

# REVISITING THE SOCIOECONOMIC DIMENSIONS OF POVERTY IN NEPAL: A LOGISTIC REGRESSION ANALYSIS



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## ABSTRACT

Poverty, a multifaceted concept influenced by several socioeconomic factors, is not only an outcome of individual destiny but also socioeconomically created by severe deprivation of basic needs. Individuals could escape poverty and enhance the quality of life through the government's ample policy interventions. This study examines socioeconomic determinants of poverty in Nepal from multidimensional perspectives. Using household survey data—9600 households—from Nepal Living Standards Survey IV 2022/23, this study applied binary logistic regression analysis. Considering approximately 18% of poor and 82% of nonpoor households, the results revealed the poverty status of households could not be significantly influenced by demographic factors, such as age, gender, and marital status. Rather, poverty status might be influenced by family size, residential status, remittance, nonfarm or side business, agricultural landholdings and livestock, access to electricity, better health and road infrastructure, dwelling status, and preference for cooking fuel. Thus, it is observed that the households may fall into poverty due to higher family dependency, urban residency, agro-landholdings and livestock, firewood as cooking food, availability of the dwelling, and larger family size with the remittance—and that they would walk away from poverty thanks to remittance, family business, electricity, adequate road, and health facilities. This study's findings suggest that nonfarm businesses, less agricultural dependence strategies and programs, and the promotion of physical and social overheads are crucial for achieving Nepal's sustainable development goals by reducing multidimensional poverty.

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## INTRODUCTION

Policymakers, academicians, and scholars have invested considerable effort in measuring and examining poverty. Nonetheless, there still exists debate around the issue of measuring and taking into account the various dimensions of poverty for socioeconomic transformation to increase human well-being and welfare (Bourguignon & Chakravarty, 2003; King et al., 2014; Klasen, 2008; Sumner, 2007). The general measure of poverty is mainly based on consumption or income, depriving one of well-being (World Bank, 2001). The modern literature recognizes poverty as a multidimensional phenomenon that interacts and reinforces each other, and its measurement accounts for diverse characteristics adversely affecting human life (Chambers, 2007; Hulme et al., 2001; Olsson et al., 2014).

The early literature measured poverty regarding income or consumption expenditure (Sen, 1976; Townsend, 1954, 1971, 1979). Similarly, the conventional measure of poverty based on income or consumption, such as a dollar-a-day and headcount ratio by the World Bank, is still prominent worldwide (Ravallion et al., 2009). Amartya Sen conceptualizes poverty not just as an insufficiency of income; it is the deprivation of fundamental human capabilities (Sen, 1992). Since 1976, poverty has been recognized as a multidimensional phenomenon (Foster et al., 1984; Townsend, 1979), such as lack of opportunities to change the situation, health and education, access to credit and productive resources, justice, and low voice in institutions (Sen, 1976). Further, poverty also contributes to unemployment, fear for the future, minimal representation in the community, lack of shelter, and illness due to unclean water (United Nations, 2009). Hence,

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understanding the various socioeconomic dimensions of poverty and its nature is indispensable to formulating appropriate policies, one of the significant challenges for developing countries (Epo, 2010). Recent studies (Hassan et al., 2024; Mdluli & Dunga, 2022) found that several socioeconomic factors—including income, household size, and social and demographic attributes of the household (age, gender, marital status, population groups, etc.)—significantly influenced poverty. Considering seven dimensions of multidimensional poverty, an empirical study found that education, employment, gender, income, and age were treated as crucial factors of poverty (Chan & Wong, 2024). Moreover, some recent empirical findings also revealed that socioeconomic factors—such as location, residential status, demographic attributes, crop farming, income activities, and livestock—determined multidimensional poverty (Haque et al., 2024; Huluka, 2024). These findings provide crucial insights into the importance of socioeconomic dimensions of poverty.

Similarly, two key international standards have been established for measuring poverty: The first is the World Bank's income-based poverty line set at \$1.25 till 2008 and currently at \$2.15 per day (PPP) (World Bank, 2022), and the second is the multidimensional poverty index (MPI), introduced by the United Nations Development Program and Oxford Poverty and Human Development Initiative (OPHI) (World Bank, 2024). The multidimensional poverty measures have been introduced to focus on human well-being through a broader lens (Delamónica et al., 2021). However, despite significant progress in addressing various aspects of poverty—and advancing efforts to eliminate extreme poverty—its persistence remains a critical issue in the least-developed countries (United Nations, 2022). The initial multidimensional study of poverty can be traced back to Townsend (1979). In 2010, the global-level MPI utilized various indicators to assess poverty beyond traditional income-based measures (World Bank, 2024).

