

## DETERMINANTS OF POVERTY IN RURAL PARTS OF NEPAL: A STUDY OF WESTERN DEVELOPMENT REGION

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### ABSTRACT

Poverty, especially in rural areas of developing countries like Nepal persists despite decades of development efforts. This study intends to analyze the major determinants of rural poverty. A multi stage sampling method was applied to generate cross sectional data by randomly selecting 279 households from one Village Development Committees of six districts of Western Development Region of Nepal. In this study area thirty three percent of households were lying below poverty line as per the poverty scoring method. By applying binary logistic regression, the study identified age of household head, size of land holding, female's involvement in service, family occupation and caste as major determinants of rural poverty. Contrary to general view, remittances do not show any significant effect on rural poverty as per this study. So it can be inferred that poverty in rural parts of Nepal is entangled in structural and cultural web, and the remittance sent by migrant family members to rural households might have been siphoned off to urban pocket areas. With large chunk of young rural population engulfed by international labor market and existing socio-economic structures, the policy makers need to address the rural poverty via social and cultural aspects.

**Keywords:** poverty dynamics, rural household, western Nepal, poverty score card, socio-economic factors

### 1. INTRODUCTION

Most of the development agendas in developing countries and least developed countries revolve around poverty. The causes of various uprising in Nepal can be lamented to the prevalence of poverty and inequality in the country. Rural poverty is also webbed into social norms and practices, culture and traditions apart from material lacks. So poverty is easy to talk and difficult to define. Simply, poverty denotes the condition where basic needs of human beings are not being met. According to World Bank (2001), poverty is the result of economic, political and social processes that interact with each other and frequently reinforce each other in ways that exacerbate the deprivation in which poor people live (World Bank, 2001), whereas Sen (1987) defines poverty as the failure of basic capability to function or failure to satisfy basic elementary and crucially important functioning's. His stress is on the capacity of an individual to convert commodities into functioning (or happiness or freedom). UNDP (1996) defines poverty from array of human deprivations in terms of health, education and income. It is a holistic approach for capturing poverty on important spheres of an individual, community and a country (UNDP, 1996). Chambers (1988) tries to define poverty on the basis of multiple disadvantages traps like,

powerlessness, voicelessness, material lack, low income: a badly off condition of people (Chambers, 2004).

Why there is poverty in the world? While some people are dying of obesity, some are starving for the piece of a loaf. Social Darwinian Theory of Poverty explains the cause of poverty in terms of the behavior and attitudes of the poor themselves (Islam, 2005). This theory lets fall the axe of blame over the head of the poor themselves. The poor are lazy; they gamble and lead an unscientific ways of life. This theory is also very strongly grounded theory which explains the causes of poverty in third world countries. But critics say think this theory a capitalist colored spectacle and the western view regarding the backwardness of the East. Similarly Cultural Theory of poverty acclaims that poor have a unique value system; poor remain in poverty because of their adaptations to burdens of poverty (Oscar, 1959). The Structural Theory of Poverty holds that economic, political ad social systems are the sources of poverty (Austin, 2006). This theory is pro-Marxist explanation of poverty and inequality. It blames on the socio-political structure of the society.

What determines poverty has been empirically explored by many researchers. A study made by Lohano (2009) focused

on poverty dynamics and their determinants using panel survey found that the main cause of sharp rises in poverty was shocks in agriculture (Lohano, 2009). Agriculture sector is a source of livelihood of third world countries. Nepal also being rural agro based economy, poverty is more pronounced in rural parts. A study on determinants of poverty using data from DHS in Kenya found that, along with other demographic factors, age of the household head increases the probability of being poor (Achia, 2010; Achia, Wangombe & Khalid, 2010). The relationship of age and sex of household head and poverty signifies the role family and social structure of a society. In another study carried out in Mozambique found low levels of human capital, including low educational levels and the poor health of most of the population; low productivity in the agricultural sectors, high rates of fertility and corresponding high dependency ratios were major contributing factors of poverty (Datta, et al., 2000). A study on Household Determinants of Poverty in Punjab province of Pakistan using logistic regression model summarizes the household determinants of poverty as the age, gender and education of the household head, as well as remittance, agricultural land holding, dependency ratio, family size and employment situation (Sikandar, 2008). It means apart from remittance and land holding; economic factors, demographic factors like age, sex and education of household head, family size are important affecting factors of poverty.

