Household income and expenditure behavior in Northern Province in Sri Lanka: A non-parametric analysis

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Abstract
The study aims to identify households' income and expenditure behavior based on selected theories in Sri Lanka. The sample was selected from households in five districts in the Northern province such as Jaffna, Mannar, Mullaitivu, Kilinochchi and Vavuniya. By using a systematic sampling method, 930 households were identified and a self-administrated questionnaire was issued to collect data. Finally, 909 usable questionnaires were considered, and then data were analysed with a non-parametric analysis. The results reveal that majority (79.7%) of the household income is less than Rs.100,000 and 62.6% of the income used for consumption purposes. The majority of the respondents accepted that their consumption behaviour was changed during the post war era. According to the chi-square test, the relative income hypothesis was rejected and the permanent income hypothesis was accepted. Simultaneously, the application of the hyperbolic discounting model is more suitable for low- and middle-income people. Therefore, the study concludes that households' expenditure behavior in Sri Lankan is connected with their level of income.
Keywords: hyperbolic discounting, income and expenditure, permanent income and relative income

Introduction
The economic condition of a country is one of the major factors to determine the income and expenditure behavior of the general public, especially the recession and fluctuations would normally cause changes in the general public's socioeconomic and social standing. Some economic condition changes often lead to a social crisis (Atinc& Walton, 1998). Atsushi Maki (2006) reported that the economic crisis leads to sudden changes in saving behavior and the lifestyle of the households.

The current advertising strategies and sales promotions mainly focus on the slogan of ‘spend wisely’. Therefore, people’s expenditure increased tremendously, ; it was 33 times more than 1985/86 (Department of Census

and Statistics, 2016). In the Northern part of Sri Lanka, the economic condition was changed from 2009 onwards due to the end of 30- years of civil war. Resettlement, foreign and government aids, finance companies' entrance, and introduction of new products lead to more cash flows in this area. This situation created more consumption and capital expenditure among households without proper planning and budgeting regarding their income and expenditure. So, there is a question that the consumption theories are applicable or not to determine the income and expenditure behaviour. Therefore, this research aims to study the income and expenditure behavior of Northern households based on selected theories.

Literature Review

Many theories are related to income and expenditure behaviour even though relative income hypothesis, permanent income hypothesis and hyperbolic discounting theory are considered in this study. The following section discusses these three theories.

Duesenberry (1949) developed the Relative Income Hypothesis. The theory describes that consumption behaviour lays stress on an individual's relative income rather than his absolute income as a determinant of his consumption. The consumption depends on relative position in the income distribution in a society; that is, his consumption depends on his income relative to other individuals' incomes in society.

The permanent income hypothesis was developed based on the basic intuition of individual people who would wish to smooth consumption than fluctuate consumption with short-run fluctuation in income. Therefore, people spend their earning in a way that is consistent with their expected long-term income. This hypothesis underlines that consumers will prefer to spend money based on their lifetime income but, not just current income.

Hyperbolic Discounting was termed by phycologist Herrnstein (1961). The model says that people choose a smaller-sooner reward because of time-inconsistent mechanism of choice than a larger-later reward. As per human's impulsive behavior, people tend to show more preference for an immediate, less valuable reward rather than waiting for a later, higher valuable reward. These people are described as present-oriented and with more concern for current or immediate satisfaction rather than delayed or future satisfaction. Therefore, this behaviour affects the saving mechanism of people (Angeletos et al., 2001).

Methodology

A self-administrated questionnaire was used to collect data and from each district, 10% of the Grama Niladhari (GN) divisions were selected by using the systematic random sampling method then from each GN division ten households were randomly selected. Therefore, from Jaffna 440, Kilinochchi 100, Mullaitivu 140, Vavuniya 100 and Mannar 150 households were identified and a field survey was conducted from September to December 2019. Finally, 909 questionnaires entirely were usable for this survey. The permanent income hypothesis was tested in two ways. First, it was verified that last ten years, their consumption pattern was changed or not and second, whether they expect more income in the future or not. To test the relative income hypothesis, the respondents were asked to answer whether they prefer to maintain social status equal to neighbours or not. To test the hyperbolic discounting theory, respondents were asked to answer whether they prefer Rs.100,000 now or Rs.125,000 one year later.

Results and Discussions

Table 1. Income and Expenditure

Variables		Percentage
Monthly Family Income	Less than 50,000	21.1
	50,000-100,000	58.6
	above 100,000	20.3
Spending	Consumption	62.5
	Repayment of loan and interest	0.6
	Purchase householditems	2.2
	Business or agriculture purpose	34.0
	Others	0.7

Table No.1 describes that the majority (79.9%) of the respondents' monthly income level is less than Rs.100,000 and their 62.5% of income used for consumption purposes.