Nepal, one of the least developed countries (LDC), is now graduating to a developing country status by 2026 (United Nations Development Programme [UNDP], 2024). Achieving this goal requires substantially reducing both absolute and multidimensional forms of poverty. Nepal still ranks 41st among the poorest countries globally (Ventura, 2024), and as of 2022, 20.3% of the people live below the national poverty line (Asian Development Bank, 2024). Likewise, as per HDR (2023/2024), Nepal is ranked 146 among 193 nations in the Human Development Index (HDI) for the year 2022 (UNDP, 2024). In addition, the GDP per capita of Nepal (\$1348) is far below the average GDP of advanced economies (\$59000) (International Monetary Fund, 2024). Thus, a national-level figure often blurs the within-country inequality in poverty (Uematsu et al., 2016), leading us to understand determinants that act as primary instruments in alleviating poverty and progressing toward socioeconomic transformation in Nepal.

Over the past several decades, poverty alleviation has been one of the primary goals of the Nepalese government, including the aim to spur socioeconomic transformation. Nepal has completed fifteen development plans, and sixteen are underway. Moreover, the programs and policies—like the Integrated Rural Development Program (IRDP) in the 1970s, land reform policy, and rural credit policy—have already been implemented (Gewali, 1994); similarly, following the United Nations' Millennium Development Goals (MDGs), Nepal was able to reduce poverty from 42% to 21.6% (National Planning Commission, 2016) and it is also graduating to a developing country status by 2026 (National Planning Commission, 2024b)—inferring that Nepal has made remarkable progress in reducing income-related poverty. Thus, it is essential to establish a clear definition of poverty that facilitates meaningful comparisons and integrates the concept of multidimensional poverty into the policy development measure (Bray et al., 2020). Therefore, this study attempts to answer the following questions: Which socioeconomic dimensions should a country consider for the effectiveness of a poverty alleviation policy? What variables are to be considered in the country-specific MPI system? What are the underlying causes of multidimensional poverty?

This paper aims to explore these questions in the context of Nepal. This paper employed binary logistic analysis. The strength of this model lies in capturing a comprehensive picture of poverty by estimating the likelihood of a household being categorized as poor or nonpoor when several indicators—such as income, healthcare, residence, and household size—are employed. This paper thus attempts to highlight those socioeconomic dimensions that have a tremendous impact on devising and alleviating poverty in Nepal. Using the logit regression model, we analyze the data obtained from Nepal Living Standards Survey IV: 2022/23 (NLSS-IV), a survey representing all provinces of Nepal, which contains information on sixteen socioeconomic variables. This study is relevant to poverty reduction in Nepal through a socioeconomic lens. Because public welfare is vital to address in Nepal for graduating to a developing nation, this paper offers some insight into poverty status, its determinants, and policy gridlock to address it. Along with the introduction, this study is organized as follows: a literature review, methods and materials, results and discussion, and conclusion, respectively.

## LITERATURE REVIEW

Theoretically, there are several perspectives on poverty. The behavioral, structural, and political theories observe poverty from multiple perspectives. Structure theories view poverty as demographic and labor market factors; political theories emphasize institutional aspects; and behavioral theories focus on individual behavioral factors (Brady, 2019). Moreover, poverty is a multidimensional concept, referring to lack of income that fails to meet basic needs, material lack, capability deprivation, illbeing (material poverty, physical illness, powerlessness, insecurity, and bad social relations), and multiplicity of deprivation (Chambers, 2006). Poverty can be explored as the deprivation of capability (Sen, 1999). Historically, poverty emerged as an economic consequence, but now it is multidimensional, covering several aspects of deterioration of quality of life. Thus, multidimensional measures—monetary factors, education, and infrastructure services—have been considered for poverty estimation in recent times (World Bank, 2024). Relative poverty is not eliminated or isolated as compared with human capabilities. Socioeconomic context, therefore, determines how poverty affects the individual's livelihood. Employing a multivariate logit model with socioeconomic characteristics of Somalian households, Abdi Ali et al. (2024) found that remittance, energy access, household size and dependency, house and agricultural land ownership, and the household's gender and age were the crucial determinants of poverty. Poverty can be reduced through channeling

remittances, utilizing modern energy, providing better opportunities for arable land and housing, and addressing gender issues. Similarly, Sahoo et al. (2024) explored that income inequality, educational arrangement, size of household, infant mortality, and income significantly influenced poverty in India. These studies explore the several socioeconomic determinants of multidimensional poverty. Although substantial progress has been made in understanding the factors leading to multifaceted poverty, a debate remains in the literature around the importance of commonly studied variables while assessing poverty (Balasubramanian et al., 2023).

