Journal of Management Matters

Volume 5 Number 1 September 2018

The Journal of Management Matters is a refereed bi-annual journal published by the Faculty of Management Studies, Rajarata University of Sri Lanka aiming in disseminating knowledge of research in the discipline of Management. The majority of research papers are the prime outputs of research conducted by academics and practitioners in the due discipline. The journal is published in printed version and inserted as freely accessible online version into the university repository and to the website of the Faculty of Management Studies of Rajarata University of Sri Lanka with the aim of providing the widest possibility of readership for intellectuals.

Journal of Management Matters

Volume 5 Number 1 September 2018

ISSN 1391-7099

Journal of Management Matters

Volume 5 Number 1 September 2018

All communication should be addressed to:

The Chief Editor, The Journal of Management Matters, Faculty of Management Studies, Rajarata University of Sri Lanka, Mihintale.

Tel/Fax: +94252266810

Web: www.rjt.ac.lk/mgt/

Email: mgtmatters@gmail.com

Journal of Management Matters

Volume 5 Number 1 September 2018

Journal of Management Matters

Volume 5 Number 1 September 2018

Panel of Reviewers

Journal of Management Matters

Volume 5 Number 1 September 2018

Contents

Journal of Management Matters

Journal homepage: www.rjt.ac.lk/mgt

Faculty of Management Studies, Rajarata University of Sri Lanka

Are market performance and volatility determining the evolution of herd mentality of investors in a frontier stock market? Evidence from the Colombo Stock Exchange of Sri Lanka

Chen Xiaofang

School of Management, Wuhan University of Technology, Wuhan, P.R. China.

K.V. Aruna Shantha

School of Management, Wuhan University of Technology, Wuhan, P.R. China.
Department of Accountancy and Finance, Faculty of Management Studies,
Rajarata University of Sri Lanka, Mihinthale, Sri Lanka.
Corresponding author: shantharuna@yahoo.com

Abstract

This paper investigates whether market performance and volatility are determinants of herd behavior of equity investors of the Colombo Stock Exchange, covering the period from April, 2000 to September, 2016. Both conditional and unconditional tests consistently find herding during the first half of the sample period only. These test results show herd behavior in up and down market days, however, reveal no asymmetric behavior between these market days, indicating investors' tendency to herd irrespective of the market performance. Further, the evidence strongly suggests the propensity to herd in periods of high volatility market days. Accordingly, the market volatility appears as a determinant of herd evolution during the period 2000-2008. The absence of evidence on herd behavior in the second half of the sample period may be due to the fact that investors may have gradually learnt their irrational behaviors and adapted to a rational behavior in stock trading, or the weaknesses of the ordinary least square approach may cause biases in detecting the herding, which are required to be further investigated in the future research.

Keywords: *Asymmetric behavior, equity investors, frontier market, market-wide herding.*

1. Introduction

The herding in a stock market is an investor's tendency to follow the trading patterns of peer investors while discarding his/her own information and beliefs. As previous studies reveal, this behavioral pattern could arise intentionally due to factors such as market uncertainty, asymmetric flow of information, panic and fear of investors, and reputation

concerns of investment professionals; or unintentionally (spurious herding) mainly among investment professionals and institutional investors as a result of correlation of their trading activities from similar indicators considered in their analyses and trading[1]. Further, this behavioral tendency would be a double-edged sword, in the sense that it could be considered as rational or irrational. It may be rational to a certain extent for those investors involved in monitoring the trading patterns of other investors for learning to adapt dynamic market conditions. However, most studies claim herding as an irrational behavior leading to dreadful effects to a stock market such as formation of market bubbles and subsequent crashes, increased market volatility, and information cascades[2] which decrease its efficiency hindering its development.

This study focuses on investigating the herd behavior in a frontier stock market, the Colombo Stock Exchange (CSE) of Sri Lanka[3] due to the following reasons. First, unlike the developed and emerging stock exchanges, the herd behavior would be expected to be relatively stronger in frontier stock markets since they are highly concentrated, illiquid and having vague informational environment due to lower transparency. Thus, the awareness on the nature of such behavior in the frontier market setting is vital in formulating appropriate policies and procedures to mitigate its desperate effects. Second, a limited volume of empirical studies are currently available producing inconclusive evidence on the existence of such behavior on the CSE[4]. Accordingly, we examine the herd behavior among market participants on the CSE, contributing to the existing literature by providing further evidence on the existence of such behavior and its asymmetric properties with respect to the direction of market movement (also called "market performance") and the market volatility.

