

## Impact of urban sector on multi-faceted poverty in Sri Lanka

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### **Introduction**

A historical study by Rowntree (1901) explained poverty as the lack of income to fulfill the minimum necessities for physical efficiency. After that many studies such as Adrian and Ferguson (1987), Sen (1999), Laderchi (2001), Siddhisena and Jayathilaka (2006), Gunewardena et al(2007) and Newhouse et al. (2016) found that educational attainments, employment status, household size, geographical location, access to basic services and ethnicity as the key determinants of absolute poverty in many developing countries. Especially, De Silva (2008), Adam and Jane (1995) and Rodriguez and Smith (1994) stressed that additional year of schooling reduces the probability of being poor. Similarly, De Silva (2008), Gunewardena et al (2007) and Newhouse et al. (2016) highlighted that poverty in estate and rural sectors are significantly higher than that of urban sector. Apart from that, Adam and Jane (1995), Grootaert (1997), De Janvry and Sadoulet (2000) and Mukherjee and Benson (2003) revealed that poverty is considerably low when the head of household is a wage employee. However, all these studies have categorized poverty status as 'poor' and 'Non-Poor' without considering the disparities within each group. Thus, the current study categorized poverty status into four groups and attempts to quantify the impacts of urban sector on poverty in Sri Lanka.

Despite the Western province is the highest urbanized region of Sri Lanka, urban sector has distributed across all the districts. The urban sector provides more facilities to its inhabitants to smoothen their life style compared to rural and estate sectors. Thus, urban sector has become a crucial factor of determining the level of poverty. Sri Lanka had the fastest expansion of urban area relative to urban population in comparison to other countries in the region, as measured using nighttime lights data. Therefore, it is crucial to examine the impact of urban sector on poverty in Sri Lanka in order to provide updated policy recommendations. Scholars such as Mathur (2014), Zhang et al. (2010) and Tacoli et al. (2015) examined the impact of urban sector on poverty in different countries and have ended up with mixed results.

Similarly, the mentioned studies have used traditional two level of poverty status (Poor and Non-poor), ignoring the higher disparity within poor and non-poor groups. Therefore, the current study attempts to overcome the weakness attached to the literature by addressing the highlighted issues. The main objective of the

study is to quantify the impact of the urban sector on poverty level in Sri Lanka and calculate the probability of being extreme poor, poor, vulnerable non-poor, and non-poor, and examine how the probabilities attached to the urban sector are different from rural and estate sectors. Next sections of the paper include methodology and findings followed by conclusions.

**Methodology**

The current study is based on the data from Household Income and Expenditure Survey (HIES) which covered 20,540 households and was conducted by the Department of Census and Statistics of Sri Lanka in 2012/2013. The study employed Ordered Probit Model along with Growth Elasticity of Poverty in order to achieve the highlighted research objectives.

The ordered probit model was utilized to overcome the weakness attached to standard probit model which captures only the traditional two ways of poverty – Poor and Non-Poor.

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

Where  $y^*$  is a discrete variable which can take any value from 1- 4 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 line<sup>16</sup>. (HH expenditure ≤ Rs. 7067)
- 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)

Growth Elasticity of Poverty (GEP) indicates the percentage change in a poverty indicator due to one percent change in per capita income. Most of the studies have incorporated Poverty Headcount Index to calculate the Growth Elasticity of Poverty.

$$\text{Growth Elasticity of Poverty} = \frac{\% \text{ Change in Poverty Headcount Index}}{\% \text{ Change in Per Capita Income}}$$

This study also calculated sectorial GEP in order to examine how growth of per capita income in the urban sector affects the poverty level.

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<sup>16</sup> 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).