In South Asia, several authors have studied the multidimensional poverty index to capture significant poverty variables (Alkire et al., 2019; Curtain, 2004; Deutsch et al., 2020; Li et al., 2022; Rigg, 2018). Likewise, some studies have been conducted in Nepal regarding the measurement and determinants of poverty with multiple variables. Chhetry (2002) found that over 95% of the income-and-education-deprived population resides in rural areas. Bhatta and Sharma (2006) centered on asset accumulation and human capital and found transient and chronic poverty in Nepalese households. Wagle (2008) examined multiple dimensions of poverty in Kathmandu and concluded that the human capability dimension is the most important determinant of poverty. Pokharel (2015) recommended empowering disadvantaged people and improving their financial assets, including health, education, and employment. Goli et al. (2019) found economic progress and relative reduction in education and health poverty in Nepal; however, wealth poverty and inequality existed across the regions. Similarly, several other authors have studied poverty in a single variable context. Joshi et al. (2010) examined the relationship between poverty and food insecurity and recommended food security for the targeted population to reduce poverty in Nepal. Thapa (2013) examined the relationship between education and poverty and found a proportional relationship between these variables. Lokshin et al. (2004) found that poverty reduction is attributed to remittances and work-related migration.

Many studies explore various socioeconomic variables that influence poverty in different contexts. Generally, significant sources of poverty involve demographic and household status, sociocultural factors, monetary factors, agricultural farming and livestock, and facilities and service availability. Agyeman-Boaten (2024) explored that healthcare, infant mortality, children's schooling, farm inputs, education and age of household head, marital status of household head, migration, external labor, family size, credit availability, cooperative membership, occupational diversity, and irrigation were significant determinants of poverty. Faharuddin and Endrawati (2022) found that household, individual, and employment-related variables significantly influenced poverty. Furthermore, Özpınar and Akdede (2022) identified that respondents' demographics (age, gender, marital status), income, class, destiny, education, and political belief were the major determinants of poverty.

In summary, poverty, many studies reveal, is determined by many socioeconomic variables. Many demographic variables (age, gender, marital status, household size, and dependency ratio), income, remittance, agricultural land, irrigation, energy, basic facilities, and financial services are crucial to determining poverty in this changing context. The debate of multidimensional poverty, rather than absolute poverty, concludes that poverty is social and multifactorial rather than merely economic. This study, thus, investigates the socioeconomic determinants of poverty in Nepal: following recent literature (Abdiwahab et al., 2024; De Silva, 2008; Olarinde et al., 2020; Rahman, 2009; Saleem et al., 2023; Shah & Debnath, 2022; Wang et al., 2021), which explores socioeconomic dimensions of poverty, this study presumes the following hypothesis.

**H<sub>1</sub>:** *Socioeconomic factors influence the poverty status of households significantly.*

## MATERIALS AND METHODS

### Study Area and Data Sources

Nepal has experienced severe poverty—a crucial socioeconomic stigma—and still has 20.3% of people under the national poverty line (National Planning Commission, 2024a). Having a poor state—and a moderate level of an average of 2010 to 2022 Gini coefficient (32.8), multidimensional poverty index based on the 2017 survey (0.074) (UNDP, 2024), human development index of 2022 (0.601), and unemployment rate of 2022/23 (12.6) (National Statistics Office [NSO], 2024)—Nepal's policymakers always aim to alleviate poverty for achieving economic prosperity.

Table 1. Variable Description

Variables	Description	Values and coding/recoding
Poor	Poverty status of household	1 = poor, 0 = non-poor
Gender	Gender of household head	1 = male, 0 = female
Marital status	Present marital status of household head	1 = married, 0 = single
Age	Age of the household head	continuous variable
Household size	Household size (family members)	continuous variable
Urban	Residential area	1 = municipality, 0 = rural municipality
Remittance	Money sent by family members	1 = yes, 0 = no
Family business	Family non-agricultural business	1 = yes, 0 = no
Agricultural land	Ownership of agricultural land	1 = yes, 0 = no
Livestock	Ownership of livestock	1 = yes, 0 = no
Electricity access	Electricity meters of household	1 = yes, 0 = no
Dwelling status	Dwelling ownership of household	1 = yes, 0 = no
Cooking fuel	Types of fuel used by households	1 = firewood, 0 = otherwise
Health care	Perception of healthcare facilities	1 = adequate, 0 = not adequate
Children education	Perception of children's schooling	1 = adequate, 0 = not adequate
Road facility	Perception of road facility	1 = satisfied, 0 = otherwise (not satisfied)

Employing binary logistic regression, this paper has revisited the socioeconomic dimensions of poverty in Nepal. The data were obtained from Nepal Living Standards Survey IV: 2022/23 (NLSS-IV), which was nationally surveyed from July 2022 to July 2023. This survey collected data from 9,600 nationally and provincially representative households on various aspects of welfare—such as consumption, housing, access to facilities, education, health, labor, agriculture, income, migration, wage and employment, household loans, remittance, adequacy of government and private facilities, and security—to inform the government of poverty reduction programs and Sustainable Development Goals (SDGs) in Nepal (NSO, 2024). This study used survey data and examined the socioeconomic dynamics of poverty in Nepal. The data were collected through a reliable, comprehensive, and representative survey, covering a wide range of household living standard dimensions, conducted nationally by the government institution NSO. The data were used after institutional permission, and thus, the results of this study would be valid, with greater generalizability. Following the previous studies (Ambaye et al., 2021; Islam et al., 2018).

