

Analysing Multi-faceted Poverty in Sri Lanka: An Econometric Analysis based on Household Data

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ABSTRACT

Poverty has been a global issue which affects all the countries irrespective of the development status. However, the situation of developing countries is remarkably adverse compared to developed counterparts as lower income groups in developing countries are suffering from the lack of income and other economics resources. This study attempts to understand the multi-faceted poverty in Sri Lanka by expanding the traditional two way of poverty categorisation into four ways – extreme poor, poor, vulnerable non-poor and non poor, in order to provide more precise policy recommendations. Ordered Probit Model (OPM) estimation was employed to examine the determinants of multi-faceted poverty using the Household Income and Expenditure Survey (2012/13) data. The results highlight that 1.4% of households are suffering from Extreme Poverty, while 9.3% and 73% households have been recognised as poor and non-poor respectively. The most crucial fact is that 16.2% are in vulnerable non-poor category who are at a greater risk of falling back into poverty due to any shock at micro or macro levels. The OPM estimates indicate that staying in urban and rural sectors, having higher educational attainments and secured employments, having agricultural lands and remittances essentially reduce the probability of falling into extreme poor and poor categories. Conversely, increased family size, elderly household heads and being a Tamil increase the probability of falling into both extreme poor and poor categories. current study strongly recommends promoting education, employment opportunities and providing agricultural lands to get them out of poverty while implementing appropriate safety nets that effectively target specially the Vulnerable Non-Poor, Poor and Extreme Poor households.

Keywords: Extreme Poor, Marginal Effects, Ordered Probit Model, Vulnerable Non Poor

Introduction and Research Problem / Issue

The majority of existing studies such as Satterthwaite (2004), Gunawardena (2000, 2004, 2005) and Nanayakkara (2006) have broadly categorised the households as poor and nonpoor ignoring the huge disparity within both poor and non-poor groups. For instance, the variable called “poor” is a generalisation for all the households below the official poverty line, despite the fact that all households are not equally poor in reality. Similarly, “nonpoor” equally treats all the households above the official poverty line without considering the diversity among the “non-poor”. Therefore, this study categorises poverty status in to four

layers such as extreme poor, poor, vulnerable non-poor and non-poor by filling the gap of existing literature. The main objectives of the study are to;

01. Calculate the percentages of households who belong to each type (extreme poor, poor, vulnerable non-poor and non-poor) of poverty in Sri Lanka.
02. Examine the determinants that push households to fall in to each type of poverty in Sri Lanka.

Thus, this study contributes to the literature by expanding traditional two-way poverty categorisation of poor and non-poor into a four-dimensional categorisation. In fact, this four scale categorisation of poverty allows to identify the factors that push households into each levels of poverty and in turn, there is a higher potential of providing more focused policy recommendations which are specific for the households in each levels of poverty.

Research Methodology

Data

The study is based on the data collected from Household Income and Expenditure Survey (HIES) conducted by the Department of Census and Statistics of Sri Lanka in 2012/2013. HIES (2012/13) surveyed 20,536 households across 24 districts located in nine provinces.

Estimation Technique

The current study disaggregates the traditional two level poverty status in the four categories based on the official poverty line attached to HIES (2012/13) and then applies the Ordered Probit Model, introduced by Aitchison and Silvey (1957). The generalised nature of the Ordered Probit Model can be expressed as follows:

$$y_i^* = x_i\beta + u_i \dots \dots \dots (01)$$

Where x is a vector of independent variables (age, size of the household, ethnicity, sector, gender, ethnicity, civil status, education, employment, having agricultural land, remittances and disability) and y^* is a discrete variable which can take any value from 1 to 4. The division of the dependent variable followed the notion suggested by Jayathilake *et al* (2015), which indicates the different poverty levels as follows:

Extreme Poor $y^*(i = 1)$: if the household's monthly expenditure is less than or equal to half of official poverty line². (HH expenditure \leq Rs. 7067)

² The used official poverty line is Rs. 3624 (HIES, 2012/13). However, the official poverty line for household was calculated by multiplying the official poverty line by average household size of 3.9 (HIES, 2012/13).