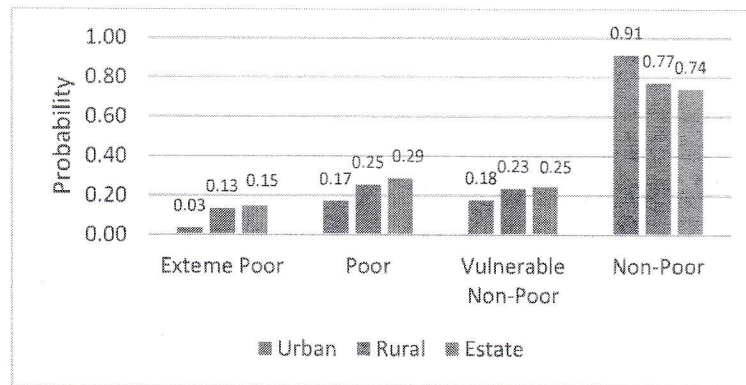
Table 1 Ordered Probit Model estimation

| Variables                                   | Coefficients | Robust Standard Error | Marginal Effects (%)                         |          |                 |           |
|---|--------------|-----------------------|--|----------|-----------------|-----------|
|   |              |                       | Extreme Poor                                 | Poor     | Vulnerable Poor | Non-Poor  |
| Age   | 0.012***     | 0.005                 | -0.01**                                      | -0.11*** | -0.23***        | 0.35***   |
| Age Squared                                 | 0.000***     | 0.000                 | 0.00***                                      | 1.34E-   | 2.7E-           | -4.E-     |
| HH Size                                     | 0.401***     | 0.010                 | 0.20***                                      | 03***    | 03***           | 03***     |
|   |              |                       |  | 3.64***  | 7.48***         | -11.27*** |
| <b>Sector (Estate)</b>                      |              |                       |  |          |                 |           |
| Urban                                       | 0.478***     | 0.060                 | -0.20***                                     | -3.37*** | -8.13***        | 11.63***  |
| Rural                                       | 0.18***      | 0.056                 | -0.06***                                     | -1.51*** | -3.28***        | 4.85***   |
| <b>Gender (Female)</b>                      |              |                       |  |          |                 |           |
| Male  | 0.126***     | 0.036                 | -0.10***                                     | -1.21*** | -2.37***        | 3.63***   |
| <b>Ethnicity (Sinhala)</b>                  |              |                       |  |          |                 |           |
| SL Tamil                                    | -0.26***     | 0.031                 | 0.14***                                      | 2.80***  | 5.01***         | -7.96***  |
| IND Tamil                                   | -0.006       | 0.062                 | 0.01   | 0.05     | 0.10            | -0.16     |
| SL Moors                                    | 0.020        | 0.043                 | -0.01  | -0.17    | -0.36           | 0.55      |
| Burgher                                     | -0.144       | 0.264                 | 0.07   | 1.46     | 2.75            | -4.29     |
| <b>Civil Status</b>                         |              |                       |  |          |                 |           |
| Married                                     | 0.424***     | 0.067                 | -0.30***                                     | -4.70*** | -8.11***        | 1.31***   |
| Widowed                                     | 0.434***     | 0.071                 | -0.10***                                     | -3.10*** | -7.43***        | 10.65***  |
| Divorced                                    | 0.205        | 0.139                 | -0.06**                                      | -1.57**  | -3.62           | 5.25      |
| Separated                                   | 0.248***     | 0.089                 | -0.10***                                     | -1.85*** | -4.35***        | 6.27***   |
| <b>Education (No Schooling)</b>             |              |                       |  |          |                 |           |
| Primary                                     | 0.406***     | 0.046                 | -0.10***                                     | -3.09*** | -7.11***        | 10.31***  |
| Secondary                                   | 0.923***     | 0.046                 | -0.6***                                      | -9.69*** | -16.64***       | 26.91***  |
| Tertiary                                    | 1.628***     | 0.062                 | -0.2***                                      | -6.72*** | -18.80***       | 25.76***  |
| Degree or <                                 | 2.178***     | 0.178                 | -0.1***                                      | -4.89*** | -16.52***       | 21.56***  |
| <b>Employment (Unemployed)</b>              |              |                       |  |          |                 |           |
| Government                                  | 0.400***     | 0.068                 | -0.1***                                      | -2.73*** | -6.76***        | 9.59***   |
| Semi Gov.                                   | 0.307***     | 0.087                 | -0.08  | -2.19*** | -5.28***        | 7.55***   |
| Private                                     | -0.15***     | 0.035                 | 0.06***                                      | 1.41***  | 2.80***         | -4.26***  |
| Employer                                    | 0.682***     | 0.119                 | -0.10***                                     | -3.61*** | -10.19***       | 13.91***  |
| Self Employ                                 | 0.028        | 0.035                 | -0.01  | -0.25    | -0.52           | 0.78      |
| Fam. Work                                   | -0.045       | 0.225                 | 0.02   | 0.43     | 0.85            | -1.30     |
| <b>Agri Land (No Agri Land)</b>             |              |                       |  |          |                 |           |
| Have Agri L.                                | 0.215***     | 0.032                 | -0.10***                                     | -2.21*** | -4.10***        | 6.42***   |
| <b>Disability (Head of HH is a Disable)</b> |              |                       |  |          |                 |           |
| No Disabilit.                               | 0.102***     | 0.024                 | -0.10***                                     | -0.91*** | -1.89***        | 2.85***   |
| <b>Remittances (No Remittances)</b>         |              |                       |  |          |                 |           |
| Have Remitt.                                | 0.449***     | 0.045                 | -0.10***                                     | -2.98*** | -7.48***        | 10.56***  |
| Expen/Income                                | 0.061***     | 0.012                 | -0.10***                                     | -0.55*** | -1.14***        | 1.72***   |
| <b>Ancillary parameters</b>                 |              |                       | <b>Marginal Effects after Ordered Probit</b> |          |                 |           |
| /cut1                                       | 0.4159       | 0.1562                | 0.0012                                       | 0.0436   | 0.1561          | 0.7989    |
| /cut2                                       | 1.7578       | 0.1557                |  |          |                 |           |
| /cut3                                       | 2.6168       | 0.1567                |  |          |                 |           |
| Prob > chi <sup>2</sup>                     | 0.0000       |                       |  |          |                 |           |
| Pseudo R <sup>2</sup>                       | 0.2078       |                       |  |          |                 |           |
| Observations                                | 20,536       |                       |  |          |                 |           |