### Model Specification

This study aims to review the socioeconomic dimensions of poverty in Nepal. To meet the objective, this study used descriptive and inferential studies. The descriptive analysis covered the respondents' profiles and attributes, and logistic regression was estimated based on the variable descriptions in Table 1. The logit model used the cumulative logistic function to avoid the unbounded prediction problem found in the linear probability model for equations with binary dummy dependent variables (Gujarati, 2015; Studenmund, 2021).

$$P_i = \frac{1}{1 + e^{-Z_i}} = \frac{1}{1 + e^{-(\beta X + u_i)}}$$

Where  $P_i$  = true probability that the dummy  $D_i = 1$ , and the likelihood of  $D_i = 0$ —no chance of occurrence of the event—given by,  $1 - P_i = \frac{1}{1 + e^{Z_i}}$ . Further, the linear transformation is the ratio of true probability to no chance. It takes a log as the odds ratio to determine the parameters ( $\beta$ s) of the explanatory variables (Xs).

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i} \Rightarrow \ln\left(\frac{P_i}{1 - P_i}\right) = Z_i = \beta X + u_i$$

Thus, the estimated model of this paper can be specified as follows:

$$\ln\left(\frac{P_{\text{poor}_i}}{1 - P_{\text{nonpoor}_i}}\right) = \beta_0 + \beta_1 \text{Residence}_i + \beta_2 \text{Family business}_i + \beta_3 \text{Agricultural land}_i + \beta_4 \text{Livestock}_i + \beta_5 \text{Electricity access}_i +$$

$$\beta_6 \text{Cooking fuel}_i + \beta_7 \text{Gnder}_i + \beta_8 \text{Health care}_i + \beta_9 \text{Children education}_i + \beta_{10} \text{Road facility}_i + \beta_{11} \text{Marital status}_i + \beta_{12} \text{Dwelling status}_i + \beta_{13} \text{Age}_i + \beta_{14} \text{Household size}_i + \beta_{15} \text{Household size} * \text{Remittance}_i + \epsilon_i$$

## RESULTS AND DISCUSSIONS

### Socioeconomic Attributes and Their Association with Poverty Status

With this study based on large-scale survey data by the government of Nepal, Table 2 describes socioeconomic dimensions and their association with poverty status in Nepal. According to Table 2, nonpoor households residing in the municipality (7857) exceeded poor ones (1743), and they were highly significantly associated with their poverty status ( $\chi^2 = 31.29$ ,  $p < 0.01$ ). However, remittance-recipient households were more than half of the households in both poor and nonpoor categories, and they were no significant association between remittance and the poverty status of the household. Table 2 also reveals only a few members of the households engaged in the family business other than agriculture (nonpoor = 22.51%, poor = 16.29%) and also offered an insight into the significant relationship between the family business and poverty status ( $\chi^2 = 32.84$ ,  $p < 0.01$ ). The data also showed that most of the households had their agricultural land and livestock; therefore, they were significantly associated with household poverty status at 1% level of significance.

Table 2 further infers that most households enjoyed their electricity meter facility, but most depended on firewood as cooking fuel. Moreover, both electricity access and cooking fuel were statistically significant, with the poverty status of households being at a 1% level of significance. Furthermore, the data also showed no significant association between female-dominated gender and the poverty status of households. In addition, Table 2 shows that a majority of households perceived adequate health care, children's education, and adequate road facilities as associated with the household's poverty status; this finding was statistically significant at a 1% level. However, the marital status associated with the household's poverty status was statistically nonsignificant, and the results also reported having the married-household domination in the present marital status. The data also noted that the dwelling status and poverty status of households were statistically associated ( $\chi^2 = 71.48$ ,  $p < 0.01$ ), and most of them owned dwelling facilities. As Table 2 showed, the age and household size were numerical variables, and the mean age of the household was 45.43 years, approximately an average of 4 members in the family.