The rest of the paper is organized as follows. Section two provides a review of literature on herd behavior, focusing mainly on the frontier stock exchanges. Section three describes data and methodology used to detect herding behavior. In section four, we report evidence on herd behavior, both unconditional and conditional on market performance and volatility. Section five concludes the paper.

2. Review of literature

Behavioral finance researches have revealed plenty of evidence on the existence of herd behavior across both developed and emerging equity markets[5] in terms of different types (herding by institutional investors, herding on analyst recommendations and market-wide

[1] For details on intentional and unintentional herding, see Dang and Lin (2016); Galariotis, Rong, and Spyrou (2015); Gavriilidis, Kallinterakis, and Ferreira (2013); Guney, Kallinterakis, and Komba (2017); Holmes, Kallinterakis, and Ferreira (2013); Tan, Chiang, Mason, and Nelling (2008).

[2] Since herding causes investors to suppress their own beliefs and information, market prices are shaped by limited information (Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1992).

[3] The CSE is recognized as a frontier market in the Morgan Stanley Capital International (MSCI) frontier market index.

[4] Of the two studies on the CSE, Sewwandi (2016) does not find herding behavior while Xiaofang and Shantha (2017) reveal some herding patterns in both up and down market days.

[5] See the literature reviews by Bikhchandani and Sharma (2000); Kumar and Goyal (2015); Spyrou (2013).

herding), different nature (intentional herding and spurious herding), and its determinants[6]. The previous studies have also recognized asymmetries of herding with respect to these determinants. In addition, the results reveal herd behavior as time-varying phenomenon[7], and its occurrence in different episodes of a stock market such as bubbles and crashes, and during specific economic events such as financial crises.

Despite the fact that herding is expected to be stronger in frontier stock markets, compared developed and emerging equity markets, the evidence supporting this prediction is currently limited. To this respect, Balcilar, Demirer, and Hammoudeh (2013) find herding in stock markets of Middle East countries, namely Saudi Arabia, Dubai and Qatar, but not for Kuwait and Abu Dhabi. Similarly, the study conducted by Guney et al. (2017) reveal herd trading patterns in frontier markets of Botswana, Ghana, Kenya, Namibia, Nigeria, Tanzania and Zambia. In addition, Vo and Phan (2016) show herding patterns in Vietnam stock market. However, studies of Ahsan and Sarkar (2013) on Bangladesh stock market, and Sewwandi (2016) and Xiaofang and Shantha (2017) on Sri Lankan stock market, applying a methodology similar to those of other studies[8], find no evidence of herding in the respective markets. When the determinants of herding in frontier markets are concerned, Vo and Phan (2016) find significant differences of herd behavior in relation to up-market days vs. down-market days, and pre-crisis vs. post-crisis periods. However, Guney et al. (2017) do not find strong evidence on the asymmetric herding between up and down market movements. The studies conducted by Ahsan and Sarkar (2013) and Sewwandi (2016) also reveal no evidence of herding in both of these market movements. Further, Balcilar et al. (2013) and Guney et al. (2017) find asymmetries with respect to high and low volatility days, suggesting the market volatility as a determinant of herd evolution in frontier markets. Taken together, due to the limitations in the current literature, in terms of its volume and consistency of results, it is inconclusive as to whether the inherent limitations in frontier markets induce the herd behavior, and market performance and volatility are determinants of such behavior.

3. Data and methodology

The sample period covers from 1st April, 2000 to 30th Sep 2016, a total of 3955 daily observations. All the common stocks listed on the CSE during the sample period are considered, extracting the required stock prices from the Data Library (CD ROM) published by the CSE. This study employs the cross-sectional absolute deviation (CSAD) model of Chang et al. (2000), which is, among other, the most widely applied empirical specification for detecting market-wide herding[9]. The model, as given in equation (1), is

[6] For example, size (small stock vs. large stocks), industry, market performance (up-market days vs. down-market days), volatility, market sentiments, and trading volume.