Table 2. Permanent Income Hypothesis- Anticipating more income in the Future

	Income Category			Total
	< 50,000	50,000-100,000	> 100,000	
Strongly Disagree	181	550	147	878
Disagree	2	7	0	9
Neutral	4	1	0	5
Agree	3	2	0	5
Strongly Agree	6	5	1	12
Total	**196**	**565**	**148**	**909**
Chi-Square Tests				

	Value	df	Asymp. Sig. (2-sided)
	22.908[a]	8	0.003
Symmetric Measures			
	Value		**Approx. Sig.**
Nominal by Nominal Phi	0.159		0.003

The chi-square test was performed to examine whether there was an association between income and income expectation in the future. According to the above table, 96.6% of the respondents strongly disagree that they don't expect more income in the future; therefore, their present spending is low. The results proved a significant association between current income and income expectation (Chi square value = 22.908, p< .003). The Phi-value of .159 also suggests that there is a weakly significant association between these two variables.

Table 3. Permanent Income Hypothesis- Changes of Consumption Pattern

	Income Category			Total
	< 50,000	**50,000-100,000**	**> 100,000**	
Strongly Disagree	4	17	2	23
Disagree	0	1	0	1
Neutral	0	1	0	1
Agree	6	16	2	24
Strongly Agree	186	530	144	860
Total	196	565	148	**909**
Chi-Square Tests				
	Value	**df**	**Asymp. Sig. (2-sided)**	
	68.043[a]	8	.000	
Symmetric Measures				
Value			**Approx. Sig.**	
0.274			0.000	

The table No.2 analyse the changes in consumption pattern during the last ten years. Among the sample respondents, 94.6% of the respondents strongly agreed that their consumption pattern was changed during post-war period. According to the results, there is a weakly significant relationship between income and consumption pattern changes in the study area.

Table 4. Relative Income Hypothesis

	Income Category			Total
	< 50,000	**50,000-100,000**	**> 100,000**	
Strongly Disagree	187	539	136	862
Disagree	5	6	0	11
Neutral	1	1	0	2
Agree	2	18	12	32
Strongly Agree	1	1	0	2
Total	196	565	148	**909**
Chi-Square Tests				
	Value	**df**	**Asymp. Sig. (2-sided)**	
	19.721	8	0.011	

Symmetric Measures	
Value	**Approx. Sig.**
0.147	0.011

According to table 4, the chi-square result indicated that there is a significant relationship between income and maintain equal social states even though the cross-tabulation reveals that the majority of respondents reject the relative income hypothesis because relative income hypothesis is related to psychological factors. At the same time, direct and indirect influence also determines the expenditure behaviour related to the relative income hypothesis. Therefore, according to the Phi Coefficient (0.147), it was identified that there is a weak association between these two variables.

Table 5. Hyperbolic Discounting

	Income Category			Total
	< 50,000	50,000-100,000	> 100,000	
Now Rs.100,000	161	363	20	544
Later Rs.125,000	35	202	128	365
Total	196	565	148	909

Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
	177.316[a]	2	0.000

Symmetric Measures	
Value	**Approx. Sig.**
0.442	0.000

Finally, the hyperbolic discounting model was tested. According to the results presented in table No.5, it is revealed that there is significant relationship between household income and the impulsive behaviour of people. The majority of the respondents (60%) prefer sooner rewards than later. The Phi Coefficient (0.442) suggests a moderate association between income level and reward preference. Further, the result indicates that most low-income (82%) and middle income (64%) prefer sooner reward and only 13% of the high-income people prefer sooner rewards. These results indicate that people's needs play a significant role in determining the spending behavior.

Conclusions and Recommendations

The study emphasizes on income and expenditure behavior of households in Sri Lanka. The data were collected from five districts in Northern Province, Sri Lanka. , The majority of households' income level in this study area, is less than Rs.100,000 and of this, 62.5% is used for consumption purposes. The chi-square results reveal that income level is supported to determine the expenditure behavior, and most of the low- and middle-income people prefer sooner rewards than later. Therefore, the study concludes that households'

income and expenditure behavior in Northern province in Sri Lanka supported the theories.

The people in this study area were affected by civil-war directly or indirectly. Therefore, during the post-war period their consumption pattern was changed because of some economic changes even though low- and middle-income people expect more financial support for their consumption purpose. Therefore, the study recommends that the government and other agencies should consider these people for more economic development

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