Table 2. Socioeconomic Attributes &amp; Their Associations

Variables	Poverty Status		Association: $\chi^2$ (p-value)
	Non-poor (%) [N = 7857]	Poor (%) [N = 1,743]	
<b>Residence</b>			31.2917 (0.000)
Rural municipality	3225 (41.05%)	843 (48.36%)	
Municipality	4632 (58.59%)	900 (51.64%)	
<b>Remittance</b>			1.2485 (0.264)
No	3666 (46.66%)	839 (48.14%)	
Yes	4191 (53.34%)	904 (51.86%)	
<b>Family business</b>			32.8406 (0.000)
No	6088 (77.49%)	1459 (83.17%)	
Yes	1769 (22.51%)	284 (16.29%)	
<b>Agricultural land</b>			64.6917 (0.000)
No	2478 (31.54%)	380 (21.80%)	
Yes	5379 (68.46%)	1363 (78.20%)	
<b>Livestock</b>			113.4830 (0.000)
No	2827 (35.98%)	395 (22.66%)	
Yes	5030 (64.02%)	1348 (77.34%)	
<b>Electricity access</b>			209.1148 (0.000)
No	950 (12.09%)	446 (25.59%)	
Yes	6907 (87.91%)	1297 (74.41%)	
<b>Cooking fuel</b>			297.6930 (0.000)
Otherwise	3745 (47.66%)	436 (25.01%)	
Firewood	4112 (52.34%)	1307 (74.99%)	
<b>Gender</b>			0.4633 (0.496)
Female	2974 (37.85%)	675 (38.73%)	
Male	4883 (62.15%)	1068 (61.27%)	
<b>Health care</b>			66.4930 (0.000)
Not adequate	1644 (20.92%)	522 (29.95%)	
Adequate	6213 (79.08%)	1221 (70.05%)	
<b>Children education</b>			43.1348 (0.000)
Not adequate	1136 (14.46%)	362 (20.77%)	
Adequate	6721 (85.54%)	1381 (79.23%)	
<b>Road facility</b>			80.4382 (0.000)
Otherwise	1955 (24.88%)	617 (35.40%)	
Satisfied	5902 (75.12%)	1126 (64.60%)	
<b>Marital status</b>			2.1130 (0.146)
Single	1241 (15.79%)	251 (14.40%)	
Married	6616 (84.21%)	1492 (85.60%)	
<b>Dwelling status</b>			71.4804 (0.000)
No	1330 (16.93%)	154 (8.84%)	
Yes	6527 (83.07%)	1589 (91.16%)	
<b>Age (mean years)</b>	45.43 years		
<b>Household size (mean)</b>	3.97 ~ 4 members		

### Socioeconomic Dimensions of Poverty in Nepal

Employing binary logistic regression, this paper estimated the socioeconomic dimensions of poverty in Nepal. The logit model examined the marginal effects of dummy and continuous variables on dichotomous dependent variables (Cramer, 2003). This study considered poverty status (poor = 1, nonpoor = 0) as outcome variables and assessed the impact of different socioeconomic variables.

Poverty is a multifaceted concept. Economic misery is not merely a fundamental of poverty; socioeconomic status also ruins humans' livelihoods. Table 3 identifies some socioeconomic dimensions of poverty in Nepal. The results revealed that gender, age, marital status, and children's education might not play a significant role in poverty, the results that partly contradicted some previous (Anyanwu, 2009; Chen & Wang, 2015; Huyser et al., 2014; Sun et al., 2022); however, these factors could be vital for the socioeconomic dimensions of poverty in Nepal. A mire of poverty seemed to be a grinding problem in the underprivileged section of Nepal. Nowadays, foreign employment and reliance on remittance appear to be the better choices for individuals; therefore, individual attributes did not turn out to be significant for poverty status. Likewise, with informal economies, poverty may not significantly arise in Nepal owing to alternative economic opportunities, family support growing in the economy, and personal attributes.

However, healthcare ( $\beta = -0.176$ ,  $p < 0.05$ ,  $OR = 0.839$ ) and road facilities ( $\beta = -0.240$ ,  $p < 0.01$ ,  $OR = 0.787$ ) significantly influenced the poverty status in Nepal, highlighting the fact that people were less likely to experience poverty if there were adequate healthcare and satisfying road facilities. This result is similar to many prior studies (Khatiwada et al., 2017; Peters et al., 2008; Sewell et al., 2019; World Health Organization [WHO], 2003). Generally, better health care may promote physically and mentally capable human beings and overall human development, enhancing economically gainful activities to break a vicious circle of poverty. On the other hand, adequate road facilities will connect geographically isolated populations and provide access to basic facilities, thereby enhancing productive activities, employment opportunities, and socioeconomic conditions, thereby reducing poverty in the household.

Additionally, dwelling status ( $\beta = 0.168$ ,  $p < 0.10$ ,  $OR = 1.183$ ) and household size ( $\beta = 0.226$ ,  $p < 0.01$ ,  $OR = 1.254$ ) were positively associated with poverty status, signifying that dwelling ownership and bigger family size might raise the likelihood of poverty. As evidenced by many studies (Chen & Wang, 2015; Lanjouw & Ravallion, 1995; Mora-Rivera et

al., 2024; Quispe-Mamani et al., 2022), larger household size could lead to dependence on household resources, resulting in poverty. On the other hand, households with dwelling facilities are likely to increase the cost of maintenance, ratchet effect, and neighbor demonstration, causing more poverty too. Likewise, the interacting effect of household size and remittance was significantly associated with poverty. As indicated by the odds ratio ( $\beta = 0.050$ ,  $p < 0.10$ ,  $OR = 1.051$ ), remittance recipients with larger household sizes may increase in poverty. Generally, the remittance would promote a better livelihood for the households and thus could reduce poverty and inequality (Salike et al., 2022). On the flip side, the remittance-recipient household with a large family size might become poorer.