[7] See, for example, Bekiros, Jlassi, Lucey, Naoui, and Uddin (2017); Clements, Hurn, and Shi (2017); Klein (2013); Zhou and Anderson (2013).

[8] All the studies discussed here have examined herding using the cross-sectional absolute deviation (CSAD) model of Chang, Cheng, and Khorana (2000) applying ordinary least square regression (OLS) procedure. The study of Xiaofang and Shantha (2017) does not find the herd behavior using the OLS procedure while revealing some herding patterns with the quantile regression procedure.

[9] Christie and Huang (1995) was first to test market-wide herding, calculating cross-sectional standard deviation (CSSD) of security returns, and examining the latter in the extreme low and

based on the CAPM, assuming stock returns are linear and increasing function of portfolio of market returns. This assumption implies a significant positive relationship between *CSAD* of returns and absolute market return (a significant positive value for γ_1 and insignificant γ_2). However, in the presence of herding, the stock returns cluster around the market average, decreasing the *CSAD* of returns. In this case, the relationship between *CSAD* of returns and market return is expected to be negative and non-linear, which is captured through the coefficient of R_{mt}^2 term in equation (1). Accordingly, R_{mt}^2 would be significantly negative in the presence of market-wide herding behavior.

$$CSAD_t = \propto + \gamma_1|R_{mt}| + \gamma_2 R_{mt}^2 + \varepsilon_t \text{.....(1)}$$

where, $CSAD_t$ is cross-sectional absolute deviation of stock return at day t, which is calculated as given in equation (2), R_{mt} is the equally-weighted average return of all stocks on day t, and $|R_{mt}|$ is the absolute value of R_{mt}. The stock returns (R_{it}) are calculated as first logarithmic difference of daily closing prices.

$$CSAD_t = (1/N)\sum_{i=1}^{N}|R_{it} - R_{mt}| \quad (2)$$

In addition to the test of herding for the aggregate market (also called "unconditional herding behavior") as in equation (1), the empirical tests are carried out to detect herding asymmetries conditional on two market variables, namely market performance and market volatility. For examining the herd behavior conditional on market performance, the sample is separated into up and down market movements based on the direction of market return. The asymmetric herding with respect to market performance appears when herd behavior during up-market days (that is, days with R_{mt}>0) is significantly different from that in down-market days (that is, days with R_{mt}<0), which is examined using equation (3).

$$CSAD_t = \propto + \gamma_1 D_t^{up}|R_{mt}| + \gamma_2 D_t^{up} R_{mt}^2 + \gamma_3(1 - D_t^{up})|R_{mt}| + \gamma_4(1 - D_t^{up})R_{mt}^2 + \varepsilon_t \quad (3)$$

In equation (3), D_t^{up} is the dummy variable representing the value of unity for up-market days and zero for down-market days. The wald test is employed to examine whether γ_2 is significantly different from γ_4.

The equation (4) is used to test herding asymmetry conditional on market volatility, separating the sample into high-volatility days and low-volatility days. The volatility is measured using the squared value of R_{mt}, and categorized as high (low) when the volatility at a particular day is higher (lower) than its previous 30-day moving average[10].

$$CSAD_t = \propto + \gamma_1 D_t^{HIGH}|R_{mt}| + \gamma_2 D_t^{HIGH} R_{mt}^2 + \gamma_3(1 - D_t^{HIGH})|R_{mt}| + \gamma_4(1 - D_t^{HIGH})R_{mt}^2 + \varepsilon_t \quad (4)$$

In equation (4), D_t^{HIGH} is the dummy variable representing the value of unity for high-volatility days and zero for low-volatility days. The wald test is used to examine whether

upper tails of the return distribution. This method suffers drawbacks such as biased CSSD in the presence of outliers (Economou, Kostakis, & Philippas, 2011), and ignoring the possibility of non-liner return dynamics associated with herding (Focardi, Cincotti, & Marchesi, 2002; Lux, 1995). Since CSAD model overcomes these drawbacks, it has been widely used in herding studies.

[10] This procedure is consistent with the studies of Economou et al. (2011); Guney et al. (2017); Tan et al. (2008).

herd behavior during high volatility days (that is, significantly negative γ_2) is significantly different from that in low volatility days (that is, significantly negative γ_4).

