




## DETERMINANTS OF POVERTY: IS AGE NON-LINEARLY RELATED WITH POVERTY? EVIDENCE FROM SRI LANKA



 **N.P. Ravindra**  
**Deyshappriya<sup>1\*</sup>**  
**R.W.W.K.Minuwanthi<sup>2</sup>**

<sup>1</sup>Senior Lecturer in Economics, Director of Centre for Open & Distance Learning, Uva Wellassa University of Sri Lanka.

Email: [ravindra@uwu.ac.lk](mailto:ravindra@uwu.ac.lk) Tel: +94772886337

<sup>2</sup>Management Assistant, Research & Publication Unit, Uva Wellassa University of Sri Lanka.

Email: [koshilaminuwanthi@gmail.com](mailto:koshilaminuwanthi@gmail.com) Tel: +94779358039



(+ Corresponding author)

### ABSTRACT

#### Article History

Received: 15 January 2020

Revised: 18 February 2020

Accepted: 20 March 2020

Published: 27 April 2020

#### Keywords

Poverty

Multidimensional poverty

Age

Non-linear relationship

Sri Lanka.

The current study aims to recognize the nature of the relationship between age and poverty in the context of Sri Lanka while examining the determinants of income and multidimensional poverty. The study uses **Household Income & Expenditure Survey (HIES) (2016)** data from Department of Census and Statistics of Sri Lanka and employed Probit regression analysis to accomplish the objectives of the study. The results stress that there is a non-linear relationship between the age of head of household and probabilities of being income and multidimensional poverty in Sri Lanka. Furthermore, the study determines that the probabilities of being income poor and multidimensionally poor decrease with age till 69.23 years and 68.18 years respectively and increase after that. Moreover, other household factors such as size of household, education, ethnicity, employment status, marital status, sector of living, disability nature of the head of household, having agricultural lands and receiving remittances are also recognized as crucial drivers of both income and multidimensional poverty in Sri Lanka. The study strongly recommends implementing appropriate policies and safety net programs which focus on the households which are headed by elderly people. Similarly, level of education, access to agricultural land and access to better employment opportunities should also be enhanced to ensure poverty-free society.

**Contribution/ Originality:** This study is one of very few studies which have investigated association between age and poverty in non-linear setting. The study observed that the probabilities of being income poor and multidimensional poor decrease with age till 69.23 years and 68.18 years respectively and increase after that.

## 1. INTRODUCTION

### 1.1. Background of the Study

Poverty which is defined as pronounced deprivation in well-being, where well-being can be measured by an individual's possession of income, health, nutrition, education, assets, housing, and certain rights in a society such as freedom of speech (World Bank, 2000) has been recognized as one of the key development issues especially in developing countries. In fact, poverty has been specifically considered for global development agendas such as Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) due to its importance as a development issue. The MDGs aimed to reduce by half the global share of extreme poverty during the period of 1990-2015, while the SDGs focuses on ending poverty in all its forms by 2030. Additionally, individual countries, regional organizations and non-governmental organizations have also included reducing or ending poverty into

their development agendas. However, ending poverty is still an immense challenge for most developing countries mainly due to unfavourable economic and climatic conditions. As the World Bank highlighted, by 2013, 10.7% of people of the global population (766.6 million people) were suffering from poverty while Sub-Saharan Africa and South Asian accommodated 50.7% and 33.4% of the global poor respectively. Clearly there is a high concentration of poverty in South Asia despite poverty levels varying greatly in the region<sup>1</sup>.

Sri Lanka is one the South Asian countries which is widely appreciated because of declining poverty rates, especially during last two decades. Figure 1 illustrates trends in poverty incidence, depth and severity of Sri Lanka during the period of 1990-2016. It is evident that headcount index reached a peak (28.8%) by 1995/96 from 26.1% in 1990/91. However, the population below the official poverty line which is measured by headcount index, has declined from 28.8% in 1996/96 to 4.1% by 2016. Similarly, other poverty measures such as poverty gap and squared poverty gap indices also dropped significantly. More specifically, the Poverty Gap Index (PGI) which measures depth of poverty and the Squared Poverty Gap Index (SPGI) which reflects severity of poverty has also declined by 6% and 2.1% respectively. Moreover, in 2002, approximately 3,841,000 people were in poverty. In 2016, this had decreased 843,913. Similarly, in 2016, 3.1% of total households which accounted for approximately 169,392 households in Sri Lanka, were estimated as poor households.