Poor ($y^*_i = 2$): if the household’s monthly expenditure lies between half of official poverty line and official poverty line. (Rs. 7067 <HH expenditure ≤ Rs. 14134)

Vulnerable Non-Poor ($y^*_i = 3$): if the household’s monthly expenditure lies between the official poverty line and 1.5 times the official poverty line. (Rs. 7067 <HH expenditure ≤ Rs. 21201)

Non-Poor ($y^*_i = 4$): if the household’s monthly expenditure is higher than 1.5 times the official poverty line. (HH expenditure > Rs. 21201)

The Ordered Probit model was also estimated with marginal effects to provide more realistic interpretation.

Results and findings

According to table 01, 1.4% of households are suffering from extreme poverty, while 9.3% and 73% households have been recognised as poor and non-poor respectively. The most crucial fact is that 16.2% of households have been recognised as vulnerable nonpoor who are just above the official poverty line with a greater risk of falling back in to poverty due to any shock at micro or macro levels.

Table 01: Percentage of Households in Each Poverty Level

Type of Poverty	Number of Household	Household (Percentage)
Extreme Poor	296	1.4
Poor	1912	9.3
Vulnerable Non-Poor	3335	16.2
Non-Poor	14997	73.0

Source: Authors’ calculation based on HIES (2012/13) data from DCS, Sri Lanka. In fact, both ‘extreme poor’ and ‘poor’ categories collectively explain the national headcount ration of 6.7%, as the headcount ratio takes into account all the people below the poverty line.

Table 02 indicates the results of Ordered Probit Model along with marginal effects for each types of poverty.

Table 02: Results of Ordered Probit Estimation

Variables	Coefficients	Robust Standard Error	Marginal Effects (%)			
			Extreme Poor	Poor	Vulnerable Poor	Non-Poor
(Detailed data for Table 02 is not provided in the image)						

Ancillary parameters	Marginal Effects after
Ordered Probit	

Age	0.012*	0.005	-0.01**	-	-0.23***	0.35*
HH Size	**	0.010	0.20***	0.11*	7.48***	**
		0.401*		**		-
	**			3.64*		11.27
				**		***
Sector (Estate)						
Urban	0.478*	Rural **	0.060	-0.20***	-	-8.13***
		0.18**	0.056	-0.06***	3.37*	-3.28***
	*			**		4.85*
				-		**
				1.51*		
				**		
Gender (Female)						
Male	0.126*	0.036	-0.10***	-	-2.37***	3.63*
	**			1.21*		**
				**		
Ethnicity (Sinhala)						
SL Tamil	-	0.031	0.14***	2.80*	5.01***	-
IND Tamil	0.26**	0.062	0.01	**	0.10	7.96*
SL Moors	*	0.043	-0.01	0.05	-0.36	**
Burgher	-0.006	0.264	0.07	-0.17	2.75	-0.16
	0.020			1.46		0.55
	-0.144					-4.29
Civil Status (Unmarried)						
Married	0.424*	0.067	-0.30***	-	-8.11***	1.31*
Widowed	**	0.071	-0.10***	4.70*	-7.43***	**
Divorced	0.434*	0.139	-0.06**	**	-3.62	10.65
Separated	**	0.089	-0.10***	-	-4.35***	***
		0.205		3.10*		5.25
		0.248*		**		6.27*
	**			-		**
				1.57*		
				*		
				-		
				1.85*		
				**		
Education (No Schooling)						

