



Beyond the Working Age: Labour Supply of Elderly Men and Women in Sri Lanka

P.G.N. Nilmini^{*1}, G.R.S.R.C. Samaraweera²

Abstract

The aging population, due to the increasing life expectancy and decreasing fertility rates as a result of the demographic transition in Sri Lanka, has created a number of challenges within the labour market. Elders re-entering the labour market is a common phenomenon in countries with rapid population ageing due to the lack of funding for the welfare of the elderly population. The main objective of this research is to compare the gender-based factors affecting Sri Lanka's elderly labour supply. Secondary data of the Sri Lanka Labour Force Survey (2018) was used for this study, while three Logit Regression models were used for the analysis on labour supply decision making, using 5,897 males, 7,325 females and 13,222 of total elders above the age of 60 years as samples.

According to this research, being in the provinces other than the Western Province and the non-urban sector caused a positive impact on elderly men's employment. Similarly, it also revealed that age, marital status, being uneducated or only possessing primary education caused a positive impact on elderly women's employment. Having children, household size has been non-Sinhala have negative impact on elderly labour supply. Finally, policy recommendations have been made to address the issues of the elderly labour supply in the two aspects of social welfare and institutional reforms of the labour market.

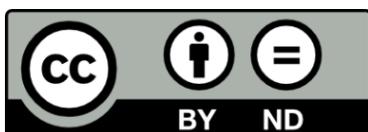
Keywords: Adult labour supply, elderly men and women, employment

Department of
Economics and Statistics,
Sabaragamuwa
University of Sri Lanka

1pgnadeeshanilmini@gmail.com

2sumadirangika@gmail.com

 <https://orcid.org/0000-0002-7420-8344>



This article is published under the Creative Commons CC-BY-ND License (<https://creativecommons.org/licenses/by-nd/4.0/>). This license permits to use, distribute, and reproduce the contents of the publication for commercial and non-commercial purposes, provided that the original work is properly cited and is not changed anyway.



Original Article

INTRODUCTION

The elderly labour supply can be identified as an important dimension in the labour economics as a push factor of economic growth due to sharing their working experiences in the labour market (International Labour Office, 2015). According to this interpretation, a similar view is that, though elderly and rapid ageing continue to be significant features in developing countries during the period 2010-2050, a major portion of the elderly in developed countries, already continue to earn. According to the US Department of Health and Human Services (2011), population aging, which is called the increasing of the elderly population over the age of 60 or 65 years, is a global phenomenon caused by the combination of the drop-in fertility rates and an increase in life expectancy. Though the ILO (2015) has shown that there will be an increase of the elderly labour force of over 65 years in the world from 11.2% in 2015 to 15.3% by 2030, none of the dimensions of decent work introduced by the International Labour Organization (ILO); such as the opportunity to work, the right to work, social security and social dialogue for suitable employment, will be applicable to them.

According to the World Population Aging Report (2019) by the United Nations, 703 million people were aged 65 or above in 2019 and this is expected to double in 2050. Persons over 80 years would triple during the period 2019-

2050. The population aged 65 or above in Central and Southern Asia would be one-fifth of their total population in 2050. Further, the life expectancy of females is generally higher than that of males, showing that the life expectancy of females in Central and Southern Asia is 70.9 years while it is 68.2 for males, thus showing a gap of 2.7 years from 2015-2020 (World Population Aging Report, 2019).

Sri Lanka is one among the fastest aging countries in the world and similarly it is forecast that it will age faster within the next 50 years, thus slowing the development of the labour force and a possible collapse thereafter (Vodopivec and Arunatilake, 2008). According to the World Population Aging Report (2019), the population equal to or over 65 years is 10.8% in 2019 and that will grow to 22.6% in 2050. This rate is the highest among all other South Asian countries and the average percentage for Southern Asia (6% - 2019 and 13.2% - 2050 projections). Life expectancy at birth for males and females were recorded as 72.4 and 79.3 years respectively from 2010-2015, showing a gap of 6.9 years. Therefore, economic vulnerability due to becoming elderly would be high among the females than the males in Sri Lanka. The old age dependency ratio was 18.9 percent in Sri Lanka and this will increase to 42.5 percent in 2050, leading to a double rate in comparison to the general Southern Asian context (21.9% in 2050). The economic old age dependency ratio in Sri Lanka will also



Original Article

increase from 19.9% to 44.7% during the period 2019-2050 (World Population Aging Report, 2019).

Therefore, the re-entering of elders into the labour market would be an important phenomenon in Sri Lanka as a coping strategy for the shrinking labour force in future Sri Lanka. This would be predominant in the market as an empowering tool for elderly people, rather than them being dependents on government welfare programs. Hence, this study has identified the importance of identifying the factors associated with the labour force participation of elderly people by answering the following research questions with a special focus in this study:

- What are the main factors that affect the supply of elderly labour in Sri Lanka?
- Do these factors change according to gender?

Research objective

The main objective of this research is to compare the factors that affect the elderly labour supply in Sri Lanka between elderly men and women in Sri Lanka.

The importance of the study

In the world and the regional perspective, a considerable percentage live as elderly groups and it is evident that the issues they face economically and socially can be minimized by

making them re-enter into the labour force. Sri Lanka too shows a rapid population ageing in comparison to all other South Asian countries leading to a rapid shrinking in the labour force of the country after 2030 according to (Vodopivec and Arunatilake, 2008). This would create negative implications on the economic growth of the country and the re-entering of elders into the labour market would have several positive economic implications such as reducing the burden of social welfare, reducing social exclusion and the isolation of elderly people, slowing the labour market shrinking in addition to improving their economic potentials. Although having strong social security and welfare for elderly people is an icon of economic development in developed regions, the re-entering behaviour of elderly people into the labour market would create positive impacts on the countries' economies, although it leads to physical and psychological burnouts due to biological deprivation at that particular age level.