### Results and discussion

The most focused and objective oriented variable of the Ordered Probit Model is “Urban” and the estimated coefficients indicate that the probability of being extremely poor, poor and vulnerable non-poor for a household in the urban sector is significantly lower than both the estate and rural sectors. Particularly, the probability of being extreme poor, poor and vulnerable non-poor for a household in the urban sector is lower by 0.2 percent, 3.4 percent and 8.1 percent 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 percent, 1.5 percent and 3.2 percent 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 percent and 4.8 percent respectively, compared to the estate sector. In fact, these estimates sufficiently prove that both the poverty level of the urban sector, and probabilities of being extreme poor, poor and vulnerable non-poor for households in the urban sector are significantly lower compared to both estate and rural sectors. Similar results have also been found by the scholars such as De Silva (2008), Gunewardena (2007) and Newhouse et al. (2016) in the context of Sri Lanka and however, their findings relied on two way poverty classification.

Further, Figure 1 visualizes the average predicted probabilities of being extreme poor, poor, vulnerable non-poor and non-poor for the households in each sector.



**Figure 1** Average predicted probabilities of being extreme poor, poor, Vulnerable non-poor and non-poor for the households in three Sectors

As the graph illustrates, the urban sector’s average predicted probabilities of being extreme poor, poor and vulnerable non-poor are 0.03, 0.17 and 0.18 respectively, and these probabilities are significantly lower than the predicted probabilities for both rural and estate sectors. In contrast, the average predicted probability of being non-poor for the urban sector is 0.91, while the predictions for rural and estate sectors are 0.77 and 0.74 respectively. Therefore, both

marginal effect estimations and average predicted probability estimations clearly highlight that the probabilities of being extreme poor, poor and vulnerable non-poor for the urban sector are remarkably low, while the probability of being non-poor is significantly higher compared to the other two sectors. In fact, urban sectors provide sufficient economic opportunities such as better employment opportunities, access to financial markets, and other essential services to households compared to the rural and estate sectors. Consequently, income poverty measured by the Poverty Headcount Index is considerably low in the urban sector, while the urban sector permits very low probability of being poor for its inhabitants.

The Growth Elasticity of Poverty (GEP) for urban, rural and estate sectors were calculated in order to further examine the impacts of urban sector on the poverty level of Sri Lanka.

**Table 2** Growth elasticity of poverty

| Sector | Percentage Change in<br>Per Capita Income<br>(2002-2013/13) | Percentage Change in<br>Head Count Index<br>(2002-2012/13) | Growth<br>Elasticity of<br>Poverty |
|--------|---|--|------------------------------------|
| Urban  | 245.45  | -75.00   | -0.31                              |
| Rural  | 282.47  | -68.00   | -0.24                              |
| Estate | 326.94  | -63.33   | -0.19                              |

Table 2 indicates the GEP for each sector during the period of 2002-2013. As Table 2 summarizes, the urban sector has the highest GEP (-0.31) and it expresses that one percent increase in the urban sector per capita income during 2002-2013 reduced the Poverty Headcount Index of urban sector by 0.31%. However, GEP for both the rural and estate sectors are -0.24 percent and -0.19percent respectively. Therefore, it is obvious that the rate at which growth translated into poverty reduction is considerably higher in the urban sector compared to the rural and estate sectors.

### Conclusion

As results suggest, the probability of being extreme poor, poor and vulnerable non-poor for a household in the urban sector is lower by 0.2 percent, 3.4 percent and 8.1 percent respectively, compared to the estate sector. Interestingly, probabilities of being non-poor for households in the urban sector and rural sector are higher by 11.63percent and 4.8percent respectively, compared to the estate sector. According to the predicted probabilities based on the Ordered Probit model, the urban sector's average predicted probabilities of being extreme poor, poor and vulnerable non-poor are 0.03, 0.17 and 0.18 respectively and these probabilities are significantly lower than the predicted probabilities for both rural

and estate sectors. In contrast, the average predicted probability for being non-poor for the urban sector is 0.91 while the predictions for rural and estate sectors are 0.77 and 0.74 respectively. In fact, the reduced poverty level in the urban sector is mainly due to the higher level of employment opportunities and income generation activities compared to rural and estate sectors. Despite, urban-centric economic activities reduces the poverty level in urban sector, it widens income inequality across sectors. Thus, the study recommends to have well-planned urban sector which ensure more equal income distribution while reducing the level of poverty. In this regard it is necessary to pay special attention on malfunctioning urban sectors in the district such as Monaragala, Badulla and Mullaitiue and provide appropriate infrastructure in order to expand economic activities. Similarly, any attempt of expanding urban areas should follow established environment regulations in order to mitigate pollution and other negative externalities.

**Keywords:** Growth elasticity of poverty, Ordered Probit model, urban sector, poverty.

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