Table 3. Odd Ratios and Estimates of Logit of Poverty Status of Household

Variables	$\beta$	S.E.	Wald	p	OR	95% CI for OR	
						LL	UL
<b>Gender: Male</b> (Reference group: Female)	-0.069	0.062	1.260	0.262	0.933	0.826	1.053
<b>Marital status: Married</b> (Reference group: Single)	0.054	0.085	0.403	0.525	1.056	0.893	1.248
<b>Age</b>	-0.002	0.002	0.605	0.437	0.998	0.994	1.002
<b>Household size</b>	0.226	0.020	131.096	0.000	1.254	1.206	1.303
<b>Residence: Urban</b> (Reference group: Rural)	0.213	0.061	12.327	0.000	1.238	1.099	1.394
<b>Remittance: Yes</b> (Reference group: No)	-0.251	0.134	3.525	0.060	0.778	0.599	1.011
<b>Family business: Yes</b> (Reference group: No)	-0.278	0.074	14.169	0.000	0.757	0.655	0.875
<b>Agricultural land: Yes</b> (Reference group: No)	0.136	0.074	3.365	0.067	1.145	0.991	1.324
<b>Livestock: Yes</b> (Reference group: No)	0.211	0.074	8.049	0.005	1.235	1.067	1.429
<b>Electricity access: Yes</b> (Reference group: No)	-0.545	0.072	57.123	0.000	0.580	0.503	0.668
<b>Cooking fuel: Firewood</b> (Reference group: Otherwise)	0.704	0.071	96.957	0.000	2.021	1.757	2.325
<b>Healthcare: Adequate</b> (Reference group: Not adequate)	-0.176	0.073	5.844	0.016	0.839	0.727	0.967
<b>Children education: Adequate</b> (Reference group: Not adequate)	-0.037	0.082	0.202	0.653	0.964	0.820	1.132
<b>Road facility: Satisfied</b> (Reference group: Otherwise)	-0.240	0.062	14.851	0.000	0.787	0.696	0.889
<b>Dwelling status: Yes</b> (Reference group: No)	0.168	0.101	2.744	0.098	1.183	0.970	1.442
<b>Household size*Remittance</b>	0.050	0.027	3.419	0.064	1.051	0.997	1.108
<b>Constant</b>	-2.519	0.198	161.795	0.000	0.081		

Note. p = probability value; OR = odds ratio; CI = confidence interval; LL = lower limit; UL = upper limit.

The results (Table 3) highlighted that residential status ( $\beta = 0.213$ ,  $p < 0.01$ ) significantly influenced poverty status. The odds ratio ( $OR = 1.238$ ) indicated that urban households were more likely to experience poverty, compared to those with a rural residence, *ceteris paribus*. This result is consistent with other empirical findings (Jula & Beriso, 2023; Serumaga-Zake & Naudé, 2002) and contrasts with (Ding, 2022; Neway & Massresha, 2022; Vera-Toscano et al., 2024). Because of the green rural economy of Nepal, rural households might secure their basic needs compared to urban ones. On the other hand, many constraints—including the cost of living, spillover effect on living standards, lack of housing facilities, inadequate job opportunities, and inequality—could increase the likelihood of urban residents falling into poverty compared to rural residents.

Moreover, remittance inversely influenced the poverty status ( $\beta = -0.251$ ,  $p < 0.10$ ,  $OR = 0.778$ ), indicating that remittance recipients could alleviate poverty to some extent, making references to nonrecipients. Following the threads of studies (Islam et al., 2016; Paulos Borko, 2017; Salike et al., 2022), this study experienced similar results. Remittance-recipient households were likely to have greater opportunities for regular income, investing their resources for human capital, maintaining quality of life, and enhancing overall wealth than non-recipients, resulting in fewer chances of being poor.

Furthermore, the family business was significantly associated with poverty status ( $\beta = -0.278$ ,  $p < 0.01$ ,  $OR = 0.757$ ), suggesting that households with family business were less likely to be poor, and thus nonfarm income provided a chance of household well-being (Eyasu, 2020; Jula & Beriso, 2023; Kassie et al., 2014). Because of surplus labor in agriculture, less chance of manufacturing jobs, and inactive labor market participation (Lewis, 1954; National Statistics Office, 2024), family businesses may be side jobs for gainful activities that help them become less poor. Additionally, agricultural landholding ( $\beta = 0.136$ ,  $p < 0.10$ ,  $OR = 1.145$ ) and livestock ( $\beta = 0.211$ ,  $p < 0.01$ ,  $OR = 1.235$ ) were also positively associated with poverty status, implying that agricultural dependency might raise the chance of households falling into poverty. The result of livestock is consistent with the previous study (Cho & Kim, 2017). Conversely, Maru (2010) found that landholding may reduce poverty. Moreover, it is observed that the modernization and commercialization of agricultural landholding and livestock, significant sources of livelihood sustainability in Nepal (Maltsoglou & Taniguchi, 2004; Ministry of Finance, 2024), would help to curb poverty in Nepal.