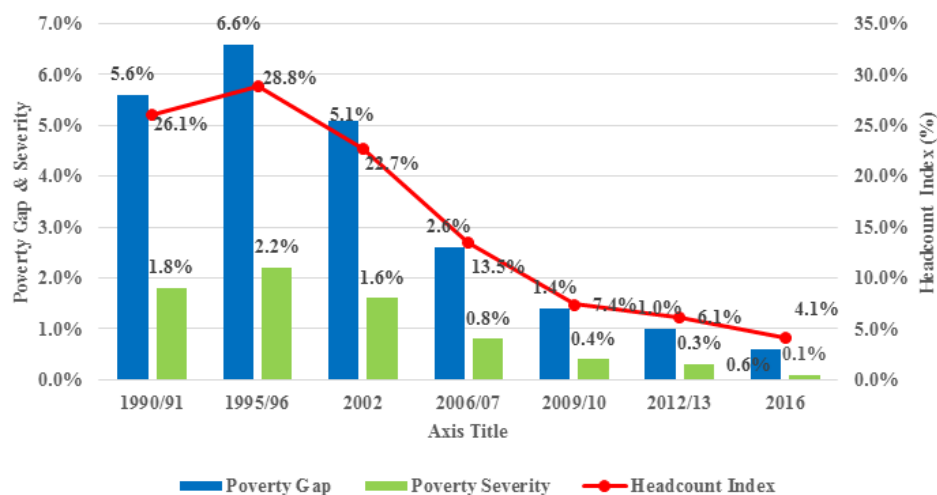


Figure-1. Poverty trends at national level of Sri Lanka during the period of 1990-2016.

In addition to the poverty estimates based on national poverty line, the headcount indices based on different internationally recognized poverty lines also confirm the declining pattern on poverty incidence of Sri Lanka. However, regional poverty disparity is significantly higher in Sri Lanka as estate and rural sectors account for remarkably higher poverty incidence compared to urban sector.

### 1.2. Objectives and Structure of the Study

According to Coulombe and McKay (1996) poverty is a household related phenomenon and therefore household level characteristics are important determinants of poverty. Similarly, identifying the determinants of poverty is crucial to formulate appropriate anti-poverty policies. Scholars such as Amarasinghe, Samad, and Anputhas (2005); Gunewardena (2007); Ranathunga (2010); Sinnathurai and Březinová (2012); Ranathunga and Gibson (2014) and Jayathilaka, Selvanathan, and Bandaralage (2016) have modelled the determinants of poverty in the context of Sri Lanka using Household Income and Expenditure Survey (HIES) data. These studies used now outdated data and survey waves which did not cover both Northern and Eastern provinces due to civil war.

<sup>1</sup> Poverty headcount indices of South Asian countries are (On the basis of the US\$1.90 PPP poverty line) India (21.23%), Bangladesh (18.52%), Nepal (14.99%), Maldives (7.26%), Pakistan (6.07%), Bhutan (2.7%) and Sri Lanka (1.92%). (PovcalNet of World Bank).

Economic condition improved significantly after the war effectively reducing the incidence of poverty. Specifically, the national poverty headcount index had fallen to 4.1% in 2016 from 26.1% in 1990/91 (HIES, 2016). Apart from that, aforementioned studies have considered age is linearly related with poverty. However, linear relationship between age and poverty is not realistic most of the time. Moreover, empirical evidences on the link between age and poverty are mixed and inconclusive. Therefore, the current study aims to recognize the nature of association between age of the head of household and probability of being poor in the context of Sri Lanka. Apart from that, other household determinants of poverty are also expected to recognize.

The rest of the paper focuses on critical evaluation of the existing body of knowledge followed by the methodology adopted by the study. After that, results of the study are elaborated while the final section of the paper explains conclusions and recommendations.

## 2. LITERATURE REVIEW

Studies have attempted to identify the key determinants of poverty using both individual country and cross-country analyses. These studies commonly identify demographic characteristics, level of human capital, geographical location, employment status and level of assets ownerships as determinants of poverty. Household size and the number of dependents have also been recognized as an important correlate of poverty. Hassan and Babu (1991); Mukherjee and Benson (2003); Anyanwu (2005); Mok, Gan, and Sanyal (2007) and Dartanto and Otsubo (2013) find that larger household size is associated with a higher probability of being poor. This finding is confirmed by Lanjouw and Ravallion (1995); Sekhampu (2013); Serumaga-Zake and Naudé (2002); Geda, De Jong, Kimenyi, and Mwabu (2005); Baulch and McCulloch (1998); Gounder (2013) and Lekobane and Seleka (2017).