Currently the retirement age is one of the most discussed topics in Sri Lanka with the new budget proposal in 2021 for increasing the retirement age of government workers for five more years, from 60 years to 65 years. The positive and negative implications of this would be valid regarding the new proposal as well, and this study would support the relevant authorities to identify the nature of retired people



Original Article

who are interested in continuing their employment further and to formulate policies for the labour market.

LITERATURE REVIEW

Different socio demographic, family, economic and geographical factors are associated with the employment decision making process of elderly people. The Activity Theory explains that elders who are active and healthy will be more content in their later lives. This theory indirectly affects the post-retirement work concept (Perera and Weerakkody, 2019). While putting forward a differing view, Zacher and Rudolph (2017) have pointed out that they will be active before as well as after retirement. However, it has been revealed that this theory ignores the elderly workers' socio-economic and health inequalities. The Job Search Theory contributes considerably in nourishing the Post-retirement Employment Theory. The Post-Retirement Employment Continuity Theory provides a strong foundation to the objectives of this research. Accordingly, while many elderly workers continue with the activities that they had engaged in and connections they had enjoyed previously, they continue with their profession related activities (work) even after retirement. While the post-retirement employment continuity theory can be portrayed as an extension of the activity theory, there are two continuities under this theory; Internal Continuity: Views, experiences,

impacts and merits and External Continuity: Emphasizes on task, activities and connections.

According to Vestad (2013) the elderly labour supply shows a decline with increasing age, while a similar research by Soong (2020) in Taiwan shows that 10.3% of the over 65 year elderly population is employed. Furthermore, he has found that there are active elderly people in the 65 to 75 year age group. Meanwhile, Bettin et.al. (2019) point out that the labour force participation of elderly women increases by 0.028% due to education. Further, Wang et.al. (2020) have found that female labour supply among women is minimal when they have small children and that they again contribute to the labour market when there is an unemployed man. Sienaert (2008) has noted that there is a drop in women engaging in employment due to their responsibilities at home. According to Palloni et.al. (1999) the aging of elders and most among them becoming widowed, cause a negative impact on the elderly labour supply based on their social isolation and psychological stress. As stated by Bell et.al. (2011), widowed and divorced elders are comparatively lesser than the married elderly. Further, those like Perera and Weerakkody (2019); Unnikrishnan and Sen (2020) have found that the presence of adult children within a family causes a negative impact on the entry into the labour market. Through her research, Vangen (2021) has pointed out that the



Original Article

presence of disabled children causes a negative impact on the elderly labour supply. Nguyen et. al. (2012) and Perera and Weerakkody (2019) state that the family negatively impacts the elderly labour supply. Nguyen et.al. (2012) have pointed out that the presence of children between the ages of 1 to 5 and 6 to 7 causes a considerable impact on the elderly labour supply. Magnani and Rammoham (2006) have also revealed that childcare (pre-school, school) causes a considerable impact on the labour supply of elderly women. However, Sumanasekera (2004) points out that the presence of small children positively impacts the labour force participation of both elderly men and women. Research by Senanayaka and Kumara (2012) has defined that there is a decline in the rate of elderly employment when they have children of employable ages.

Vodopivec and Arunatilake (2008) have mentioned that the skills of the elderly workers improve through their lifelong investments in learning. Soong (2020) has identified that active elderly persons can be reintegrated into the labour force through education and training policy programmes. Kaushal (2014) states that though there is a shortfall of elderly Indian men with primary and lower levels of education being employed, this does not cause any grave impact where women are concerned. According to Unnikrishnan and Sen (2020) there is a decline in elderly Muslim women entering the

labour market. Based on this, the study developed the following hypothesis.

H₁: Socio demographic factors affect the labour supply of elderly men and women.

Senanayaka and Kumara (2012) have researched that the willingness of elders living in urban areas to work while ignoring gender differences is minimal, and that around 1/3rd of the elders are living in the Western Province, while around 60% of elders are living in both the Central and Western Provinces. Though the economic risks of the elderly living in rural areas are higher when compared to the urban areas, most of the elderly in the rural sector work more when compared to the elders living in urban areas (Rubb, 2003). Therefore, the second hypothesis is given below.

H₂: Geographical factors affect the labour supply of elderly men and women.

Research in Sri Lanka by Vodopivec and Arunatilake (2008) reveal that the nature of jobs contributes considerably towards employment for the elderly. It has been identified that being in the agricultural sector and engaging in self-employment further increase the probability of being employed (Raymo et al., 2004). Further, Armstrong et.al. (2012) have identified that wages are the main factor that push the elderly workers towards employment even after their retirement. Furthermore, elderly workers continue in their



Original Article

employment with the expectation of financial dividends and this has a positive relationship on the elderly labour supply (Kooij., 2008). While differing with this view, Nguyen et.al. (2012) portray that they apply for labour since those receiving retirement payments remain at a minimally low level of 10%, and that non-labour related income impacts negatively on the elderly labour supply. While Turek and Perek-Bialas (2013) have noted that since modern labour is different from older labour, experience is important to update it; Adhikari et.al. (2011) have emphasised that they turn towards employment based on their standards of living. Senanayaka and Kumara (2012) opine that the elderly enter the labour market when the debts of the family increase. Hence, the third hypothesis was derived as follows:

H₃: Economic factors affect the labour supply of elderly men and women.

