Original Research Article

Analyzing the Impact of Agricultural Landownership on Poverty and Food Security in Sri Lanka
A Household Level Econometric Analysis

ABSTRACT

Aims: This study examines the impact of agricultural landownership on poverty and food security in Sri Lanka. The current study enriches the literature by extending traditional two way poverty classification into four groups: Extremely Poor, Poor, Vulnerable Non-Poor and Non-Poor and quantifies the impact of agricultural landownership on each type of poverty. Similarly, the impact of agricultural landownership on food security is also estimated considering the four types of food security such as, Extremely Food Insecure, Food Insecure, Vulnerable to Food Insecure and Food Secure, based on Minimum Dietary Energy Requirements.

Methodology: The analysis is based on the secondary data from the Household Income and Expenditure Survey (HIES) of Sri Lanka. Ordered Probit Models were estimated to examine the impacts of agricultural landownership on poverty and food security to accomplish the objectives of the study.

Results: The results highlight that the probability of being non-poor of the households with agriculture land is higher by 6.42% compared to the households without agricultural lands. Similarly, having agriculture land also reduces the probability of being extremely poor, poor and vulnerable to poverty by 0.1%, 2.2% and 4.1% respectively. In addition, the empirical findings indicate that ownership of agricultural land lessens the probability of being extremely food insecure (0.8%), food insecure (1.4%) and vulnerable to food insecure (0.7%). Moreover, the probability of being food secure of the households with agricultural lands is higher by 0.9% compared to the households without agricultural lands.

Conclusion: Therefore, the study emphasizes the significance of agricultural landownership to mitigate the poverty and food insecurity which ultimately enhances the household wellbeing. Hence, the current study strongly recommends implementing appropriate policies to address land-right related issues faced by developing countries ensuring long term wellbeing of the households.

Keywords: Landownership, Poverty, Food Security, Minimum Dietary Energy Requirement, Ordered Probit Model

1. INTRODUCTION

01.1. Agriculture Land Ownership, Food (In) security and Poverty

Sri Lanka has been an agricultural country albeit the current economy is led by the service sector. However, agriculture sector is still crucial to the economy as it provides wide-range of employment opportunities while also securing the country's food requirements.

Nevertheless, uneven distribution of agriculture lands has also been hampering the productivity of the agriculture sector and has created adverse impacts particularly on low income households. Table 01 indicates ownership of agriculture land at national level along sectoral disparities. As table 01 indicates, the higher agriculture land ownership at national level which is mainly explained by the agriculture land ownership at rural sector where 92.84% of households own agriculture lands. In contrast, estate sector reports the lowest ownership of agriculture land, reporting only 38.05% which is remarkably lower than the national average.

Table 01: Sectorial Ownership of Agriculture Land

Sector	Ownership of Agriculture Land
National	88.15 %
Urban	77.98 %
Rural	92.84 %
Estate	38.05 %

Source: Calculated by authors based on HIES of Department of Census & Statistics of Sri Lanka

According to International Food Policy Research Institute (2016), each and every country is encountered with a number of issues related to food insecurity which costs 11% of GDP annually, especially in Africa and Asia. Conversely, a dollar which is invested on any malnutrition prevention program, adds extra 16$ to the economy in return on the investment (International Food Policy Research Institute, 2016). Therefore, addressing the issue of food insecurity and ensuring food security are vital at both national and global levels. Thus, Sustainable Development Goals (SDGs) also incorporated this issue and the second goal of SDGs aims to end hunger by 2030 by ensuring food security and required nutrition levels. Food security is a broad concept which was defined as “food security exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious foods which satisfy their dietary needs and food preferences for an active and healthy life.” (Food and Agriculture Organization - FAO, 1996). According to the Medical Research Institute (MRI) of Sri Lanka, a person who is unable to take 2030 Kcal per day is considered as food insecure in the context of Sri Lanka. However, the threshold proposed by the MRI may vary across the countries, time periods and also gender.

In terms of poverty, Sri Lanka has experienced declining poverty rates during last two decades. Figure 01 illustrates trends in poverty incidence, depth and severity for Sri Lanka during the period of 1990-2016. It is evident that the headcount index reached a peak (28.8%) in 1995/96 up from 26.1% in 1990/91. However, poverty then is declined to 4.1% by 2016. Similarly, other poverty measures such as the poverty gap and squared poverty gap indices also dropped significantly over the time. Specifically, the Poverty Gap Index (PGI) which measures the depth of poverty and the Squared Poverty Gap Index (SPGI) reflects severity of poverty declined by 6% and 2.1% respectively during this period. 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.