Education and human capital have also been recognized as important correlates of poverty. Rodriguez and Smith (1994); Adam and Jane (1995); Mukherjee and Benson (2003) examined the impact of human capital on poverty in Costa Rica, Pakistan and Malawi, respectively, and confirm that higher levels of human capital reduce the probability of being poor. De Silva (2008); (Gunatilaka, Wan, & Chatterjee, 2010); Deepawansa, Sooriyarachchi, and Wickremasinghe (2011); Ranathunga. and Gibson (2014) and Jayathilaka et al. (2016) all confirm this relationship in the context of Sri Lanka. Similarly, empirical studies by Rodriguez and Smith (1994); Fields, Cichello, Freije, Menéndez, and Newhouse (2003); Rupasingha and Goetz (2007) recognized employment type is a crucial determinant of poverty. For the case of Sri Lanka, De Silva (2008) and Ranathunga. and Gibson (2014) find that government sector workers do better than those who are employed in other sectors. Hassan and Babu (1991); Adam and Jane (1995); Grootaert (1997); De Janvry and Sadoulet (2000); Mukherjee and Benson (2003) find that higher level of physical asset ownership are more common among the non-poor than the poor. However, none of the empirical studies in the context of Sri Lanka have incorporated physical assets in their models. Other important correlates of poverty for studies examining Sri Lanka include local and foreign remittances (De Silva, 2008; Ranathunga. & Gibson, 2014) alcoholism (Jayathilaka et al., 2016) and the condition of the house (De Silva, 2008; Jayathilaka et al., 2016).

Among the household level determinants of poverty, age of the head of household has been recognized as one of the key determinants of poverty. Studies such as Mukherjee and Benson (2003) and Rupasingha and Goetz (2007); Dartanto and Otsubo (2013) and Jayathilaka et al. (2016) assumed a linear relationship between age and poverty while Coulombe and McKay (1996) and De Silva (2008) tested for a non-linear association between age and poverty. Both Mukherjee and Benson (2003) observed a positive relationship between age and poverty in the context of Malawi. In contrast, Rupasingha and Goetz (2007) found a negative relationship in US counties. Dartanto and Otsubo (2013) and Jayathilaka et al. (2016) found that age is positively associated with the level of poverty in Indonesia and Sri Lanka respectively while Coulombe and McKay (1996) and De Silva (2008) have identify a U-shaped relationship between age of the head of household and poverty in the context of Mauritania and Sri Lanka respectively. According to the literature highlighted, empirical evidences provide mixed findings on the relationship

between age of the head of household and poverty. Therefore, the said relationship is inconclusive and further the studies emphasized non-linear relationship between age and poverty hasn't determine turning point in relation to age. Hence, the present study attempts to overcome the highlighted weakness of literature.

### 3. METHODOLOGY

#### 3.1. Recognizing Income and Multidimensionally Poor Households

It is necessary to carefully define both types of poverty examined in this study. The Department of Census & Statistics (DCS) of Sri Lanka recognises poor and non-poor groups based on the Official Poverty Line (OPL) which is constructed using data from Household Income and Expenditure Surveys (HIES) conducted once every three years. This chapter adopts this measure of income poverty. The OPL is calculated by examining households' expenditure on both food and non-food items. A person is considered as poor, if their monthly expenditure is less than the OPL. Similarly, a household is considered as poor household, if at least one member of the household is below the OPL. According to HIES (2016) the OPLs for 2016 survey was Rs. 4166 and this OPLs was applied to recognise poor and non-poor households in the survey year. Analysis of multidimensional poverty is based on the Alkire and Foster (2009); Alkire. and Foster (2011) method. According to Alkire and Foster (2009); Alkire. and Foster (2011) household with scores of at least 33.3% are classified as multidimensionally poor.

#### 3.2. Data Source and Models for Determinants of Poverty

The analysis utilises HIES (2016) data from DSC Sri Lanka. HIES (2016) is the most comprehensive survey in Sri Lanka conducted every three years and HIES (2016) surveyed 21,756 households. Moreover, HIES (2016) covered the whole of Sri Lanka (all 25 districts), which none of the previous iterations were able to do except (HIES, 2012/13). Hence, the study utilized HIES (2016) data series to examine the determinants of both income and multidimensional poverty.

A Probit model was employed to examine the correlates of both income and multidimensional poverty given the binary dependent variables. The general model that is estimated is:

$$Y_i = \beta_0 + \beta_1 X_i + U_i \quad (1)$$

If  $Y_i$  is the poverty variable which takes the value of 1 if a household is deemed poor and zero otherwise.  $X_i$  is a vector of independent variables which details of which are provided in Table 1. Equation 1 was econometrically estimated to recognize determinants of both income and multidimensional poverty. The determinants of income and multidimensional poverty were also examined by increasing the OPL and the deprivation score by 25% in order to check the robustness of the determinants of poverty.

The independent variables listed in Table 1 were selected based on the availability of data in HIES and on previous empirical analyses such as Kyereme and Thorbecke (1991); Coulombe and McKay (1996); Mok et al. (2007); De Silva (2008); Ranathunga. and Gibson (2014) and Dartanto and Otsubo (2015). Summary statistics of all the variables are indicated in Table 2.

Table-1. Explanation on independent variables.