RESEARCH METHODOLOGY

Micro level secondary data from the Sri Lanka Labour Force Survey (2018) was used for this study. A group of over 60 years was chosen as the sub sample for the study. The sample size was 13,225 elderly people. Three workers (3) who had obtained special education have been removed from the sample to maintain the consistency in the variable of education under the explanatory variables. Since the number of years that they had gained their education could not be calculated properly, these

three cases were removed, leading to the final sample size of 13,222. Out of them 7,325 are elderly women and 5,897 are elderly men.

Three binary logit regression models were used to determine the elderly employment based overall sample and the two sub samples by gender. The logit equation is given below.

$$\ln \left[\frac{P_i}{1 - P_i} \right] = \text{Logit} (Y) = \beta_0 + \beta_i X_i + \dots + \beta_j X_j + \varepsilon$$

The dependent variable of the regression model is a dummy of having or not having employment while socio, demographic and economic factors including age, age square, household size, presence and ages of children in the household, gender, marital status, education, professional training, ethnicity, residential sector and the presence of employed children in the household were used as the independent variables based on the conceptual framework developed by the literature review.

The binary logit regression model was used by previous studies, commonly (Senanayaka and Kumara, 2012; Vodopivec and Arunatilake, 2008) and the mathematical simplicity of the model was another reason for selecting this model over the probit model. Since the study has already used the marginal effects of the logit regression model which are almost similar to the marginal effects of the probit regression, the econometric model used by the study would be better in this context. There are several ways of



Original Article

interpreting logit models including average logit, odds ratio, probability and marginal effects. This study used

the margins command in calculating marginal effects of the coefficient and the interpretations were based on this.

Table: 01 Conceptualization of Explanatory variables

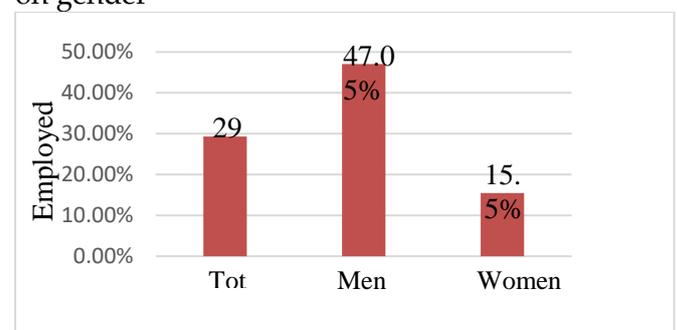
Factors	Variable	Researcher
<i>Socio demographic factors</i>	Age	Vestad (2013), Soong (2020), Bettin et.al (2019)
	Gender	Bettin et.al. (2019), Wang et.al. (2020) Sienaert (2008), Palloni et.al. (1999)
	Marital Status	Palloni et.al. (1999), Bettin et.al. (2019), Bell et.al. (2011)
	Presence and ages of children in the household	Perera & Weerakkody (2019), Unnikrishnan & Sen (2020), Vestad (2013), Nguyen et. al. (2012)
	Education	Vodopivec and Arunatilake (2008), Soong (2020), Kaushal (2014),
	Professional training	Vodopivec and Arunatilake (2008), Soong (2020), Unnikrishnan and Sen (2020)
<i>Geographical factors</i>	Residential sector	Rubb (2003), Senanayaka and Kumara (2012)
<i>Economic factors</i>	Presence of Employed children	Kooij (2008), Adhikari et.al. (2011)
	Non-labour related income	Nguyen et.al. (2012), Perek-Bialas (2013), Adhikari et.al. (2011)

Source: Developed by the researcher

RESULT AND FINDINGS

This study analyses the key features of employment among elderly people disaggregated by gender. Graph 1 shows the employment of elderly men and women in Sri Lanka.

Graph 1: Employment of the elderly based on gender



Source: Researcher developed using micro-data from the LFS Report 2018

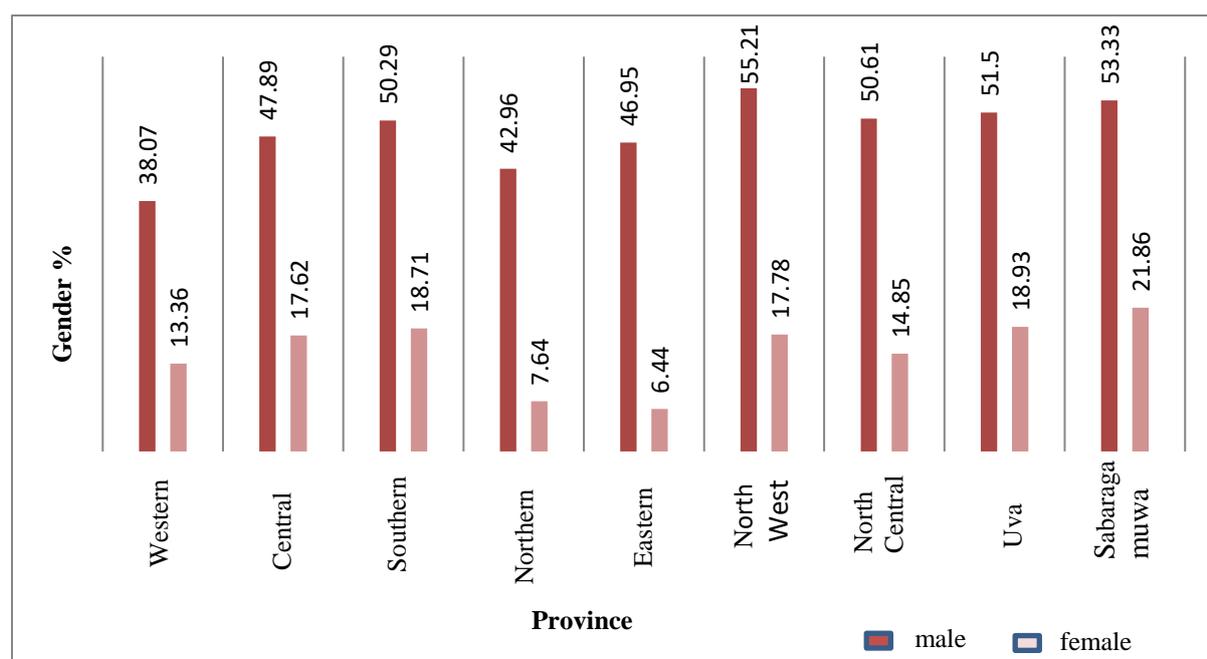


Original Article

According to Graph 1, the majority among the employed are men (47.05%). When compared to elder women, the diversity of jobs available for men and their ability to find higher earning employment opportunities like masonry, growing paddy, growing tea,