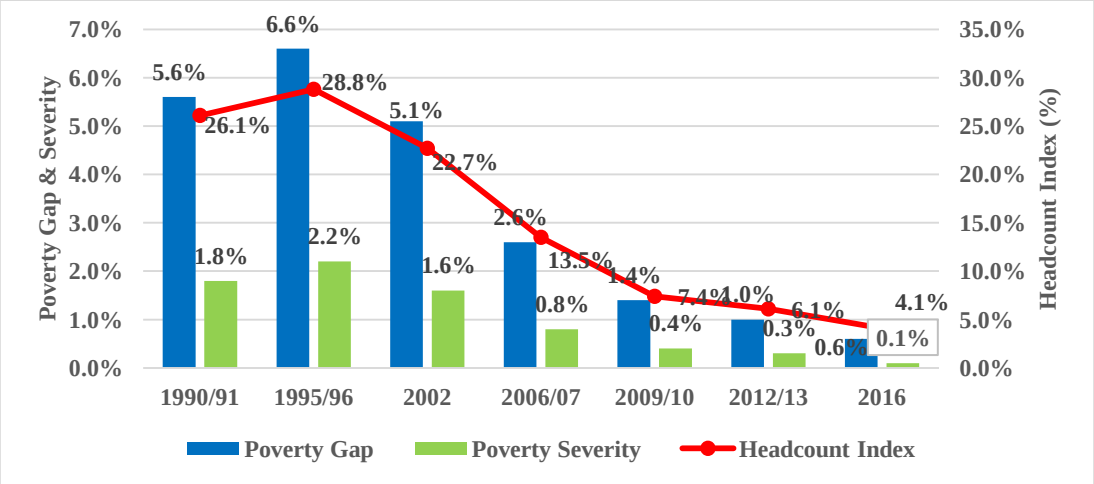

Figure 01: Poverty trends at national level of Sri Lanka during the period of 1990-2016

Source: Created by authors based on HIES reports (Various years)

Though the poverty incidence at a national level has been significantly decreasing over the time, the declining across sectors has been uneven. Poverty disparities which exist across the sectors of urban, rural and estate are illustrated in Figure 02.

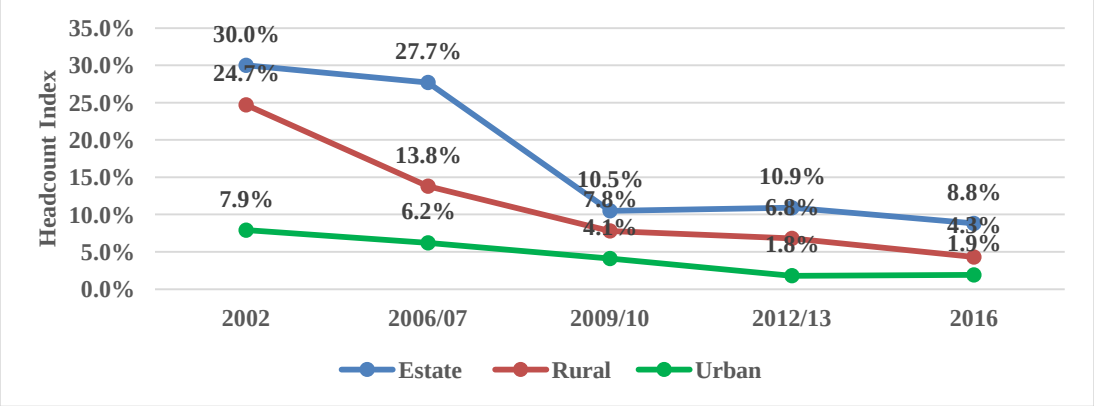

Figure 02: Sectoral poverty trends in Sri Lanka during the period of 2002-2016

Source: Created by authors based on HIES reports (Various years)

Poverty levels in both estate and rural sectors have been significantly higher compared to poverty levels of national and urban sectors. The Figure 02 demonstrates that 30% and 24.7% of people in estate and rural sectors respectively were below the poverty line in 2002 while only 7.9% of urban people were poor. A more dramatic trend in poverty reduction in the estate sector can be seen after 2006/07. In fact, in the estate sector, poverty incidence had reduced by 17.2% within a three-year period (2006/07 – 2009/10). The sharp decline in income poverty in the estate sector was mainly driven by the increase of tea prices and higher real wages of estate workers. Tea production is the key output in the estate sector and the price of tea increased by 82% during the period of 2006-2009, resulting in high returns for the industry. Some of these profits were shared with the estate workers leading to

the evident dramatic drop of poverty. In addition, wage increases for estate workers in 2010 also helped the sharp decline in poverty in the estate sector, as the increased real wages essentially ensured a better living standard for the workers.