Name of Independent Variables	Explanation	Type of variable	Categories of Categorical Variables			
Age	Age of the head of household	Continuous	-			
Age <sup>2</sup>	Square of the age of the head of household	Continuous	-			
HH Size	Number of members of the household	Continuous				
Gender	Gender of the head of household	Dummy	1 – Male 0 – Female			
Ethnicity	Ethnicity of the head of household	Dummy	0 – Sinhalese			
			1- Sri Lanka Tamil			
			2 – Indian Tamil			
			3 – Sri Lanka Moors 4 – Burgher			
Civil Status	Civil status of the head of household	Dummy	0 – Unmarried 1 – Married 2 – Widowed 3 – Divorced 4 – Separated			
			0 – No Schooling 1 – Primary 2 – Secondary 3 – Tertiary 4 – Degree of above			
			Employment Status	Employment status of the head of household	Dummy	0 – Unemployed 1 – Government 2 – Semi-government 3 – Private 4 – Employer 5 – Self-employed 6 – Family worker
						1 – Yes 0 – No
1 – Yes 0 – No						
1 – Yes 0 – No						
Sector	Geographic sector of the household located	Dummy				0 – Urban 1 – Rural 2 – Estate
						0 – 2012/13 1 – 2016
			Province	Province of the household located	Dummy	0 – Western 1 – Central 2 – Southern 3 – Northern 4 – Eastern 5 – North-western 6 – North-central 7 – Uva 8 – Sabaragamuwa

Table-2. Summary Statistics of the variables (2016).

Variable	Observation	Mean	Standard Deviation	Min	Max
Poor	21,756	0.0339	0.1809	0	1
HH-Size	21,756	3.8132	1.5905	1	13
Age	21,756	52.6272	14.0539	14	99
Age2	21,756	2967.1240	1527.3660	196	9801
Rural	21,756	0.7995	0.4004	0	1
Urban	21,756	0.1576	0.3644	0	1
Remittance	21,756	0.0794	0.2703	0	1
Agriland	21,756	42.9726	284.9993	0	32531
Family Worker	21,756	0.0047	0.0683	0	1
Self Emp	21,756	0.2833	0.4506	0	1
Employer	21,756	0.0211	0.1437	0	1
Private	21,756	0.3026	0.4594	0	1
Semi-Govt	21,756	0.0221	0.1469	0	1
Government	21,756	0.0691	0.2536	0	1
Unemployed	21,756	0.6958	0.4601	0	1
Degree or above	21,756	0.0278	0.1643	0	1
Tertiary	21,756	0.1423	0.3494	0	1
Secondary	21,756	0.5676	0.4954	0	1
Primary	21,756	0.2238	0.4168	0	1
No School	21,756	0.0342	0.1819	0	1
Separated	21,756	0.0270	0.1620	0	1
Divorced	21,756	0.0065	0.0805	0	1
Widowed	21,756	0.1680	0.3738	0	1
Married	21,756	0.7763	0.4167	0	1
Single	21,756	0.0222	0.1473	0	1
Burgher	21,756	0.0013	0.0365	0	1
Malay	21,756	0.0022	0.0469	0	1
SL Moors	21,756	0.0838	0.2772	0	1
IND Tamil	21,756	0.0362	0.1868	0	1
SL Tamil	21,756	0.1507	0.3577	0	1
Sinhala	21,756	0.7252	0.4464	0	1
Gender	21,756	0.7414	0.4379	0	1
Disable	21,756	0.0758	0.2647	0	1

#### 4. RESULTS AND DISCUSSION

The Probit regression model indicated in Equation 1 was empirically estimated to examine household determinants of income poverty in Sri Lanka. The estimated marginal effect coefficients are provided in Table 3. The first column of the table provides the independent variables. The second and third columns provide the marginal effect coefficients related to income poverty while fourth and fifth columns indicate the marginal effect coefficients related to multidimensional poverty.

Table-3. Determinants of income and multidimensional poverty.