As a robustness check, the total sample period is split into two eight-year sub-periods, four four-year sub-periods, and pre-war and post-war periods[11]. All the tests, as performed using equations (1), (3) and (4) above, are repeated for those sub-sample periods to test the robustness of our results.

4. Results and discussion

Table 1 shows some descriptive statistics on $CSAD_t$ and R_{mt} for the total sample period and sub-periods considered for examining herd behavior. Overall, all mean values of R_{mt} are positive, indicating positive market performance during the sample period from 2000-2016. The magnitude of the volatility of the market, as reflected by the standard deviation of R_{mt} is considerably lower during the second half of the sample period than that of the first half. Similarly, the volatility of $CSAD_t$ is lower in the second half of the sample period than that of the first half.

Table 1
Descriptive statistics

	$CSAD_t$		R_{mt}	
	Mean	Standard deviation	Mean	Standard deviation
Total Sample	1.068	0.405	0.059	0.740
8-year sub-periods;				
2000-2008	1.176	0.487	0.078	0.872
2008-2016	0.968	0.272	0.041	0.590
4-year sub-periods;				
2000-2004	1.128	0.449	0.082	0.920
2004-2008	1.223	0.517	0.074	0.821
2008-2012	1.024	0.288	0.063	0.724
2012-2016	0.918	0.248	0.022	0.439
Pre and post-civil war periods;				
Pre-war period	1.158	0.473	0.069	0.871
Post-war period	0.959	0.261	0.048	0.539

All sub-periods in panel B and C start from 1st April and end 31st March of the given year, except the last sub-period which ends 30th September 2016. The cut-off date for dividing the sample into pre and post war sub-period is 19th May, 2009.

The empirical results relating to unconditional herding behavior (estimating equation 1), herding behavior conditional on market performance (estimating equation 3) and market volatility (estimating equation 4) are presented in Table 2, 3 and 4 respectively. The results for the total sample period are presented in Panel A of these tables. As a robustness

[11] For dividing the sample into pre and post war periods, 19th May 2009, the date on which the end of the civil war was officially declared in parliament, is used as the cut-off point.

check, panel B and C of the tables exhibit the results for the two eight-year sub-periods and four four-year sub-periods respectively. Panel D represents estimates of unconditional and conditional herd behavior for pre and post war periods to further check the robustness of the results. The coefficients of the absolute market return, γ_1 in equation (1) and γ_1 and γ_3 in equation (3) and (4), are significantly positive in the total sample period and sub-sample periods, supporting the hypothesis on the positive relationship between CSAD of returns and absolute market returns.

Table 2
Unconditional herding estimations

	$\propto$	γ_1	γ_2	Adjusted R^2
Panel A: Total Sample	0.800	0.599	-0.038	0.454
	(64.470)***	(16.881)***	(-4.157)***	
Panel B: 8-year sub-periods;				
2000 – 2008	0.825	0.681	-0.049	0.484
	(43.558)***	(13.731)***	(-3.986)***	
2008 – 2016	0.806	0.421	-0.018	0.370
	(66.304)***	(13.431)***	(-1.232)	
Panel C: 4-year sub-periods;				
2000 – 2004	0.795	0.623	-0.035	0.587
	(36.453)***	(15.103)***	(-5.266)***	
2004 – 2008	0.819	0.856	-0.108	0.437
	(32.315)***	(10.891)***	(-7.067)***	
2008 – 2012	0.869	0.304	0.010	0.369
	(48.036)***	(7.985)***	(0.652)	
2012 – 2016	0.753	0.544	-0.043	0.356
	(50.798)***	(10.172)***	(-1.243)	
Panel D: Pre and post-war periods;				
Pre-war period	0.825	0.645	-0.045	0.477
	(47.187)***	(14.078)***	(-3.838)***	
Post-war period	0.808	0.411	-0.014	0.322
	(60.418)***	(10.679)***	(-0.582)	