Analysing poverty in Nepal, Bhatt and Sharma (2006) using a multinomial logit model on NLSS I & II found education, wealth, agricultural land holding having stronger relationship with chronic poverty. The issues associated with poverty and inequalities those highlighted in introduction section above are equally serious in intra and inter country context (Bhatta, 2006). According to Nepal Living Standard Survey III (2011/12) around 25 percent of population is below the poverty line in Nepal. It is a drastic fall in the level of poverty within a decade period from 31 percent (as per Nepal Living standard Survey II) in 2003. NLSS III has identified educational attainment, sex and occupation of household head as important determinants of HHs being poor or not. Similarly remittance received HH size, caste and land holding affect poverty in Nepal. Both NLSS II and III surveys have used cost of basic needs approach to estimate poverty. The poverty line for Nepal in average 2010/11 prices has been estimated at Rs. 19,261 per annum (food poverty line = Rs. 11,929; non-food poverty line = Rs 7332) (CBS, 2011). But as per the head count index, rural poverty is 27.43 percent in comparison to 15.46 percent in urban areas of Nepal. An empirical study conducted by Thapa (2012) based on primary cross sectional data found caste, remittance and number of cattle holding as major determinants of poverty in rural pocket areas. He used simple socioeconomic and demographic questions in order to build a poverty score rather than income and money metric measures to measure poverty (Thapa, 2012).

## SOURCE OF DATA AND METHODS

### *Population, Sample Size and Sampling*

Nepal is divided into five development regions, slicing almost from North to South so that each development region covers the Himalayan, Hill and Terai livelihoods characteristics of

Nepal. Owing to budget constraints and time limitation only one development region was picked up following a simple random sampling technique. Then six districts lying along a traverse that cut across the three main ecological zones of Western Development Region in north-south direction were selected. A village Development committee (VDC is the smallest administrative unit; regarded as the primary sampling unit (PSU) for this study), was picked up following a lottery method from each of these six districts (here strata) irrespective of the proportion. The total number of households of the selected districts was 6343 which was taken to be population of the study. Out of these households, following a sample size calculation formula given below 279 households were sampled by administering semi-structured questionnaire schedule in the field. The formula for calculating sample size:

$$n = Z^2P(1-P)/d^2$$

Where, n=Sample size;

$$P=Q= 0.5$$

Z = Z value (at  $\alpha=0.05$ ) = 1.96 (Abscissa of normal curve 1.96);

d= Allowable error= 5.7%= 0.057;

### *Setting the Poverty Line and the Model*

To differentiate the poor from the non - poor, a poverty score / index was computed based on 10 questions number of children below 12 years, literacy of HH, roof of house, types of toilets and fuel for cooking (Claire, 2009) (Refer Appendix 1). This score would range between 0 to 100 Lower the score higher would be the likeliness to be poor and vice versa. A household is poor if it scores less than 50 and not poor if the score is equal or greater than 50. To analyse the effect of the chosen demographic, socio, economic cultural variables on poverty, a binary logistic regression is applied where the dependent variable is defined as one if the household is poor (Poverty score <50) and zero, otherwise (Poverty score  $\geq$ 50) A regression model with this type of response can be interpreted as a model that estimates the effect of the independent variable(s) on the *probability* of the event occurring.