Similarly, according to results of Table 3, the coefficient of electricity access ( $\beta = -0.545, p < 0.01, OR = 0.580$ ) was negative and was also supported by time series analysis (Dartanto & Nurkholis, 2013); cooking fuel ( $\beta = 0.704, p < 0.01, OR = 2.021$ ), positively associated with poverty status, indicated that electricity might reduce poverty. Still, the dependency on firewood for cooking might exacerbate poverty. The reason is apparent: Households having access to electricity were most likely to save time on energy-intensive activities, promoting health and educational outcomes, offering a chance to raise per capita income (Brenčić & Young, 2009; Diallo & Moussa, 2020; World Bank, 2023), and thereby reducing the poverty level. In contrast, more time and effort for firewood collection, deteriorating health and educational outcomes, and climate change are thus making them even poorer, as corroborated by counter findings of electricity access in Nepal.

Finally, the overall findings revealed that the hypothesis of the study  $H_1$ —the socioeconomic factors influence the poverty status of households significantly—was confirmed. Excluding the non-significant effect of the household's demographic attributes, the social status, healthcare, wealth, income, agricultural activities, remittance, and facilities were significantly associated with poverty status, as evidenced by the  $\chi^2$ -test for association and  $t$ -test for logit coefficients. Thus, this study offers substantial evidence regarding the multidimensional socioeconomic characteristics of poverty that policymakers have aimed to rejuvenate the relative quality of life, which has become a tailspin in developing nations.

### Model Robustness

Initially, this study employed a *linktest* to address the issues of model specification. The  $p$ -value of the linear predicted value ( $\_hat$ ) and its square value ( $\_hatsq$ ) were less than 1 percent, indicating that at least one criterion was violated, thereby raising the issue of the model being misspecified. Although the *linktest* may be helpful, it should not suppress theory and common sense, especially when the goal is to investigate associations rather than optimize predictions about outcomes (Almquist, n.d.). Moreover, count  $R^2$  (0.818) was more than 0.7, implying the model was well-fitted. Likewise, regarding the multicollinearity diagnostic test, the *VIF* of regressors was not more than 10, and the average *VIF* was 1.98, implying the model remained free from multicollinearity, indicating no correlation among predictors.

The estimated logit regression was statistically robust and well-fitted. The McFadden  $R^2$  ranged between 0 to 1, revealing the model's fitness to the data, not explained by variance in  $R^2$  of OLS (Poston et al., 2024). The McFadden  $R^2$  (0.092) indicated that the estimated model was more fitted than the null model in social science research, where the perfectly fitted model may be rarely observed (Lyu et al., 2024). The significant *LR* statistic ( $\chi^2 = 835.02, p < 0.01$ ), statistically significant omnibus tests of model coefficients ( $\chi^2 = 835.022, p < 0.01$ ), Pearson chi-square [ $\chi^2 = 8784.47, p > 0.05$ ], Hosmer-Lemeshow statistic ( $\chi^2 = 17.05, p > 0.05$ )—with adjusted degrees of freedom for samples outside the estimation sample—confirmed that the estimated model was statistically fitted.

Receiver Operating Characteristic (ROC) curves were used to evaluate the predictive power of a model, particularly for classification analysis, by illustrating the trade-off between sensitivity (*true positive rate*) and 1 - specificity (*false positive rate*) (Hilbe, 2015). As shown in Figure 1, the area under the ROC curve (0.7177) indicated that the model had a moderate predictive value and was well-fitted, thus demonstrating acceptable discrimination in the estimated model.

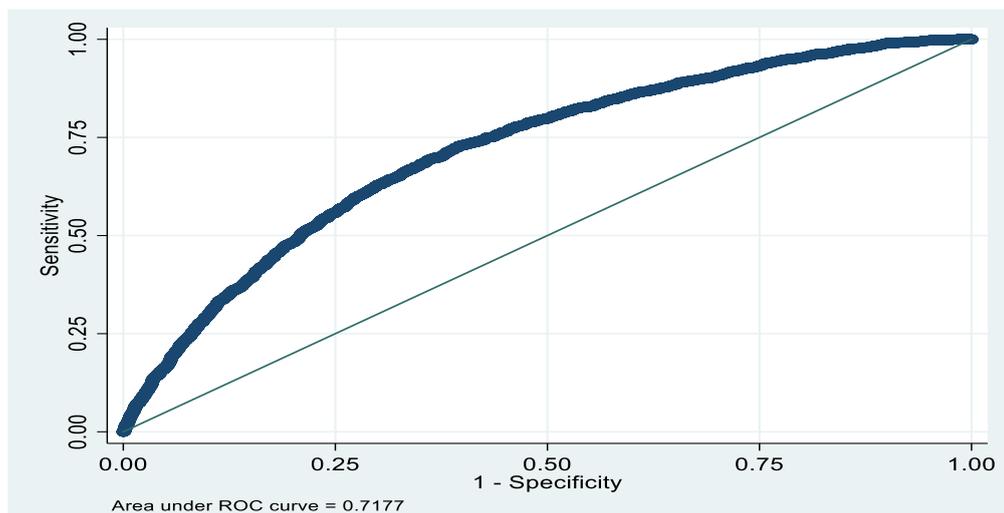


Figure 1. Receiver Operator Characteristic (ROC) Curve

In addition, an S-S plot displays sensitivity and specificity across cut-points from 0 to 1, with their intersection showing where the two values were closest (Hilbe, 2015). As evidenced by Worku and Muchie (2012), Figure 2 below illustrates a sensitivity and specificity plot against probability cut-off points, where the two lines intersected near the vertical axis, indicating that the fitted model demonstrated sufficient sensitivity and specificity, thereby resulting in 81.84% correctly classified in the cases.