Determinants	Income Poor (2016)	Income Poor (+25%) (2016)	Multidimensional poor (2016)	Multidimensional poor (+25%) (2016)
	dy/dx	dy/dx	dy/dx	dy/dx
Age	-0.0018*** (0.0006)	-0.0036*** (0.0008)	-0.0015*** (0.0004)	-0.0006*** (0.0002)
(Age) <sup>2</sup>	0.000013** (0.0000)	0.000029*** (0.0000)	0.000011** (0.0000)	0.0000047** (0.0000)
Household Size	0.0134*** (0.0008)	0.0285*** (0.0011)	-0.0083*** (0.0007)	-0.0022*** (0.0004)
Gender (Female)				
Male	-0.0096** (0.0044)	-0.0149** (0.0062)	0.0035 (0.0031)	0.0019 (0.0015)
Ethnicity (Sinhalese)				
Sri Lanka Tamil	0.0259*** (0.0031)	0.0495*** (0.0047)	0.0104*** (0.0028)	0.0020 (0.0014)
India Tamil	0.0146* (0.0076)	0.0273** (0.0115)	0.0116** (0.0116)	0.0018 (0.0026)
Sri Lanka Moors	-0.0005 (0.0048)	0.0051 (0.0069)	0.0145*** (0.0036)	0.0015 (0.0020)
Burgher	Omitted	Omitted	0.0177 (0.0234)	Omitted
Civil Status (Never Married)				
Married	-0.0101** (0.0050)	-0.0239* (0.0144)	-0.0121** (0.0054)	-0.0017 (0.0023)
Widowed	-0.0229**	-0.0348** (0.0150)	-0.0102* (0.0056)	-0.0020 (0.0025)
Divorced	-0.0451	-0.0722** (0.0352)	0.0032 (0.0112)	0.0034 (0.0045)
Separated	-0.0029	0.0030 (0.0175)	0.0021 (0.0067)	-0.0008 (0.0033)
Education (No Schooling)				
Primary	-0.0158***	-0.0436*** (0.0076)	-0.0133*** (0.0029)	-0.0037*** (0.0013)
Secondary	-0.0439***	-0.1004*** (0.0076)	-0.0522*** (0.0036)	-0.0136*** (0.0021)
Tertiary	-0.0951***	-0.1876*** (0.0115)	-0.0645*** (0.0078)	Omitted
Degree or above	Omitted	-0.1997***	Omitted	Omitted

		(0.0263)		
Employment Status (Unemployed)				
Government	-0.0247*** (0.0091)	-0.0605*** (0.0127)	Omitted	Omitted
Semi-government	-0.0196* (0.0119)	-0.0423** (0.0165)	-0.0074 (0.0105)	0.0020 (0.0045)
Private	0.0064 (0.0041)	0.0181** (0.0060)	0.0002 (0.0035)	0.0002 (0.0022)
Employer	Omitted	-0.1697*** (0.0368)	Omitted	Omitted
Self-Employment	-0.0086** (0.0043)	-0.0063 (0.0061)	-0.0045 (0.0039)	-0.0029 (0.0028)
Family Worker	0.0012 (0.0165)	0.0127 (0.0236)	Omitted	Omitted
Having Agriculture Lands (Not Having)				
Have Agri land	0.0000 (0.0000)	0.00001 (0.0000)	-0.0000321** (0.0000)	0.0000 (0.0000)
Disability (None of Household Member is Disable)				
Disable	0.0124** (0.0049)	0.0185** (0.0073)	0.0665*** (0.0034)	0.0153*** (0.0024)
Remittances (No Remittances)				
Have Remittances	-0.0264*** (0.0059)	-0.0512*** (0.0081)	-0.0146*** (0.0045)	-0.0039 (0.0027)
Sector (Urban)				
Rural	0.0324*** (0.0049)	0.0802*** (0.0070)	0.0073** (0.0036)	0.0038 (0.0024)
Estate	0.0211*** (0.0082)	0.0772*** (0.0121)	0.0175*** (0.0058)	0.0045 (0.0032)
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.1465	0.1556	0.4123	0.3990
Number of Observations	21,756	21,756	21,756	21,756



Table 3 indicates that age of the head of household is an important correlate of household poverty. Moreover, considering column two, a non-linear relationship between age and income poverty is confirmed since the estimated coefficients on both the 'Age' and '(Age)<sup>2</sup>' variables are statistically significant. Therefore, a 'U'-shaped relationship between age and income poverty is identified. Similarly, the same relationship between age and poverty is observed even after increasing the OPL by 25%, which is apparent from the column three. Moreover, the same U-shaped relationship can be observed between age and multidimensional poverty as well. The notion is obvious through the estimated coefficients for 'Age' and '(Age)<sup>2</sup>' in the fourth column of Table 3. Similarly, the same non-linear relationship between age and multidimensional poverty is recognized even after revising the multidimensional poverty index by increasing the deprivation threshold by 25%. Under this scenario, the findings generally implies that households' probability of being poor decreases up to some extent with age of the head of household and thereafter increases with the age. This finding is consistent with the findings of Coulombe and McKay (1996) and De Silva (2008) in the context of Mauritania and Sri Lanka, respectively. However, they haven't take into account multidimensional poverty and also haven't determined the age-turning point related to the non-linear relationship between age and poverty. The current study determines the age-turning points as 69.23 years (for income poverty) and 68.18 years (for multidimensional poverty). Figure 2 illustrates the non-linear relationship between age and poverty (both income and multidimensional poverty). As Figure 2 depicts, both income and multidimensional poverty increase with age after age-thresholds 69.23 and 68.18 years respectively.

