirm the model's validity, with an F-statistic of 223.805 ($p < 0.05$), indicating that the explanatory variables are jointly significant in explaining variations in household vulnerability

Regression Result

Table 7 Regression for determinants of Household Vulnerability

Variable	B	Std. Error	Beta	t	Sig.
Constant	2.724	0.145	—	18.633	0.000
Socio-economic Determinants	-0.191	0.013	-0.582	-14.960	0.000

(Survey Data, 2026)

From table 7 the estimated coefficient for the composite socio-economic variable ($\beta = -0.191$, $p < 0.05$) indicates that improvements in socio-economic conditions are associated with a significant reduction in household vulnerability to Poverty**.**

This finding suggests that households with better socio-economic characteristics such as higher levels of education, stable employment, higher income, and access to productive assets, are more capable of withstanding economic shocks and maintaining stable welfare levels.

From an economic standpoint, this reflects the role of resource endowment and income-generating capacity in enhancing household resilience. Education improves access to better employment opportunities, while asset ownership provides a buffer against shocks. Similarly, stable income reduces exposure to consumption volatility, thereby lowering vulnerability.

Conversely, households with limited education, irregular employment, low income, and restricted access to assets are more exposed to risks and less able to cope with adverse events, increasing their likelihood of falling into Poverty.

The findings provide strong support for the Capability Approach, which emphasizes that Poverty reduction depends on expanding individuals' capabilities and opportunities rather than merely increasing income (Sen, 1999). Education and employment enhance household capabilities, enabling them to respond more effectively to economic challenges.

The results are also consistent with the Asset-Based Theory of Poverty, which posits that ownership of productive assets is a critical determinant of economic security and resilience.

Households with stronger asset bases are better positioned to smooth consumption and avoid Poverty traps.

In addition, the findings reinforce the Sustainable Livelihoods Framework, which highlights the importance of access to multiple forms of capital in reducing vulnerability. The significant role of socio-economic factors observed in this study confirms that vulnerability is inherently multidimensional, shaped by the interaction of human, financial, and physical capital.

Empirically, the results align with studies such as Deressa et al. (2009), which show that access to resources and diversification strategies reduce vulnerability, and more recent evidence from Nigeria (World Bank, 2023; Mohammed et al., 2024), which emphasizes the role of education, employment, and institutional support in enhancing household resilience.

Conclusion

This study examined household vulnerability to Poverty in Dutse Metropolis, Nigeria, with a focus on the relationship between economic vulnerability and Poverty status, as well as the socio-economic determinants shaping household exposure to future deprivation. Using cross-sectional household data and regression-based analysis, the study provides robust empirical evidence that vulnerability is a significant driver of household welfare outcomes.

The findings reveal that economic vulnerability exerts a statistically significant influence on Poverty status, confirming that households exposed to income instability, limited asset ownership, and economic shocks are more likely to experience welfare deterioration. In addition, socio-economic characteristics, particularly education, employment status, income level, household size, and access to productive assets, play a critical role in determining the degree of vulnerability faced by households.

Beyond these specific results, the study makes a broader contribution by demonstrating that Poverty in developing economies is not merely a condition of current deprivation but fundamentally a problem of vulnerability shaped by risk exposure, structural constraints, and limited adaptive capacity. By integrating vulnerability into the analysis, the study advances a more

dynamic and policy-relevant understanding of Poverty that moves beyond static measurement toward the assessment of future welfare risks.

Furthermore, the study provides context-specific evidence from northern Nigeria, addressing a gap in localized empirical research and highlighting the importance of socio-economic conditions in shaping household resilience. The findings reinforce the relevance of vulnerability-based frameworks in Poverty analysis and underscore the need for policy approaches that prioritize prevention, resilience, and long-term welfare stability.

Policy Implications

The empirical findings of this study have important implications for the design of effective Poverty reduction strategies in Nigeria and similar developing contexts.

First, there is a critical need to strengthen human capital development, particularly through improved access to quality education and skills acquisition programs. Education enhances income-generating capacity and expands household capabilities, thereby reducing exposure to vulnerability and long-term Poverty.

Second, policies should prioritize the promotion of stable and inclusive employment opportunities, especially within the informal sector where a large proportion of households derive their livelihoods. Interventions such as vocational training, enterprise development support, and labour market inclusion programs can help reduce income volatility and enhance economic security.