being shop managers, street vendors like lottery sellers (except food), and being away from household work. are the reasons for the increase in their employment. Latif (2006) has stated that there is a higher probability for men to be employed.

Graph 2: Employment of elderly based on the province



Source: Researcher developed using micro-data from the LFS Report 2018

The highest employment proportion among elderly men was recorded in the North Central Province while the Sabaragamuwa and North Western provinces come second and third respectively. The highest proportion among elderly women was recorded in the Sabaragamuwa Province while the Uva and Southern Provinces come second and third respectively (Graph 2).

The nature of occupation of the elderly employed was analyzed in Table 03.

Most of the elderly people are working as paddy farmers (for trade), tea growers, field crop and vegetable growers, crop farm labourers, tea pluckers, shop managers and subsistence crop farmers. The majority of employment among elderly men is as paddy growers, tea growers and shop managers, while the majority of elderly females are working as tea pluckers, tea growers, crop farm labourers, dress sewing & dressmakers, fur traders & hat makers.



Original Article

Descriptive statistics of the regression model is presented in Table 02. According to this, the mean age of the sample is 69 and the majority of the sample is women. Only 5 percent of elderly people have children less than 6 years of age in the family. The majority of the sample is married, and 30 percent are widowed. The majority of the samples have received secondary education followed by primary education.

The results of the binary logit regression model are presented in Table 3 after the descriptive statistics. Three binary logit regression models in total, for males and for females are presented in the Table. The different socio, economic and demographic factors are considered as the key explanatory variables in the model.

Base Category: Though factors like being a married Sinhalese woman, with no children in the family, living in the urban areas, living in Western Province, having tertiary education, with training, with no availability of employed children in the family.

Among demographic factors, age, gender, marital status and the presence of children are considered as important factors that determined the labour force participation of elderly people.

Although age does not impact men, this causes a positive impact on the employment of elderly women at a decreasing rate. There has been an increase in elderly women's

employment with age, the reasons mainly being due to an increase in the life expectancy of women, elderly women's special interest on their health unlike men, their ability to engage in employment opportunities like sewing clothes and dressmaking while remaining at home. The main reason for this decreasing rate is physical suffering due to the infliction of non-communicable diseases and their need for more rest due to general biological deprivation. Similarly, there may also be a decrease in employment based on allowances for elders and the payment of pensions for government employees. According to Woodland (1987) it has been identified that age is statistically versatile in research on the elderly labour supply.

When the household size increases, the engagement of employment by elderly people decreases due to the caring of elders by the others and this is common for all elders, men and women. Compared to a family with no children, the presence of small children, namely children under 6 years and school going children between the ages of 6-17 in the household, cause a negative impact on the overall employment of elders and women. Though there is an overall decline in the employment of elders and a decrease in the employment of elderly women when there are children under 6 years of age in the family, according to regression model 02, it does not impact the elderly men. Similarly, it shows a decline in the employment of elderly women when



Original Article

there are children between the ages of 6-17, according to regression model 03. There is unemployment or economic inactiveness among women mainly due to reasons like the elders looking after their grandchildren and the inability to engage in employment as they have to spend more time if there are children of school-going ages. However, when there are children over 18 years of age, it creates a positive impact on the employment of elderly men, whereas it creates a negative impact on elderly women. Thus, though elderly, when compared to women, the employment for men in households with children above 18 years of age could indicate an increase based on the men's responsibilities being higher at the household level, the higher preference of men to engage in employment within sectors closer to their homes, like field crops and tea growing. The employment of women shows a decline due to their dependency on adult children and requests for more time for rest. Nguyen et.al. (2012) have pointed out that the presence of children from 1-5 years and 6-17 years considerably affected the supply of elderly labour.

Gender causes a considerable impact on the decision of the elderly labour supply. When compared to women, there could be an increase in the employment of men due to them bearing higher responsibilities, elderly men who have made traditional agriculture their livelihoods continuing to engage in their agricultural activities

till they become physically weak, and men mainly engaging in higher earning employment opportunities like carpentry and furniture making, masonry, as shop managers and commercial sales agents. Latif (2006) has revealed that there is a higher probability for men to be employed and factors like having children and lower levels of education are the reasons for the decline in women's employment.