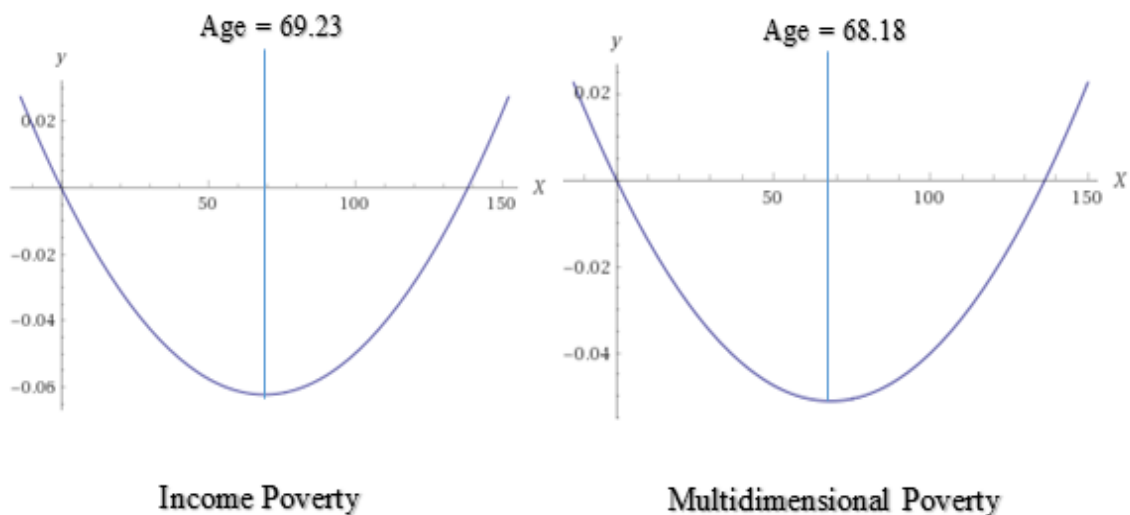


Figure-2. Non-linear relationship between age and poverty.

Note: X-axis in the graph indicates age of the head of household.

Specifically, it implies that the probabilities of being income poor and multidimensionally poor decrease with age till 69.23 years and 68.18 years respectively and increase after that. In fact, older people are more likely to suffer from health issues and are less likely to engage with the workforce. Specifically, Sri Lanka's retirement age is generally 60-65 years. Therefore, such head of households have more household responsibilities after the retirement such as arranging marriage of their children while spending considerable proportion for their own health. Apart from that, the labour productivity and efficiency of elder people are considerably lower than that of the young. Hence, elder people who work as casual workers and also in informal sector may be effected adversely. Consequently, it is acceptable that the probability of being poor increases when people get older (According to this study, it is after 68-69 years).

In addition to age, factors such as household size, household with members with a disability and having a female-headed household are positively associated with the probability of being poor. Specifically, an additional household member increases the probabilities of being income and multidimensional poor by 1.34% and 0.83%

respectively. The positive relationship between size of household and probability of being poor is consistent with the studies of Hassan and Babu (1991); Serumaga-Zake and Naudé (2002) and Mukherjee and Benson (2003). Ethnicity is also important. Both Indian and Sri Lankan Tamils are associated with a higher probability of being poor relative to Sinhalese. For instance, the probabilities of being income and multidimensional poor for Sri Lankan Tamils are 2.5% and 1.04% respectively higher than being Sinhalese. However, Sri Lankan Moors are the least likely to be poor among all ethnic groups. The findings relating to ethnicity align with those of De Silva (2008) and Jayathilaka et al. (2016). The analysis confirmed that the probabilities of being poor for both married and widowed heads of household are significantly lower than that for the unmarried group. Results from across the models suggest that having completed any level of educational qualification reduces the probability of being poor compared to having no schooling. All of the estimated marginal effects on primary, secondary, tertiary and degree or above educational levels are negative and highly statistically significant. Clearly, education is key for better employment opportunities which essentially determine household income. Similarly, education enhances social networks and human capital which contribute to the success of self-employment and Small and Medium Enterprises (SMEs). De Silva (2008); Gunatilaka et al. (2010); Deepawansa et al. (2011); Ranathunga. and Gibson (2014) and Jayathilaka et al. (2016) also confirmed this relationship between education and poverty in the context of Sri Lanka.

Household heads working for government or semi-government, as well as being employers or self-employed are less likely to be poor compared to the unemployed. Scholars such as Rodriguez and Smith (1994); Fields et al. (2003); Rupasingha and Goetz (2007) and Ranathunga. and Gibson (2014) have also observed the similar results in relation to employment status and poverty. Similarly, households with agricultural land and that receive remittances are associated with a lower probability of being poor. Households in estate and rural sectors have a higher probability of being poor compared to households in the urban sector. The probability of being income poor for estate and rural households is higher by 2.1% and 3.2% respectively compared to the households who are in urban. The same pattern can be seen for multidimensional poverty as well. These findings related to income poverty are consistent with Gunawardena (2000); De Silva (2008); Gunatilaka et al. (2010); Deepawansa et al. (2011); Ranathunga. and Gibson (2014) and Jayathilaka et al. (2016). Moreover, the estimated models are overly statistically significant and also have considerably higher pseudo R<sup>2</sup> values.