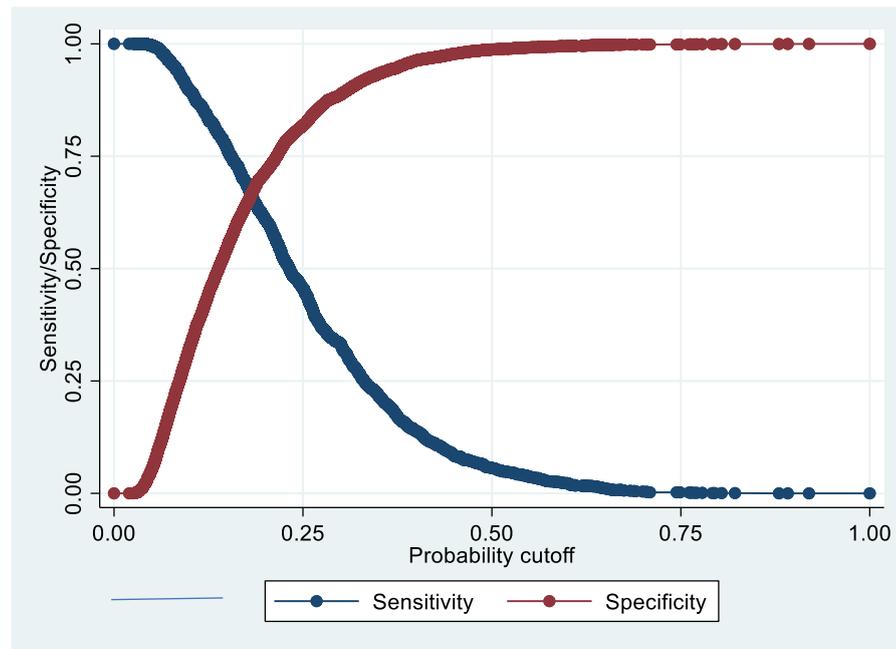


Figure 2. Sensitivity–Specificity (S–S) Plot

### CONCLUSIONS

Relative poverty and its multidimensional aspects are ongoing debates that should motivate academia and policymakers about how it can be minimized. Thus, this study examines the socioeconomic dimensions of poverty in Nepal that policymakers should prioritize to improve the quality of life and people's welfare. Apart from demographics—age, gender, marital status, and children's education adequacy—this study found that crucial determinants of the poverty in Nepal were family size, residential status, remittance, nonfarm or side business, agricultural landholdings and livestock, access to electricity, better health and road infrastructure, dwelling status, and preference of cooking fuel. Moreover, the poverty status of households in Nepal remained unaffected no matter whether the household head was either male or female, married or single, younger or older, and adequate or inadequate children's education; therefore, poverty had no own gender, age, or marital status. Moreover, this study revealed that higher family dependency, urban residency, agro-landholdings and livestock, firewood as cooking food, availability of dwell, and larger family size with remittance were the main drivers for making households poorer—and however that remittance, family business, electricity, and adequate road and health facilities were crucial to alleviating poverty in Nepal. This study's findings provided evidence for policy stalemates to alleviate poverty in Nepal. The policymakers should focus on entrepreneurship and reduce the families' dependency on agriculture by providing startup loans, offering small business subsidies, promoting agro-entrepreneurship, advancing agrotech, providing facilities for agromarket, enhancing agricultural and nonfarm skills and literacy, and financing remittance to entrepreneurial development. Furthermore, the government should prioritize financing the basic and sustainable physical and human infrastructure (electricity, road, cooking fuel, health). It should take appropriate measures, as shown by the findings of this study, to achieve sustainable development goals (United Nations, 2015)—good health, quality education, affordable and renewable energy, decent work, infrastructure, innovation, industry, and sustainable cities—and to secure a better life, resulting in lower poverty in Nepal.

Given the limited socioeconomic variables, this study relied only on binary regression. Because the survey had already been completed on overall living standards, this study was based merely on limited socioeconomic and demographic determinants, excluding other psychological, personal, and institutional dimensions of poverty. Thus, future researchers could apply dynamic causal modeling and machine learning techniques with multidimensional factors and spatial division that should predict the poverty dimensions of Nepal more accurately. Additionally, future researchers should compare previous living standard survey datasets for comprehensive generalizability and the best policy implications.

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