When studying their marital status, though Table 4 shows a decline in the unmarried elderly being employed when compared to the married, a considerable number of unmarried women being employed caused a positive impact. Though the employment of elderly unmarried men being negative shows a decline in employment, the probability of unmarried elderly women going for work being positive shows them being employed when compared to men. The reason for this is the life expectancy of women being higher when compared to men, and their willingness to engage in some kind of employment to minimize their isolation and also to increase their income security for living in a situation with the absence of their husbands or children to look after them. Similarly, the decline in the total elderly employment and the decline in men's employment can be seen based on them being a widow or a widower. This makes it clear that elderly employment decreases based on being a widow or widower. Since being widowed happens along with an



Original Article

increasing age, the reason for the decline in men's employment is the time taken by them to engage in employment after the death of their wives. Similarly, there could be a decline in employment while based on factors like social isolation, spending time at home while caring for children and depending on social security allowances. However, the impact is positive on the employment of divorced and living alone (separated) elderly women. The reason for this is because the status of being divorced is a process that occurs not with increasing age but before. During such instances, based on reasons like the life expectancy of women being higher when compared to that of men, it can be seen that they have to engage in some kind of employment before they become elderly and continue till, they become physically weak. While an increase in employment can be seen among divorced and living alone (separated) elderly women according to regression model 03, an increase can be seen in the total elderly model. Research by Palloni et.al. (1999) has shown that with the majority of the elders becoming widowed with their increasing ages, it causes a negative impact on the elderly labour supply based on their social isolation and psychological pressures.

Ethnicity considerably affects elderly employment. An ethnic comparison with the Sinhalese indicates that being non-Sinhalese causes a negative impact on employment among the elderly

model, and when considered separately according to Table 4. The presence of more children in Muslim families and the Muslim women having to care for them, the dislike of the other members of the family and cultural reasons may be the causes for this decrease in employment. While Table 4 shows the decline in employment among the total elders, among women and among men; when compared to elderly men, employment among women has declined considerably. Research by Unnikrishnan and Sen (2020) has shown that there is a decline in Muslim women entering the labour market. The opportunities for employment are relatively lower for non-Sinhalese than the Sinhalese in the general market and that also might affect the specific context of the elderly labour market.

Educational advancement and the standard of living are important factors in employment decisions. When compared to elders who have received tertiary education, though the impact is positive on the employment of the total elders and elderly women who are uneducated or have received primary education, education does not considerably affect the employment of elderly men. As women with such minimal education are engaged in growing field crops and vegetables, sewing and dressmaking, fur trading, hat making, as cleaners and helpers in hotels and other institutions, employment among women who are uneducated or have received primary



Original Article

education show an increase of 6.79% and 6.49%. Similarly, though becoming elderly, they can still be seen engaged in employment to gain financial benefits as they have committed half of their life time on education. Research by Soong (2020) has identified that active elderly persons can be reintegrated into the labour force through education and training policy programmes. When women are considered separately, the increase in the number of family members cause a negative impact on their employment. Employment shows a decrease of 1.01% among women and 0.75% among men based on elders spending time leisurely when there are employed members in the family and elderly women spending more time on their family activities. The impact caused by the increase in the number of members in a family is greater on the employment of women in comparison to elderly men. Research by Raymo et.al. (2004) revealed that the socio-economic status and family structure cause a considerable impact on the employment decision making of employment among elderly people.

As the majority of the total elders in Sri Lanka live in and around rural and estate areas, the elders living in rural areas engage mainly in agricultural and plantation related employment opportunities like growing field crops and vegetables and growing tea for trade. While elderly women living close to estates could be commonly seen engaging in employment as tea

pluckers, both women as well as men could be seen engaging in activities like growing tea for trade. So, according to Table 4, while there is a considerable increase among the total elderly group when they live in a non-urban area, 4.8% of the elderly women and 4% of the elderly 8.5% of Non-western elderly men and 1% of elderly women engaged in employment. The elders living outside the Western Province mainly engaging in the agricultural and fisheries industries can thus cause an increase in employment. Research by Senanayaka and Kumara (2012) has indicated that more than the elders living in the Central, North Western and North Central Provinces, the elders living in the Sabaragamuwa and Northern Provinces create a larger impact on employment opportunities and that the elders living in the urban sector engaging in employment show a minimal level.



Original Article

Table 02: Total elders employed and the category of employment based on elderly gender

<i>Employed elderly group of over 60</i>	<i>Total 3911</i>		<i>Men 2775</i>		<i>Women 1136</i>	
	No	%	No	%	No	%
Employment status						
Shop Managers	193	4.93	155	5.59	38	3.35
Commercial & Sales Agents	61	1.56	48	1.73	-	-
Shop & Market Salespersons	39	1	-	-	-	-
Shop Sales Assistants	40	1.02	-	-	-	-
Security Guards	49	1.25	46	1.66	-	-
Field Crops & Vegetable Growers (Except grains, estate crops & minor export crops) For trade	200	5.11	163	5.87	37	3.26
Grain Crops Growers (Except Paddy) For trade	45	1.15	-	-	-	-
Paddy Growers (For Trade)	298	7.62	271	9.77	-	-
Tea Growers (For Trade)	284	7.26	183	6.59	101	8.89
Minor Crops Growers (For Trade)	106	2.71	82	2.95	-	-
Home-Garden, Garden & Nursery Growers (For Trade)	36	0.92	-	-	-	-
Mixed Crops Growers (For Trade)	53	1.36	39	1.41	-	-
Livestock Producers (For Trade)	42	1.07	-	-	-	-
Subsistence Crop Farmers	177	4.53	140	5.05	37	3.26
Carpenters & Furniture Manufacturers	52	1.33	52	1.87	-	-
Masons (General)	65	1.66	65	2.34	-	-
Handicraft Producers (Wood, Cane & Related Materials)	31	0.79	-	-	-	-
Bakers, Flour-based Item Producers & Sweetmeat Producers	47	1.2	-	-	-	-
Tobacco Makers & Tobacco Products Manufacturers	42	1.07	-	-	33	2.9