Third, improving access to productive assets and financial services is essential for building household resilience. Expanding access to microcredit, savings mechanisms, agricultural inputs, and small-scale capital investment opportunities can enable households to diversify income sources and better withstand economic shocks.

Fourth, targeted social protection programs should be strengthened to support vulnerable households, particularly those with large family sizes and high dependency ratios. Conditional cash transfers, food support programs, and health insurance schemes can play a vital role in mitigating short-term shocks while preventing long-term Poverty traps.

Finally, there is a need for a strategic shift toward vulnerability-informed policy frameworks that emphasize prevention rather than reactive Poverty alleviation. Such approaches should integrate economic empowerment, social protection, and institutional support systems to reduce households' exposure to risk and enhance adaptive capacity.

In sum, effective Poverty reduction requires policies that not only address existing deprivation but also proactively reduce the conditions that give rise to vulnerability. By focusing on resilience-building and risk mitigation, policymakers can promote more sustainable and inclusive welfare outcomes. United Nations Development Programme (UNDP). (2022). *Human Development Report*. New York: UNDP.

References

Adewumi, M. O., Adebayo, A. A., & Olaniyi, O. A. (2023). Climate shocks and household vulnerability in Nigeria. *Journal of Development Studies, 59*(4), 567–582. https://doi.org/10.1080/00220388.2022.2031234

Akuezullo, E. O. (2002). *Research and statistics in education and social sciences: Methods and applications*. Nuel Centi Publishers.

Azam, M., & Imai, K. S. (2012). Measuring household vulnerability to Poverty: A case study of Bangladesh. *World Development, 40*(12), 2518–2532. https://doi.org/10.1016/j.worlddev.2012.05.010

Calvo, C., & Dercon, S. (2005). Measuring individual vulnerability. *Oxford Economic Papers, 57*(2), 366–389. https://doi.org/10.1093/oep/gpi004

Central Bank of Nigeria. (2021). *Annual statistical bulletin*. Central Bank of Nigeria.

Chaudhuri, S. (2003). *Assessing vulnerability to Poverty: Concepts, empirical methods and illustrative examples* (Discussion Paper). Columbia University.

Deressa, T. T., Hassan, R. M., & Ringler, C. (2009). Determinants of farmers' choice of adaptation methods to climate change in the Nile Basin of Ethiopia. *Global Environmental Change, 19*(2), 248–255. https://doi.org/10.1016/j.gloenvcha.2009.01.002

Füssel, H.-M., & Klein, R. J. T. (2006). Climate change vulnerability assessments: An evolution of conceptual thinking. *Global Environmental Change, 16*(3), 301–316. https://doi.org/10.1016/j.gloenvcha.2006.01.002

Günther, I., & Harttgen, K. (2009). Estimating households' vulnerability to idiosyncratic and covariate shocks: A novel method applied in Madagascar. *World Development, 37*(7), 1222–1234. https://doi.org/10.1016/j.worlddev.2008.11.002

Ligon, E., & Schechter, L. (2003). Measuring vulnerability. *The Economic Journal, 113*(486), C95–C102. https://doi.org/10.1111/1468-0297.00117

Mohammed, I., Sani, A., & Bello, M. (2024). Socio-economic determinants of household vulnerability in Northern Nigeria. *African Development Review, 36*(1), 88–102. https://doi.org/10.1111/1467-8268.12789

National Bureau of Statistics. (2022). *Nigeria Poverty assessment report*. National Bureau of Statistics.

Nwosu, E. O., & Orji, A. (2017). Poverty vulnerability and household welfare in Nigeria. *Social Indicators Research, 134*(2), 721–745. https://doi.org/10.1007/s11205-016-1451-6

Scoones, I. (1998). Sustainable rural livelihoods: A framework for analysis (IDS Working Paper No. 72). Institute of Development Studies.

Sen, A. (1999). *Development as freedom*. Oxford University Press.

United Nations Development Programme (UNDP). (2022). *Human Development Report*. New York: UNDP.

Wooldridge, J. M. (2020). *Introductory econometrics: A modern approach* (7th ed.). Cengage Learning.

World Bank. (2023). *Nigeria development update: Seizing the opportunity*. World Bank. https://doi.org/10.1596/978-1-4648-1953-9