01.2. Objectives and the Structure of the Study

The study attempts to recognize how agriculture land ownership affects poverty and food (in) security in Sri Lanka. More specifically, following two objectives are expected to be accomplished through the current study.

01. Analyzing the impact of land ownership on different types of poverty such as Extreme Poor, Poor, Vulnerable Non-poor and Non poor.

02. Examining the impacts of land ownership on different types of food insecurity such as Extremely Food Insecure, Moderately Food Insecure, Vulnerable to Food Insecure and Food Secure.

The next sections of the paper include literature review, methodology, results and discussion followed by the conclusions and recommendations.

2. LITERATURE REVIEW

Food insecurity is multifaceted itself and its consequences are also multidimensional (Abafita & Kim, 2014). In 1974, the World Food Conference held in Rome highlighted the issues of global food insecurity for the first time and thereafter, a growing discussion on food insecurity at global, regional and national levels has been arisen. (Maxwel, 1996, Napoli et al. 2011). According to FAO (1996), food (in) security has four main dimensions: availability, utilization, stability and sustainability. Webb et al. (2006) highlighted that it is difficult to find a precise measure for food insecurity due to this multifaceted nature of food (in) security. However, Maxwell et al. (2008) summarized the commonly used measure such as households' expenditure on foods, nutritional status, actual household food consumption level, dietary requirement and diversity and household food insecurity access scale. Most of the empirical analyses which used these measurements have ended up with mixed findings. An analysis of food insecurity in Pakistan by Sultana & Kiani (2011) concluded that educational attainments beyond intermediate level reduce food insecurity while dependency ratio increases level of food insecurity at household level. Moreover, they confirmed that both social capital and status of employment have no significant impact on food insecurity in Pakistan. Kidane (2004) and Rose et al. (1998) have also stressed the importance of education on food security in Ethiopia and USA respectively. More specifically, Kidane (2004) has highlighted that even the primary level education significantly improves food insecurity while ensuring higher income for households. Apart from that, size of households and dependency ratio are also found to be positively related with food insecurity. Ramakrisha & Demeke (2002) and Amaza (2006) observed that family size and dependency ratio increase food insecurity in Ethiopia and Nigeria respectively. Social Safety Net Programs (SSNP) such as food stamps, elderly and disability allowances are much common in most of developing countries especially in order to reduce poverty. However, Subbarao et al. (1997) found that these kinds of SSNPs reduce not only poverty, but food insecurity as well. In addition to SSNPs, accumulated assets of households also play a crucial role in reducing food insecurity. According to Demeke et al. (2011), assets and resource endowment of households depend on human capital, physical capital, financial capital, natural capita and social capital as well. Therefore, accumulated assets or recourse

endowment apparently reduces the level of food insecurity (Demeke et al.2011). Particularly, Putnam (1995) elaborated the linkages between social capital and food insecurity by considering social connections. As Putnam (1995) highlighted social connections reduce the probability of being food insecure, since social connections allow sharing staples and better nutritious habits among households. Apart from these international studies, empirical analyses focus on food insecurity in Sri Lanka is relatively low. Studies by Wickramasinghe (2008), De Silva (2007), Nanayakkara & Premaratne (1987), Nanayakkara (1994) and Mayadunne & Romeshun (2013) have computed incidence of food insecurity of Sri Lanka at national and district levels. However, none of these studies have examined the determinants of food (in) security in Sri Lanka. Similarly, the link between agriculture land ownership and food security has not been observed especially in the context of Sri Lanka. Apart from that, these empirical works have not attempted to recognize extremely food insecure households and the households who are vulnerable to food insecure. Similarly, various studies by scholars such as Datt & Gunewardena (1997), Gunewardena (2000) and World Bank (2002) have identified series of determinants of poverty such as household size, number of dependents, living sector, employment of the head of the household, age of the head of the household, education, receiving remittances and disability. However, the impact of agriculture land ownership on poverty has not been addressed sufficiently in the context of Sri Lanka. In addition to that, all the existing studies on poverty is based on conventional two-way poverty classification which ignore the disparities within poor and non-poor groups. Consequently, examining the link between agriculture land ownership, poverty and food insecurity is timely important. Give adequate information to allow the experiment to be reproduced. Already published methods should be mentioned with references. Significant modifications of published methods and new methods should be described in detail. This section will include sub-sections. Tables & figures should be placed inside the text. Tables and figures should be presented as per their appearance in the text. It is suggested that the discussion about the tables and figures should appear in the text before the appearance of the respective tables and figures. No tables or figures should be given without discussion or reference inside the text.