Original Article

Dress Sewing & Dressmakers, Fur Traders & Hat Makers	71	1.82	-	-	59	5.19
Three-wheeler Drivers	63	1.61	62	2.23	-	-
Domestic Cleaners & Helpers	53	1.36	141	5.08	43	3.79
Cleaners & Helpers in Hotels & Other Institutions	70	1.79	-	-	41	3.61
Crop Farm Labourers	219	5.6	-	-	78	6.87
Tea Pluckers	183	4.68	-	-	154	13.56
Rubber Tappers	45	1.15	-	-	-	-
Building Construction Labourers	45	1.15	44	1.59	-	-
Production Labourers (Unspecified Elsewhere)	57	1.46	33	1.19	-	-
Street Vendors (Except Food)	46	1.18	31	1.12	-	-
Workers in Basic Professions (Unspecified Elsewhere)	117	2.99	101	3.64	-	-
Other Employment	1,082	27.67	1,119	40.32	515	45.33

Source: Researcher developed using micro-data from the LFS Report 2018

Table 3: A detailed statistical analysis on elderly employment

		Total N=13322		Men N=5897		Women N=7325	
Variable		Regression model 01		Regression model 02		Regression model 03	
		Mean/ Proportion	Standard Deviation	Mean/ Proportion	Standard Deviation	Mean/ Proportion	Standard Deviation
Employment choice							
	Employed	0.2957	0.4564	0.4706	0.4992	0.1551	0.3620
<i>Demographic factors</i>	Age (X ₁)	69.211	7.4219	68.8635	7.1722	69.4915	7.6059
	Age Square (X ₂)	4845.297	1083.179	4793.612	1040.1	4886.906	1114.984
<i>Children in the family</i>	Children under 6 years (D ₁)	0.0502	0.2534	0.0319	0.2043	0.0649	0.2859
	Children under 6-14 years (D ₂)	0.1892	0.5627	0.1363	0.4667	0.2318	0.6263
	Children of 18 years (D ₃)	0.7159	0.8026	0.7789	0.8418	0.6651	0.7658
<i>Gender</i>	Male (D ₄)	0.4459	0.4971	-	-	-	-



Original Article

<i>Marital status</i>	Married (D ₅)	0.6473	0.4778	0.8562	0.3509	0.4790	0.4996
	Unmarried (D ₆)	0.0393	0.1942	0.0307	0.1725	0.0461	0.2098
	Widower (D ₇)	0.3002	0.4584	0.1033	0.3043	0.4587	0.4983
	Divorced or similar (D ₈)	0.0133	0.1146	0.0098	0.0987	0.0161	0.1259
<i>Social factors</i>	Not received education (D ₉)	0.0753	0.2639	0.0419	0.2003	0.1023	0.3030
<i>Education (D₄)</i>	Received primary education (D ₁₀)	0.3101	0.4625	0.2996	0.4581	0.3185	0.4659
	Received secondary education (D ₁₁)	0.5926	0.4914	0.6320	0.4823	0.5609	0.4963
	Received tertiary education (D ₁₂)	0.0219	0.1465	0.0265	0.1605	0.0183	0.1340
<i>Job training (D₅)</i>	No training (D ₁₃)	0.9792	0.1427	0.9754	0.1549	0.9823	0.1320
<i>Ethnicity (D₆)</i>	Non Sinhalese (D ₁₄)	0.2562	0.4366	0.2625	0.4400	0.2512	0.4337
<i>Geographical factors</i>	Number of members in family (X ₃)	3.7425	1.8116	3.7726	1.7862	3.7182	1.8315
<i>Area living in</i>	Non-urban (D ₁₅)	0.8279	0.3774	0.8279	0.3775	0.8279	0.3774
<i>Province living in</i>	Not living in Western Province (D ₁₆)	0.7611	0.4264	0.7639	0.4247	0.7588	0.4279
<i>Economic factors</i>	Availability of employed children in family (D ₁₇)	0.4636	0.6442	0.5019	0.6689	0.4328	0.6218

Source: Researcher developed using micro-data from the LFS Report 2018

Table 4: Logit regression model for elderly employment

Total N=13322				Men N=5897			Women N=7325		
Regression Model 01				Regression Model 02			Regression Model 03		
Logit Coefficient	Marginal Effect	p>z		Logit Coefficient	Marginal Effect	p>z	Logit Coefficient	Marginal Effect	p>z



Original Article

Age (X ₁)		0.1452	0.0227	0.123	-0.0565	-0.0113	0.589	0.4158	0.0491	0.049**
Age Square (X ₂)		-0.0020	-0.0003	0.003***	-0.0006	-0.0001	0.421	-0.0040	-0.0005	0.01***
Household size (X ₃)		-0.0654	-0.0102	0.000***	-0.0372	-0.0075	0.10*	-0.0856	-0.0101	0.003***
<u>Children in the household</u>										
Having Children under age 6 years (D ₁)		-0.3396	0.0532	0.003***	-0.2101	-0.0422	0.179	-0.5298	-0.0626	0.003***
Having Children between 6-17 years (D ₂)		-0.1282	-0.0200	0.019**	-0.0549	-0.0109	0.452	-0.3009	-0.0355	0.002***
Having Children above 18 years (D ₃)		-0.0480	-0.0075	0.296	0.1148	0.0231	0.055*	-0.1845	-0.0218	0.035**
<u>Gender</u>										
Male	(D ₄)	1.7237	0.2700	0.000***						
<u>Marital status</u>										
Unmarried	(D ₅)	-0.0188	-0.0029	0.880	-0.5840	-0.1174	0.001***	0.4309	0.0509	0.004***
Widowed	(D ₆)	-0.1252	-0.0196	0.052*	-0.5640	-0.1133	0.000***	0.1277	0.0151	0.115
Divorced / Separated	(D ₇)	0.3565	0.0559	0.041**	0.1418	0.0285	0.601	0.6189	0.0731	0.004***
<u>Education</u>										
Uneducated (No schooling)	(D ₈)	0.4172	0.0654	0.029**	0.2803	0.0563	0.272	0.5758	0.0679	0.053*
Received primary education	(D ₉)	0.4228	0.0662	0.013**	0.3429	0.0689	0.112	0.5504	0.0649	0.047**
Received secondary education	(D ₁₀)	0.3129	0.0490	0.058*	0.2896	0.0582	0.166	0.3472	0.0410	0.200
<u>Professional training</u>										
No professional training	(D ₁₁)	-0.2339	-0.0367	0.132	-0.1678	-0.0337	0.399	-0.2814	-0.0332	0.232
<u>Ethnicity</u>										
Non- Sinhalese	(D ₁₂)	-0.5439	-0.0852	0.000***	-0.4183	-0.0840	0.000***	-0.7826	-0.0924	0.000***
<u>Residential area and province</u>										
Non-urban	(D ₁₃)	0.2781	0.0436	0.000***	0.1991	0.0400	0.019**	0.4109	0.0485	0.000***
Non- Western	(D ₁₄)	0.2765	0.0433	0.000***	0.4265	0.0857	0.000***	0.0575	0.0068	0.524
<u>Employed Children (D₉)</u>										
Availability of employed children in the household	(D ₁₅)	-0.0251	-0.0039	0.623	-0.0401	-0.0081	0.550	0.0691	0.0082	0.459
<u>Constant</u>		2.41		0'000)))	-0.337		0'000)))	1.0526		0'000)))