## 5. CONCLUSIONS AND RECOMMENDATIONS

The current study examines the determinants of income and multidimensional poverty in Sri Lanka while emphasizing the nature of the relationship between age and poverty in the context of Sri Lanka. The existing literature has clearly recognized age as a factor of poverty and however non-linear relationship between age and poverty hasn't been addressed sufficiently. The present analysis based on data from HIES (2016) the most comprehensive and updated household level data published by Department of Census and Statistics of Sri Lanka. An econometric analysis which based on Probit regression was employed to recognized the determinants of two types of poverty. Income poor households were recognized based on OPL of Sri Lanka while Alkire and Foster (2009); Alkire. and Foster (2011) method used to identify multidimensionally poor households. The results clearly indicates that there is a non-linear relationship between the age of head of household and the probabilities of being income and multidimensional poverty in Sri Lanka. Moreover, the study determines that the probabilities of being income poor and multidimensionally poor decrease with age till 69.23 years and 68.18 years respectively and increase after that. Hence, the households which headed by the people over 68 years have higher probability of being poor. Apart from that age, other households factors such as size of household, education, ethnicity, employment status, marital status, sector of living (urban, rural and estate), disability nature of the head of household, having agricultural lands and receiving remittances are also recognized as crucial drivers of both income and multidimensional poverty in Sri Lanka. The study strongly recommends implementing appropriate policies and safety net programs which focus on

the households which are headed by elderly people. Similarly, level of education, access to agricultural land and access to better employment opportunities should also be enhanced to ensure poverty-free society.

**Funding:** This study received no specific financial support.

**Competing Interests:** The authors declare that they have no competing interests.

**Acknowledgement:** Both authors contributed equally to the conception and design of the study.

## REFERENCES

- Adam, R. H., & Jane, J. H. (1995). *Sources of income inequality and poverty in rural Pakistan (International Food Policy Research Institute Research Report 102)*. Washington DC: International Food Policy Research Institute.
- Alkire, S., & Foster, J. (2009). An axiomatic approach to identification and measurement of multidimensional poverty.
- Alkire, S., & Foster, J. (2011). Counting and multidimensional poverty measurement. *Journal of Public Economics*, 95(7-8), 476-487. Available at: <https://doi.org/10.1016/j.jpubeco.2010.11.006>.
- Amarasinghe, U., Samad, M., & Anputhas, M. (2005). Spatial clustering of rural poverty and food insecurity in Sri Lanka. *Food Policy*, 30(5-6), 493-509. Available at: <https://doi.org/10.1016/j.foodpol.2005.09.006>.
- Anyanwu, J. C. (2005). Rural poverty in Nigeria: Profile, determinants and exit paths. *African Development Review*, 17(3), 435-460. Available at: <https://doi.org/10.1111/j.1017-6772.2006.00123.x>.
- Baulch, B., & McCulloch, N. (1998). Being poor and becoming poor: Poverty status and poverty transitions in rural Pakistan.
- Coulombe, H., & McKay, A. (1996). Modeling determinants of poverty in Mauritania. *World Development*, 24(6), 1015-1031. Available at: [https://doi.org/10.1016/0305-750x\(96\)00017-4](https://doi.org/10.1016/0305-750x(96)00017-4).
- Dartanto, T., & Otsubo, S. (2013). *Intra-generation poverty dynamics in Indonesia: Lessons on household's mobility into (out) of poverty during 1993-2007*. Paper presented at the 23rd Pacific Conference of the Regional Science Association International (RSAI) and The 4th Indonesian Regional Science Association (IRSA) Institute.
- Dartanto, T., & Otsubo, S. T. (2015). Measurements and determinants of multifaceted poverty: Absolute, relative, and subjective poverty in Indonesia. In *Globalization and Development (Vol. 3, pp. 99-143)*: Routledge.
- De Janvry, A., & Sadoulet, E. (2000). Rural poverty in Latin America: Determinants and exit paths. *Food Policy*, 25(4), 389-409.
- De Silva, I. (2008). Micro-level determinants of poverty reduction in Sri Lanka: A multivariate approach. *International Journal of Social Economics*, 35(3), 140-158. Available at: <https://doi.org/10.1108/03068290810847833>.
- Deepawansa, M., Sooriyarachchi, M., & Wickremasinghe, W. (2011). Determinants of poverty in Sri Lanka.
- Fields, G., Cichello, P., Freije, S., Menéndez, M., & Newhouse, D. (2003). Household income dynamics: A four-country story. *The Journal of Development Studies*, 40(2), 30-54. Available at: <https://doi.org/10.1080/00220380412331293757>.
- Geda, A., De Jong, N., Kimenyi, M. S., & Mwabu, G. (2005). Determinants of poverty in Kenya: A household level analysis.
- Gounder, N. (2013). Correlates of poverty in Fiji: An analysis of individual, household and community factors related to poverty. *International Journal of Social Economics*, 40(10), 923-938. Available at: <https://doi.org/10.1108/ijse-2012-0067>.
- Grootaert, C. (1997). The determinants of poverty in Cote d'Ivoire in the 1980s. *Journal of African Economies*, 6(2), 169-196. Available at: <https://doi.org/10.1093/oxfordjournals.jae.a020925>.
- Gunatilaka, R., Wan, G., & Chatterjee, S. (2010). *Poverty and human development in Sri Lanka*: Asian Development Bank.
- Gunawardena, D. (2000). *Consumption poverty in Sri Lanka 1985-96*. Sri Lanka: External Resource Department, Ministry of Finance and Planning.
- Gunewardena, D. (2007). *Consumption poverty in Sri Lanka 1985-2002*: Centre for Poverty Analysis.
- Hassan, R. M., & Babu, S. C. (1991). Measurement and determinants of rural poverty: Household consumption patterns and food poverty in rural Sudan. *Food Policy*, 16(6), 451-460. Available at: [https://doi.org/10.1016/0306-9192\(91\)90045-l](https://doi.org/10.1016/0306-9192(91)90045-l).
- HIES. (2012/13). Household Income and Expenditure Survey Report. Department of Census & Statistics of Sri Lanka.
- Household Income & Expenditure Survey (HIES). (2016). *Household income & expenditure survey report*: Department of Census & Statistics of Sri Lanka.