A binary response, y, the expected value of y,  $E(y) = \pi$ , where  $\pi$  denotes  $P(y=1)$  is applied. The log model is:

$$\pi = \frac{\exp(\alpha_0 + \alpha_1 X_1 + \dots + \alpha_k X_k)}{1 + \exp(\alpha_0 + \alpha_1 X_1 + \dots + \alpha_k X_k)} \quad (1)$$

$$\text{With, } \ln\left(\frac{\pi}{1-\pi}\right) = \alpha_0 + \alpha_1 X_1 + \dots + \alpha_k X_k \quad (2)$$

This function is not linear, as such the usual least squares methods cannot be used to estimate the parameters. Instead, a method known as *maximum likelihood* is used to obtain these estimates. Here  $\alpha_0, \alpha_1, \dots, \alpha_k$  are parameters of the model to

be estimated and  $X_1, X_2, \dots, X_n$  are independent variables. On right hand side of equation (2) we have log odds of success of an event (here household being poor = 1). The odds are defined as the probability of a 'success' outcome (here household being poor) divided by probability of a 'failure' outcome.

The data was processed and analyzed in SPSS ver. 16.

## DATA PRESENTATION AND ANALYSIS

On the basis of the ecology Nepal can be divided into three ecological regions: Himalayan regions where climatic

condition is cold which is inhabited mostly by Tibeto-Burmese people, the Hill and Mahabharata range which is inhabited by Indo- Aryan and other races, The plain or Terai region which is inhabited by mixture of all races. Based on the findings of previous studies and theories the variables which are likely to affect the living condition of a household and community are taken into consideration. The existing customs, traditions, culture and distribution of physical endowments greatly affect a households falling into poverty. For convenience of description and analysis, all the factors are grouped into three broad clusters: cultural factors, socio-structural and economic factors. These are shown in Table 1.

**Table 1:** Descriptive Analysis

Variables		Category	Number	%
<b>Demographic Factor</b>	Sex of household head	Female	41	14.7
		Male	238	85.3
	Education of the household head	Illiterate	74	26.52
		Literate	205	73.48
	Age of household head (minimum =22 and Max = 84; Mean = 50 years)			
Family size (Min & Max 1 and 11 respectively; average = 5 persons )				
<b>Economic Factor</b>	Family occupation	Agriculture	203	72.76
		Non Agriculture	76	27.24
	Regions	Himalayan Region	48	17.2
		Hill region (Mahabharata range)	186	66.67
		Terai (plain)	45	16.13
	Remittance received by family	foreign employment	119	42.65
		No foreign(Domestic) employment	160	57.35
	Total area of land (1 ropani = 0.0508 hectares or 5476 sq.ft)	less than 2 ropani	121	43.37
		2-4 ropani	34	12.19
		4-10 ropani	60	21.51
10-20 ropani		39	13.98	
more than 20 ropani		25	8.96	
<b>Socio-Cultural Factors</b>	Caste / ethnicity	Brahmin, Chhettri	84	30.11
		Janajatis	147	52.69
		Dalits	48	17.2
	Religion	Hindu	220	78.85
		Buddhist & other	58	20.79
	Female meaningful economic participation	Yes participate	20	7.17
		No participation	259	92.83
	Family involved in Social organizations	yes involved	168	60.22
Not involved		111	39.78	
<b>Total</b>			<b>279</b>	<b>100</b>

Source: Field survey, 2012 data summarized by the researchers

In the above table nearly 15 percent of households are headed by females and this trend is in increasing trend at national level. In case of Nepal, it is peculiar that female headed households are not poor in comparison to male headed households (NLSS III, 2010/11). The reason may be, in most of the cases, women become household heads when their husbands go abroad as migrant labor. The mean age of household head is 50 years and nearly one third of them are illiterate. There was a general fear that youngsters might have

turned as household heads due to a decade long Maoist insurgency but it did not turn out as such. The main occupation of people is agriculture but the land occupancy is less than 4 ropanies (? 0.2 hectares) with 50 percent of households. With such fragmented land it would not be possible to use modern tools and equipment to commercialize the agriculture farming. More than 40 percent of households receive remittance from foreign migrant family members is a positive aspect for ensuring basic consumption basket for the

household which are generally engaged in subsistence farming. It should help in reducing poverty. Lastly the question was asked if any family member(s) is involved in social organizations like school management committee, cooperatives, village water supply management committee, forest user groups associations, clubs, etc., 40 percent of the households reported not being involved any such organizations. These households are likely to be poor and remain disadvantaged and distracted from utilization of state provided services. Female member's meaningful economic participation is an indication of better resource pool for family along with family's main occupation earning. But only around 7 percent of households had a female household member engaged in salaried job.