Source: Researcher developed using micro-data from the LFS Report 2018 (Statistically versatile under 1%, 5%, 10%)



Original Article

Examining the suitability of the overall model

Table 05: Examining the suitability of the overall model based on gender

	N=13222	N=7325	N=5897
Pseudo R ² (Overall model)	21.61%	11.53%	15.36%
Likelihood Ratio Test = LR statistic	p=0.000	p=0.000	p=0.000

Source: Researcher developed using micro-data from LFS Report 2018

McFadden's R² is 21.61% for the overall while this is 11.53% for women and 15.36% for men. The overall significance of models was further proved by the significance of LR statistics according to Table 05.

CONCLUSION

The study concluded that the household size, availability and the age of children in the family, marital status, ethnicity, the province and residential sector they live in considerably affect the employment of both men and women. Elderly male involvement in employment is considerably higher than that of elderly women.

Factors like age, age square and education considerably affect the employment of elderly women. With the increase of women's lifespan, introducing the following procedures will be important to further promote employment:

- Promoting home-based employment opportunities like making sweetmeats, handicrafts like cane related products, dress sewing & dressmaking, fur trading & hat making through a vocational training center.
- Taking steps to implement the necessary legal framework on the elderly labour supply to provide comprehensive welfare coverage to elderly workers.
- Prepare the foundation with the assistance of the Department of Labour and the Ministry of Labour to engage in all types of employment, irrespective of gender differences.
- Since the majority of elderly workers are employed in agricultural occupations, updating the farmers' pension scheme to be received by all, thus promoting the employment of elderly rural agricultural workers and increasing their psychological endurance, through the Agrarian Services Centers.
- The employment among elderly people is relatively high in non-urban areas and the provinces other than the Western Province. Elderly employment among men is higher in the North Central, Sabaragamuwa and North Western Provinces, while the highest employment rate among elderly women is recorded in the Sabaragamuwa, Uva and Southern Provinces. Regional development programs should give policy priorities to promote self-employment options for elderly people, especially in the considered



Original Article

provinces, and social security networks should be further extended through the provincial ministries on social welfare.

- Since the majority of female elderly workers have low levels of education, they should be trained for employment which need low literacy levels.

Since the study was based on secondary data, the researcher did not have access to some important aspects such as the wealth of the respondent, the presence of chronic diseases among elders and their spouses. This is considered as a limitation in the current study.

Acknowledgements

The authors wish to acknowledge the Department of Census and Statistics in Sri Lanka for providing micro level data of the Sri Lanka Labour Force Survey (2018) for this study.

References

- Adhikari, R., Soonthornhdhada, K., & Haseen, F. (2011). Labor force participation in later life: Evidence from a cross-sectional study in Thailand. *BMC geriatrics*, *11*(1), 1-8.
<https://link.springer.com/article/10.1186/1471-2318-11-15>
- Armstrong-Stassen, M., Schlosser, F., & Zinni, D. (2012). Seeking resources: Predicting retirees' return to their workplace. *Journal of Managerial Psychology*.
<https://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=1113&context=odettepub>
- Bell, B., Adhikari, K., Chambers, E., Cherdchu, P., & Suwonsichon, T. (2011). Ethnic food awareness and perceptions of consumers in Thailand and the United States. *Nutrition & Food Science*.
<https://krex.kstate.edu/dspace/bitstream/handle/2097/12208/ADHIKARIEMERALD2011.pdf;sequence=1>
- Bettin, G., Giorgetti, I., & Staffolani, S. (2019). *Who Cares for the Carers?: The Impacts of Immigrant Elderly Care Workers on the Female Labour Supply*. Università Politecnica delle Marche, Dipartimento di Scienze Economiche e Sociali.
https://siecon3-607788.cdn77.org/sites/siecon.org/files/media_wysiwyg/108-bettin.pdf
- Department of Census and Statistics. (2019). Sri Lanka Labour Force Survey. *Annual Report* (2018).
<http://www.statistics.gov.lk/LabourForce/StatisticalInformation/AnnualReports/2018>
- International Labour Office. (2015). *World employment and social outlook: trends 2015*. Geneva, Switzerland: International Labour Organization.
https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_337069.pdf
- Kaushal, N. (2014). How public pension affects elderly labor supply and well-being: Evidence from India. *World Development*, *56*, 214-225.
https://www.nber.org/system/files/working_papers/w19088/w19088.pdf
- Kooij, D., de Lange, A., Jansen, P., & Dijkers, J. (2008). Older workers' motivation to continue to work: Five meanings of age: A conceptual review. *Journal of managerial psychology*.
- Latif, E. (2006). Labour supply effects of informal caregiving in Canada. *Canadian Public Policy*, *32*(4), 413-429.
https://www.researchgate.net/profile/Ehsan_Latif/publication/5008274_Labour_Supply_Effects_of_Informal_Caregiving_in_Canada/links/5579023308aeb6d8c01fd29/Labour-Supply-Effects-of-Informal-Caregiving-in-Canada.pdf
- Magnani, E., & Rammohan, A. (2006). The effect of elderly caregiving on female