- Jayathilaka, R., Selvanathan, S., & Bandaralage, J. S. (2016). Is there a link between Alcohol consumption and the level of poverty? *Applied Economics*, 48(22), 2054-2063. Available at: <https://doi.org/10.1080/00036846.2015.1114574>.
- Kyereme, S. S., & Thorbecke, E. (1991). Factors affecting food poverty in Ghana. *The Journal of Development Studies*, 28(1), 39-52. Available at: <https://doi.org/10.1080/00220389108422221>.
- Lanjouw, P., & Ravallion, M. (1995). Poverty and household size. *The Economic Journal*, 105(433), 1415-1434. Available at: <https://doi.org/10.2307/2235108>.
- Lekobane, K. R., & Seleka, T. B. (2017). Determinants of household welfare and poverty in Botswana, 2002/2003 and 2009/2010. *Journal of Poverty*, 21(1), 42-60. Available at: <https://doi.org/10.1080/10875549.2016.1141381>.
- Mok, T. Y., Gan, C., & Sanyal, A. (2007). The determinants of urban household poverty in Malaysia. *Journal of Social Sciences*, 3(4), 190-196. Available at: <https://doi.org/10.3844/jssp.2007.190.196>.
- Mukherjee, S., & Benson, T. (2003). The determinants of poverty in Malawi, 1998. *World Development*, 31(2), 339-358. Available at: [https://doi.org/10.1016/s0305-750x\(02\)00191-2](https://doi.org/10.1016/s0305-750x(02)00191-2).
- Ranathunga, S. P. (2010). The determinants of household poverty in Sri Lanka: 2006/2007.
- Ranathunga, S., & Gibson, J. (2014). Determinants of household poverty in the rural sector in Sri Lanka: 1990-2010. *Economics*, 3(3), 43-49.
- Rodriguez, A. G., & Smith, S. M. (1994). A comparison of determinants of urban, rural and farm poverty in Costa Rica. *World Development*, 22(3), 381-397. Available at: [https://doi.org/10.1016/0305-750x\(94\)90129-5](https://doi.org/10.1016/0305-750x(94)90129-5).
- Rupasingha, A., & Goetz, S. J. (2007). Social and political forces as determinants of poverty: A spatial analysis. *The Journal of Socio-Economics*, 36(4), 650-671. Available at: <https://doi.org/10.1016/j.socec.2006.12.021>.
- Sekhampu, T. J. (2013). Determinants of poverty in a South African township. *Journal of Social Sciences*, 34(2), 145-153. Available at: <https://doi.org/10.1080/09718923.2013.11893126>.
- Serumaga-Zake, P., & Naudé, W. (2002). The determinants of rural and urban household poverty in the North West province of South Africa. *Development Southern Africa*, 19(4), 561-572. Available at: <https://doi.org/10.1080/0376835022000019392>.
- Sinnathurai, V., & Březinová, O. (2012). Poverty incidence and its determinants in the estate sector of Sri Lanka. *Journal of Competitiveness*.
- World Bank. (2000). *Handbook of poverty and inequality*: The World Bank.

*Views and opinions expressed in this article are the views and opinions of the author(s), International Journal of Asian Social Science shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.*