3. METHODOLOGY

03.1. Data

The current study is entirely based on the data from Household Income and Expenditure Survey (HIES) was conducted by the Department of Census and Statistics of Sri Lanka in 2012/2013. This is the most updated and accurate household data series available in Sri Lanka. HIES (2012/2013) covered the whole of Sri Lanka for the first time in Sri Lanka and surveyed 20,536 households across 24 Districts located in nine provinces. HIES data set is the key data source for calculating poverty estimates in Sri Lanka and widely used for empirical analysis due to its wide coverage. Hence, data requirements of the econometric model and descriptive analysis were collected from HIES (2012/2013).

03.2. Analytical Tool and Calculation of Dependent Variables

The study applies Ordered Probit Model which was introduced by Aitchison and Silvey (1957) as the main analytical tool in order to accomplish the objectives of the study. The generalized nature of the Ordered Probit Model used to estimate the relationship between poverty agriculture landownership can be expressed as follows.

$$y_i^* = x_i\beta + u_i \quad \text{..... (01)}$$

Where y^* is a discrete variable which can take any value from 1- 4 which indicate 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[1]. (HH expenditure$\leq Rs.7067$)

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$\leq Rs.14134$)

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$\leq Rs.21201$)

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

Similarly, to achieve the second objective of the study, the second model was estimated assigning food security variable as the dependent variable. In fact, food security variable is also classified into four categories in order to avoid wide disparities within the traditional two-way categories such as 'food security' and 'food insecurity'.

$$y_i^* = x_i\beta + u_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (02)$$

Where y^* is a discrete variable which can take any value 1- 4 which indicates the different levels of food insecurity as follows.

Extreme Food Insecure: The households' whose daily Calorie Consumption (CC) is less than or equal to half of the Recommended Calorie Consumption (RCC).
(HH's CC$\leq 0.5(RCC)$)

Moderately Food Insecure: The households' whose daily CC lies between half of the RCC and the RCC.
($0.5(RCC)$ <HH's CC$\leq RCC$))

Vulnerable to Food Insecure: The households' whose daily CC lies between the RCC and 1.5 times the RCC.
(RCC<HH's CC$\leq 1.5(RCC)$)

Food Secure: The households' whose daily CC is higher than 1.5 times the RCC.
(HH's CC $> 1.5(RCC)$)

Both Ordered Probit models were estimated with marginal effects to provide more realistic interpretation.

[1] 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).

3. RESULTS AND DISCUSSION

04.1. Impact of Agricultural Land Ownership on Poverty

Ordered Probit Model was applied to examine the impact of having agricultural lands on poverty in Sri Lanka. Four aspects of poverty – "Extremely Poor", "Poor", "Vulnerable Non-Poor" and "Non-Poor" as explained in the methodology were incorporated into the Ordered Probit Model. In addition to the key variable – having agriculture land, series of other variables which affect poverty are also included into the model. The estimated results are summarized in Table 2 below. The most focused and objective oriented variable of the Ordered Probit Model is, 'Agri Land' and the estimated coefficients indicate that the probability of being extremely poor, poor and vulnerable non-poor for the household who have agricultural lands is significantly lower than both the households who don't have agricultural lands. Particularly, the probabilities of being extreme poor, poor and vulnerable non-poor for the household who have agricultural lands are lower by 0.1%, 2.2% and 4.1% respectively, compared to those who don't have agricultural lands. Interestingly, the probabilities of being non-poor for the households who have agricultural land are higher by 6.42% compared to the households who don't own agricultural lands. In fact, all of the estimated coefficients for the considered variable are statistically significant at 1% level. Agriculture sector has been a crucial sector of the economy, despite its relative importance has been declining over time. In terms of the employed population by major economic sectors, agriculture sector accounts for approximately 27% of employed people, accommodating the second highest proportion of employed people. (Department of Census & Statistics, 2016). Apart from that, large proportion of people engages with informal-agriculture sector and also as self-employees. Under this scenario, ownership of agricultural land is extremely important for them to sustain livelihood in a smooth manner. As the results highlight, the households having agricultural lands have lower probability of being poor compared to the households who don't own agriculture lands. In fact, agricultural workers who don't own agricultural land have to pay off the rental for rented lands in cash or in-kind. Consequently, a larger share of agricultural income is transferred to the land owners while the agricultural workers end up with remaining which is even not sufficient for their living till the next season. As this process continuous as a cycle, majority of landless households are suffering from poverty or are vulnerable to poverty. This is also consistent with Daniel (2017) who examined the link between rice farming and poverty in Asian countries including Sri Lanka.