Original Article

- labour supply in Indonesia. *University of New South Wales and University of Sidney*. <https://www.business.unsw.edu.au/research-site/centreforappliedeconomicresearch-site/Documents>
- Nguyen, H. T., Liu, A. Y., & Booth, A. L. (2012). Monetary transfers from children and the labour supply of elderly parents: evidence from Vietnam. *Journal of Development Studies*, 48(8), 1177-1191. <https://www.econstor.eu/bitstream/10419/67155/1/730157628.pdf>
- Palloni, A., De Vos, S., & Pelaez, M. B. (1999). *Aging in Latin America and the Caribbean*. Center for Demography and Ecology, University of Wisconsin--Madison. <https://cde.wiscweb.wisc.edu/wp-content/uploads/sites/839/2019/01/cde-working-paper-1999-02.pdf>
- Perera, E. A. Y. D., & Weerakkody, W. A. S. (2019). Determinants of Post-Retirement Employment in Sri Lanka. *Kelaniya Journal of Management*, 7(2). https://www.researchgate.net/profile/Was_Weerakkody/publication/328580509_Determinants_of_Post-Retirement_Employment_in_Sri_Lanka
- Raymo, J. M., Liang, J., Sugisawa, H., Kobayashi, E., & Sugihara, Y. (2004). Work at older ages in Japan: Variation by gender and employment status. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 59(3), S154-S163. <https://academic.oup.com/psychsocgerontology/article/59/3/S154/563626>
- Rubb, S. (2003). Social Security's earnings test penalty and the employment rates of elderly men aged 65 to 69. *Eastern Economic Journal*, 29(3), 415-431. https://digitalcommons.sacredheart.edu/cgi/viewcontent.cgi?article=1170&context=wcob_fac
- Senanayaka, T. S., & Kumara, A. S. (2012). The Employment Status of the Elderly in Sri Lanka: Patterns and Determinants. https://mpr.ub.uni-muenchen.de/43033/1/MPRA_paper_43033.pdf
- Sienaert, A. (2008). The labour supply effects of the South African state old age pension: Theory, evidence and implications. http://www.opensaldru.uct.ac.za/bitstream/handle/11090/35/2008_20.pdf?sequence=1
- Soong, J. J. (2020). Empowering the elderly to promote active ageing in the labour market: a new strategic scheme to improve ageing human resource and to solve shortage of labour force in Taiwan. *Jebat: Malaysian Journal of History, Politics & Strategic Studies*, 47(1).
- Sumanasekera, S. (2004). *Gender and Ageing. Poulation Association of sri lanka (PASL)*
- Turek, K., & Perek-Bialas, J. (2013). The role of employers opinions about skills and productivity of older workers: example of Poland. *Employee Relations*. https://d1wqtxts1xzle7.cloudfront.net/32673121/Employee_Relations_FINAL_-_The_role_of_employers_opinions_about_skills_and_productivity_of_older_workers-example_of_Poland.pdf
- Unnikrishnan, V., & Sen, K. (2020). *Old-age pensions and female labour supply in India* (No. 2020/90). WIDER Working Paper. <https://www.wider.unu.edu/sites/default/files/Publications/Working-paper/PDF/wp2020-90.pdf>
- US Department of Health and Human Services. (2011). *Global health and aging. Washington, DC, USA: National Institute on Aging, National Institutes of Health*. https://www.who.int/ageing/publications/global_health.pdf
- Vangen, H. (2021). The impact of informal caregiving on labour supply before and after a parent's death. *Journal of Population Ageing*, 14(2), 201-228.
- Vestad, O. L. (2013). Labour supply effects of early retirement provision. *Labour Economics*, 25, 98-109. <https://www.econstor.eu/bitstream/10419/192699/1/dp717.pdf>



Original Article

- Vodopivec, M., & Arunatilake, N. K. (2008). The impact of population aging on the labor market: The case of Sri Lanka. <https://www.econstor.eu/bitstream/10419/35123/1/564785938.pdf>
- Wang, Y., Li, J., Zhang, N., Ding, L., Feng, Y., Tang, X., ... & Zhou, C. (2020). Urban-rural disparities in informal care intensity of adult daughters and daughters-in-law for elderly parents from 1993–2015: Evidence from a national study in China. *Social Indicators Research*, 1-17.
- Woodland, A. D. (1987). Determinants of the labour force status of the aged. *Economic Record*, 63(2), 97-114. <https://doi.org/10.1111/j.1475-4932.1987.tb00642.x>
- World Population Ageing Report. (2019). *Department of Economic and Social Affairs United Nations, New York*. <https://www.un.org/en/development/desa/population/publications/pdfageing/WorldPopulationAgeing2019-Report.pdf>
- Zacher, H., & Rudolph, C. W. (2017). Change in job satisfaction negatively predicts change in retirement intentions. *Work, Aging and Retirement*, 3(3), 284-297.