*This table presents estimates from equation (1). All sub-periods in panel B and C start from 1st April and end 31st March of the given year, except the last sub-period which ends 30th September 2016. The cut-off date for dividing the sample into pre and post war sub-period is 19th May, 2009. The numbers in parentheses are t-statistics based on the Newey and West (1987) test for heteroskedasticity and autocorrelation consistent standard errors. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.*

4.1. Unconditional herding estimations

The coefficient γ_2 of equation 1 (hereafter called as "herding coefficient") estimates unconditional herding behavior. As shown in Table 2, the herding coefficient is significantly negative for the total sample period, indicating presence of herding behavior at the aggregate market level. This supports the prediction that inherent limitations in

frontier markets such as low transparency of informational environment, low number of stocks actively traded and illiquidity motivate investors to herd disregarding their own beliefs and information when trading financial assets. However, this result is not consistent with that of Sewwandi (2016), which reveals no evidence of herding in the CSE[12]. When the results of the sub-period analysis given in panel B and C of Table 2 is considered, the herding coefficients are significantly negative only in the first half of the sample period. Panel D also shows a significantly negative herding coefficient in the pre-war period whereas an insignificant one in the post-war period. The insignificant herding coefficients in the second half of the sample period are consistent with the findings of Xiaofang and Shantha (2017), which reveal investors' lesser tendency to herd and rely more on fundamentals in stock trading.

4.2. Herding estimations conditional on market performance

Table 3 presents the empirical results of herding conditional on market performance. The herding coefficients, γ_2 and γ_4 indicate herd behavior for up-market days and down-market days respectively. Panel A shows significantly negative herding coefficients during both up and down market days for the total sample period. These evidence reflect, contrary to Sewwandi (2016), the presence of herd behavior in those market states. Though the absolute value of the herding coefficient of down-market days is greater than that of up-market days, the different is not statistically significant (as reflected by an insignificant *F* statistic). Thus, the results relating to total sample do not support the asymmetry of herding conditional on market performance.

The findings seem to be mixed when the sub-period analyses given in panel B, C and D are taken into consideration. They show herd behavior in both up and down market days during the first half of the sample period only. However, the asymmetries of herding between up and down market days (as reflected by a significant *F* statistics) reveal only for the first eight-year sub-period (2000-2008 in panel B) and the first four-year sub-period (2000-2004 in panel C). In these two sub-periods, the herd behavior appears to be stronger in down-market days, compared to up-market days. With respect to the 2004-2008 sub-period, though the absolute value of the herding coefficient of up-market days is greater than that of the down-market days, the difference is not statistically significant. The same is further evident from the results relating to the pre-war period in which herding is presence in both up and down market days without a significant difference of herding between these market states. Accordingly, when first half of the sample period (2000-2008) is concerned, there is no concrete evidence to support asymmetric herding pattern conditional on the market performance. Therefore, it is evident that investors tend to herd irrespective of the direction of market movement during 2000-2008 and market performance does not appear as a determinant of herding on the CSE. As Guney et al. (2017) suggests, due to low number of stocks actively traded in frontier markets and

[12] The two previous studies on the CSE, Sewwandi (2016) and Xiaofang and Shantha (2017) cover the sample periods 2001-2015 and 2007-2016 respectively. Considering these different sample periods in these previous studies, the former is comparable with the results of the total sample period, while the latter is comparable with results relating to the 2008-2016 sub period in panel B, 2008-2012 and 2012-2016 sub periods in panel C, and post-war period given in panel D.

associated lower transparency in informational environment, investors may decide to herd based on the trading pattern of individual stocks rather than the market performance as a whole.