Table 02: Results of Ordered Probit Estimation on Poverty

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-03***	2.7E-03***	-4.E-03***
HH Size	0.401***	0.010	0.20***	3.64***	7.48***	-11.27***
Sector (Estate)						
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***
Gender (Female)						
Male	0.126***	0.036	-0.10***	-1.21***	-2.37***	3.63***
Ethnicity (Sinhala)						

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
Civil Status						
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***
Education (No Schooling)						
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***
Employment (Unemployed)						
Governmen	0.400***	0.068	-0.1***	-2.73***	-6.76***	9.59***
t	0.307***	0.087	-0.08	-2.19***	-5.28***	7.55***
Semi Gov.	-0.15***	0.035	0.06***	1.41***	2.80***	-4.26***
Private	0.682***	0.119	-0.10***	-3.61***	-10.19***	13.91***
Employer	0.028	0.035	-0.01	-0.25	-0.52	0.78
Self Employ	-0.045	0.225	0.02	0.43	0.85	-1.30
Fam. Work						
Agri Land (No Agri Land)						
Have Agri L.	0.215***	0.032	-0.10***	-2.21***	-4.10***	6.42***
Disability (Head of HH is a Disable)						
No Disabilit.	0.102***	0.024	-0.10***	-0.91***	-1.89***	2.85***
Remittances (No Remittances)						
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***
Ancillary parameters Ordered Probit			**Marginal Effects after**			
/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^2	0.0000					
Pseudo R^2	0.2078					
Observations	20,536					

Source: Author's calculation based on HIES (2012/13) data from DCS, Sri Lanka.

In addition to the key factor focused in the study, age of the head of household non-linearly (U Shaped) associates with each type of poverty. In fact, the more realistic story behind the U shaped relationship is, younger or middle-aged households' heads reduce the poverty level while relatively elder heads of household may account for higher poverty rates. Similarly, 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%. Male headed households have less probability of being poor compared to female headed households; specifically, 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. Apart from that, 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. Moreover, employment in any sector (except in the private sector and family work) compared unemployment, receiving remittances and household heads with no disability, reduce the probability of being poor in each aspect, and increase the probability of being non-poor.

04.2. Impact of Agricultural Land Ownership on Food Security

The table 03 indicates the determinants of food (in) security of Sri Lanka along with estimated coefficient using Ordered Probit Regression. As elaborated in the methodology, the food (in) security has categorised into four categories in order to conduct a detailed analysis. As the results indicate, having agricultural lands also significantly affects reducing food insecurity. The rural economy of Sri Lanka mainly depends on agriculture and hence owning agricultural lands ensure availability of staple foods, particularly such as rice for households' consumption. Consequently, the probabilities of being extremely and moderately food insecure of the households having agriculture lands are lower by 0.18% and 1.45%, compared to the households have no agriculture lands. Similarly, the probabilities of being vulnerable for food insecurity and being food secure of the households having agricultural lands is lower by 0.69% and higher by 0.94% respectively compared to the households who don't have agricultural lands. In fact, studies such as Gebre-Selassie (2005) and Madeley (2000) have also confirmed that holding agricultural lands and livestock essentially reduce food insecurity.