### Regression Result and Discussion

**Table 2: Model Summary**

Cox & Snell R			
Step	-2 Log likelihood	Square	Nagelkerke R Square
1	276.915 <sup>a</sup>	0.248	0.344

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Source: Source: Authors' calculation.

The regression model has good fit as Cox and Snell R square is around 25 percent which is acceptable for qualitative regression analysis.

Multi-collinearity in the logistic regression solution is detected by examining the standard errors for the b coefficients. A standard error larger than 2.0 indicates numerical problems, such as multi-collinearity among the independent variables, zero cells for a dummy-coded independent variable because all of the subjects have the same value for the variable, and 'complete separation' whereby the two groups in the dependent event variable can be perfectly separated by scores on one of the independent variables. None of the independent variables in this analysis had a standard error larger than 2.0. This regression does not show any multi-collinearity. The major regression results are given in Table 3.

**Table 3: Regression result**

Variables	B	S.E.	Sig.
Sex of head HH; male (ref.)	0.028	454	0.951
Literacy of HH head; illiterate (ref.)***	-0.935	0.359	0.009
Age of head HH	-0.117	0.076	0.124
Family size*	0.022	0.012	0.077
Occupation of household Agriculture (ref.)***	-1.092	0.389	0.005
Himalayan Region (ref.)			0.748
Hill region (Mahabharata range)	-0.109	0.339	0.54
Terai (plain)	-0.32	0.586	0.585
Foreign employment; yes (ref.)	-0.669	0.687	0.33
Less than 2 ropani (ref.)	-0.717	0.628	0.254
2-4 ropani	-0.971	0.661	0.142
4-10 ropani***	0.96	0.3	0.001
10-20 ropani**	1.958	0.86	0.023
More than 20 ropani (ref.)**			0.019
Social involvement; yes (ref.) ***	1.276	0.453	0.005
Female involvement in service; yes (ref.)**	-0.771	0.425	0.07
Caste (Brahmin/Chettri) (ref.)	-0.15	0.511	0.77
Janajatis/ ethnic (ref.)			0.114
Dalits**	1.359	0.688	0.048
Religion; Hindu (ref.)	0.117	0.42	0.781
Constant	0.343	1.096	0.754

\*\*\* Significant at 1% level; \*\* significant at 5% level; \*significant at 10% level

Source: Authors' own estimation.

The predicted variable is binary response; the household poor = 1, or household not poor = 0. Among the broadly categorized predictors of demographic factors, only literacy of household

head and family size are statistically significant. The household head being literate decreases log odds of family being poor by 0.935 times. An unit increase in size of family

increases log odds of household being poor by 0.022 times or an increase in size of family by one person increases the log odds of household being poor by 0.022 times (2%). Among the economic factors, family occupation and land holding are statistically significant. A household whose main occupation is non agriculture decreases log odds of family being poor by 1.092 times. In case of land holding, 4 ropani and above increases odds of household being poor by 0.960 and 1.958 times in the categories of 4 to 10 and 10-20 ropani. The results imply that higher the land holding higher is the probability of poverty? This result is beyond the scope of explanation because land is an important kind of wealth to reduce poverty rather than increasing poverty. It is an irony that nearly 76 percent of the population is engaged in agriculture but its contribution in the GDP is less than 40 percent. The prolonged backwardness in commercializing agriculture farming coupled with unstoppable young labor migration from Nepal might be the reasons for the aforementioned result on land holding relation and poverty. Further, land is the only source of mortgage for rural households to obtain loan for financing foreign migration which also would dampen the efficient use of land in production so as to reduce poverty.

Among the socio-structural predictors of poverty, being dalit caste and family social involvement increases log odds of family being poor by 1.359 and 1.27 times respectively. Nepal adopted multiparty democracy very lately (1990) and became a republic just four years back by shedding off the grip hold of strong monarchy. So still the remnants of feudalistic outlook entangled in the sub conscious minds of general people, the status quo attitudes of service providers and hegemony of higher caste (Brahmin Hindus & Chhetris) people in policy making and power might avail the so called lower caste people and women to have meaningful participation in the mainstream of development and side by side they remain poor. Not the least, lack of political links with some political party or not being related to a powerful person might put a person on lower social status and might have to face exclusion from the basic benefits and services provided by the state. Such household might be entrapped in poverty.