Primary	0.406*	0.046	-0.10***	-	-7.11***	10.31
Secondary	**	0.046	-0.6***	3.09*	-16.64***	***
Tertiary	0.923*	0.062	-0.2***	**	-18.80***	26.91
Degree or	**	0.178	-0.1***	-	-16.52***	***
<	1.628*			9.69*		25.76
	**			**		***
	2.178*			-		21.56
	**			6.72*		***
				**		
				-		
				4.89*		
				**		
Employment (Unemployed)						
Government	0.400*	0.068	-0.1***	-	-6.76***	9.59*
Semi Gov.	**	0.087	-0.08	2.73*	-5.28***	**
Private	0.307*	0.035	0.06***	**	2.80***	7.55*
Employer	**	0.119	-0.10***	-	-10.19***	**
Self	-	0.035	-0.01	2.19*	-0.52	-
Employ Fam.	0.15** *	0.225	0.02	**	0.85	4.26*
Work	0.682*			1.41*		**
	**			**		13.91

	0.028			-		0.78
	-0.045			3.61* **		-1.30
				-0.25		
				0.43		
Agri Land (No Agri Land)						
Have Agri	0.215*	0.032	-0.10***	-	-4.10***	6.42*
L.	**			2.21*		**
				**		
Disability (Head of HH is a Disable)						
No	0.102*	0.024	-0.10***	-	-1.89***	2.85*
Disabilit.	**			0.91*		**
				**		
Remittances (No Remittances)						
/cut1	0.4159	0.1562	0.0012`	0.043	0.1561	0.798
				6		9

Have	0.449*	0.045	-0.10***	-	-7.48***	10.56
Remitt.		**		2.98*		***
				**		
/cut2	1.7578	0.1557				
/cut3	2.6168	0.1567				
Prob > chi²	0.0000					
Pseudo R²	0.2078					
Observatio ns	20,536					

Source: Authors' calculation based on HIES (2012/13) data from DCS, Sri Lanka. *** -

Significant at 1% ** - Significant at 5% * - Significant at 10%

Reference Category of Dummy Variables:

Sector (Estate) Gender (Female) Ethnicity (Sinhala) Civil Status (Unmarried)

Education (No Schooling) Employment (Unemployed) Agri Land (No Agri Land) The probability of being extreme poor, poor and vulnerable non-poor for a household in the urban sector is lower by 0.2%, 3.4% and 8.1% respectively, compared to the estate sector. However, the probability of being extreme poor, poor and vulnerable non-poor for a household in the rural sector is lower only by 0.06%, 1.5% and 3.2% respectively, compared to the estate sector. Interestingly, the probabilities of being non-poor for households in the urban sector and rural sector are higher by 11.63% and 4.8% respectively, compared to the estate sector. Apart from that, households with elder head of household have higher probability of being poor while size of the household indicates that one extra household member increases the probability of being extreme poor, poor and vulnerable non-poor by 0.2%, 3.6% and 7.4% respectively, and reduces the probability of being non-poor by 11.27%. Apart from that, being a male headed household increases the probability of being non-poor by 3.6% compared to female headed household counterparts. According to the civil status variable, being a married household head rather than being a single, reduces the probability of being extreme poor, poor and vulnerable non-poor by 0.3%, 4.7% and 8.1% respectively. Moreover, education has become one of the key factors of getting households out of poverty, and the heads of household with primary, secondary, tertiary and degree or higher educational qualifications increase the probability of being non-poor by 10.3%, 26.8%, 25.7% and 21.5% respectively, compared to the heads of the household with no schooling. Furthermore, employment in any sector (except in the private sector and family work) compared unemployment, having agricultural lands, receiving remittances and household heads with no disability, reduce the probability of being poor in each type of poverty, and increase the probability of being non-poor.

Conclusions, implications and significance

The study has clearly recognised that 1.4%, 9.3% and 16.2% of households are suffering from extreme poor, poor and vulnerable non-poor conditions respectively. Further, the study emphasises that the factors such as the age of head of household, the size of the household, sector of living, ethnicity, marital status, education, nature of employment, remittances and having agricultural lands are the key determinants of multi-faceted poverty in Sri Lanka. Moreover, current study strongly recommends promoting education, employment opportunities and providing agricultural lands to get them out of poverty while

implementing appropriate safety nets that effectively target specially the vulnerable non-poor, poor and extreme poor households.

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