Table 03: Results of Ordered Probit model Estimation on Food (in)security

Variables	Coefficients	Robust Standard Error	Marginal Effects (%)			
			Extremely Food Insecure	Moderately Food Insecure	Vulnerable to Food Insecure	Food Secure
HH Size	0.0008	0.0049	-0.0033	-0.0271	0.0126	0.0178
Assets Index	0.0057***	0.0015	-0.025***	-0.201***	0.0931***	0.1318***
Sector (Estate)						
Estate	0.0208	0.0334	-0.0860	-0.7278	0.3317	0.4821
Rural	0.0101	0.0189	-0.0429	-0.3557	0.1654	0.2332
Gender (Female)						
Male	0.0346**	0.0153	-0.1261**	-1.0470**	0.4854**	0.6877**
Education (No Schooling)						

Primary	0.0135	0.0401	-0.0564	-0.4723	0.2174	0.3113
Secondary	-0.0721*	0.0393	-0.3015*	-2.5237*	1.1603*	1.6649*
Tertiary	-0.1007**	0.0454	-0.4594**	-3.5146**	1.7465**	2.2275**
Degree or <	-0.1077*	0.0650	-0.5058	-3.7493*	1.9115	2.3437*
Employment (Unemployed)						
Government	0.0994**	0.0346	-0.3832**	-3.4812**	1.4758**	2.3885**
Semi Gov.	0.1109**	0.0469	-0.4190**	-3.8811**	1.6115**	2.6890**
Private	-0.0060	0.0219	0.0252	0.2091	-0.0972	-0.1372
Employer	0.0544	0.0567	-0.2171	-1.9067	0.8379	1.2859
Self-Employ	0.0633*	0.0226	-0.2584**	-2.2166**	0.9962**	1.4788**
Fam. Work	-0.0750	0.1581	0.3423	2.6178	-1.3025	-1.6576
Agri Land (No Agri Land)						
Have Agri L.	0.0415*	0.0222	-0.1797**	-1.4499**	-0.6896**	0.9401*
Ancillary parameters			**Marginal Effects after Ordered Probit**			
/cut1	-1.6159	0.1379	0.0012`	0.0436	0.1561	0.7989
/cut2	0.3207	0.1367				
/cut3	1.5539	0.1371				
Prob > chi^2	0.0000					
Pseudo R^2	0.0019					
Observations	20539					

Source: Author based on HIES (2012/13)

In addition to the key variable, several other factors also affect food (in) security as discussed below. Despite size of household is not a significant factor of food insecurity in Sri Lanka, the impact of level of assets on food insecurity is significant at 1% level. More specifically, 1% increase in asset index reduces the probability of being extremely food insecure, moderately food insecure by 0.025% and 0.201% respectively. Asset index is a composite index which accounts for all household level assets including domestic equipment, electronic appliance and agricultural equipment as well. Further, similar result has been found by Abafita & Kim (2014) in the context of Ethiopia. Apart from that, male-headed households are more food secure than that of female-headed. According to table 03, male-headed households have 0.69% of higher probability of falling into food secure category compared to female-headed households. Similarly, the probabilities of falling into extremely food insecure and moderately food insecure of male-headed households are also lower by 0.13% and 1.05% compared to female-headed households. In fact, male-headed households have better access to nutritious food as their income levels are higher than that of female-headed. It is apparent that higher educational attainments seem to be the most crucial household factor of ensuring food security. In general, all education levels reduce the probability of being extremely and moderately food insecure while increasing the probability of being food secure compared to no schooling category. However, only the education levels such as secondary, tertiary and degree and above show statistically significant relationship with each type of food insecurity. Empirical works by Sultana & Kiani (2011), Kidane (2004) and Rose et al. (1998) have also found similar impact of education on food (in) security in the context of Pakistan, Ethiopia and USA respectively.

05. Conclusions and Recommendation

The current study used the HIES data to examine the impact of agriculture land ownership on both poverty and food security in Sri Lanka. The study goes beyond the conventional

empirical studies as the current study recognizes four-way poverty and food (in) security classifications based on national poverty line and daily dietary requirement proposed by MRI of Sri Lanka respectively. The analyses elaborates that having agricultural lands considerably reduces the probability of being extreme poor, poor and vulnerable non-poor while increasing the probability of being non-poor. Similarly, owning agricultural lands also reduces the probability of being extremely food insecure, food insecure and vulnerable to food insecure while increasing the probability of falling into food secure category. In addition to the key variable - ownership of agricultural land, other factors such as educational qualification of the head of household, gender, employment status, living sector, civil status and receiving remittances also significantly affect both poverty and food insecurity in Sri Lanka. However, land-right related issues are common among the rural and estate sector and also among the lower income groups. Therefore, it is strongly recommend to impose necessary polices to secure the land-rights of the public while providing agricultural lands for the respective groups.

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