The increase in female member involvement in service (having job) decreases log odds of household being poor by 0.771 times. Many studies stress that a females economic involvement would not only add to family income pool and help poverty reduction but also helps in curtailing the family size on the other hand. As said above the societal ideology plays a great influence in availing women to pick up jobs freely to nearby towns or cities which may be bit far from their house. Women from respectable families ought not stay away or go abroad for foreign employment.

On contrary to general expectations remittance do not determine rural poverty. Currently Nepalese economy is heavily relying on raw labor export and remittance contribution is more than 20 percent of GDP. Remittance was the most important factor responsible for poverty reduction from 42% to 31% and to 25% as per NLSS I, II & III respectively. But where is that money spent is the point to be noted. Probably it might have been spent on buying very basic needs so that ultra poor comes up to poor level or the recipient has migrated elsewhere (nearby towns). Moreover,

we based our poverty measurement from absorption side (functioning) not on consumption aspect while gauging poverty, remittance. In overall, except land, as an economic factor, all other factors that determine rural poverty in Nepal are socio-structural factors.

## CONCLUSION

The study focusing on the poverty dynamics in the western rural region of Nepal found that only fifteen percent of households are headed by females and one third of household head are illiterate. Average size of the household is above national household size. The main occupation of the households in the study area is agriculture but there is growing tendency of household members seeking foreign employment. The incidence of poverty based on poverty score along the rural traverse of Western Development Region was around 33 percent which is quite higher than level of national poverty (i.e., 28 percent for western rural cluster as per Nepal Living Standard Survey third, NLSS III). The binary logistic regression shows that age of household head, family occupation, region, caste and female involvement in service are the significantly affecting variables in determining rural poverty in Western Development Region of Nepal. Contrary to the national scenario, Mountain region is less likely to be poor than households in Terai region. We can infer that poverty in rural parts of Nepal is entangled in structural and cultural web, and the remittance sent by migrant family members to rural households might have been siphoned off to urban pocket areas. With large chunk of young rural population engulfed by international labor market and existing socio-economic structures, the policy makers need to address the rural poverty via social and structural aspects. By identifying the poor households, a poverty card system can be issued by district level offices for the purpose of issuing transfers and subsidy to the poor. We hope this study would be highly useful to our policy makers to issue poverty card based on our studies simple ten questions poverty score card and researchers in pursuit of better world and quest for knowledge.

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### Annex 1

Questions: Indicator and values ( For generating poverty score)
<b>Q1.</b> Household members 12-years-old or younger: Four or more members = 0, Three members= 6, Two members=12, One member=16, None = 28;
<b>Q2.</b> No. of children ages 5 to 12 attending school: Not at all=0, No children ages 5 to 12=2, All=5;
<b>Q3.</b> Do any household members attend a private school? No = 0, Yes = 8;
<b>Q4.</b> Does the female head/spouse know how to read a letter? No=0, No female head/spouse =5, Yes=8;
<b>Q5.</b> What is the main material of the roof? Straw/thatch, wood/planks, earth/mud, or other = 0, Tiles/slate = 4, Galvanized iron, or concrete cement =10;
<b>Q6.</b> What type of toilet is used in your household? No toilet =0, Household non-flush, communal latrine, household flush (connected to municipal sewer), household flush (connected to septic tank) = 7;
<b>Q7.</b> What type of stove does your household mainly use for cooking? Open fireplace, other or no data = 0, Mud stove, smokeless stove or kerosene/gas stove = 5;
<b>Q8.</b> How many radio/tape/CD players do the household own? None=0, One=6, Two or more=13;
<b>Q9.</b> Does the household own any bicycles, motorcycle/scooters, motor cars, etc? No=0, Yes=5; <b>Q10.</b> Does the household own any television? No=0, Yes=11