Table 3
Herding estimations conditional on market performance

	$\propto$	Up-market days		Down-market days		Adjusted R^2	F statistic
		γ_1	γ_2	γ_3	γ_4		
Panel A: Total Sample							
	0.799	0.642	-0.037	0.554	-0.041	0.462	0.220
	(66.993)***	(20.819)***	(-5.527)***	(13.494)***	(-4.934)***		
Panel B: 8-year sub-periods;							
2000-2008	0.817	0.720	-0.045	0.676	-0.066	0.494	3.630*
	(46.420)***	(17.761)***	(-6.289)***	(11.971)***	(-5.839)***		
2008-2016	0.809	0.492	-0.037	0.313	0.011	0.386	5.685**
	(65.935)***	(16.155)***	(-3.050)***	(7.241)***	(0.450)		
Panel C: 4-year sub-periods;							
2000-2004	0.790	0.658	-0.034	0.614	-0.048	0.594	3.101*
	(35.796)***	(16.093)***	(-8.045)***	(11.643)***	(-5.399)***		
2004-2008	0.818	0.896	-0.110	0.791	-0.097	0.440	0.610
	(33.004)***	(12.818)***	(-7.117)***	(8.307)***	(-5.114)***		
2008-2012	0.873	0.391	-0.015	0.162	0.054	0.395	12.957
	(48.564)***	(10.356)***	(-1.205)	(3.279)***	(2.507)**		
2012-2016	0.753	0.595	-0.054	0.502	-0.054	0.361	0.000
	(51.249)***	(10.785)***	(-1.540)	(7.778)***	(-1.028)		
Panel D: Pre and post-war periods;							
Pre-war period	0.819	0.686	-0.042	0.630	-0.059	0.486	2.336
	(50.398)***	(18.041)***	(-5.528)***	(12.356)***	(-5.596)***		
Post-war period	0.811	0.495	-0.042	0.283	0.028	0.341	12.650***
	(60.804)***	(12.397)***	(-1.762)*	(6.534)***	(1.056)		

*This table presents estimates from equation (3). All sub-periods in panel B and C start from 1st April and end 31st March of the given year, except the last sub-period which ends 30th September 2016. The cut-off date for dividing the sample into pre and post war sub-period is 19th May, 2009. The numbers in parentheses are t-statistics based on the Newey and West (1987) test for heteroskedasticity and autocorrelation consistent standard errors. The F statistic tests the null hypothesis that $\gamma_2=\gamma_4$. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.*

Further, consistent with Xiaofang and Shantha (2017), the herding appears to be mostly absence during the second half of the sample period. Though the herding coefficients are significantly negative in up-market days of 2008-2016 sub-period in panel B and post-war period in panel D, the same do not hold true for the 2008-2012 and 2012-2016 sub-periods given in panel C. Moreover, there is no evidence of herding in down-market days throughout all sub-periods relating to the second half of the sample period.

4.3. Herding estimations conditional on market volatility

Table 4 provides the results on the herd behavior conditional on market volatility, estimating equation 4 in which the herding coefficients, γ_2 and γ_4 denote it for high volatility days and low volatility days respectively.

Table 4
Herding estimations conditional on market volatility

	$\propto$	High volatility days		Low volatility days		Adjusted R^2	F statistic
		γ_1	γ_2	γ_3	γ_4		
Panel A: Total Sample							
	0.785	0.589	-0.036	0.703	-0.087	0.450	1.620
	(57.831)***	(15.393)***	(-3.896)***	(12.051)***	(-1.963)**		
Panel B: 8-year sub-periods;							
2000-2008	0.842	0.676	-0.049	0.607	-0.039	0.477	0.044
	(39.313)***	(12.166)***	(-3.654)***	(7.625)***	(-0.714)		
2008-2016	0.777	0.408	-0.010	0.627	-0.077	0.385	0.591
	(54.906)***	(13.135)***	(-0.731)	(7.855)***	(-0.868)		
Panel C: 4-year sub-periods;							
2000-2004	0.806	0.593	-0.032	0.580	-0.013	0.579	0.130
	(31.044)***	(14.265)***	(-4.713)***	(6.815)***	(-0.226)		
2004-2008	0.841	0.887	-0.117	0.769	-0.158	0.443	0.217
	(32.122)***	(10.350)***	(-6.705)***	(6.553)***	(-1.773)*		
2008-2012	0.845	0.282	0.019	0.423	0.040	0.383	0.043
	(41.100)***	(7.428)***	(1.370)	(4.064)***	(0.391)		
2012-2016	0.736	0.489	0.004	0.654	0.115	0.370	0.186
	(40.377)***	(8.727)***	(0.098)	(4.592)***	(0.428)		
Panel D: Pre and post-war periods;							
Pre-war period	0.829	0.640	-0.045	0.641	-0.063	0.470	0.157
	(42.392)***	(12.581)***	(-3.541)***	(8.706)***	(-1.226)		
Post-war period	0.784	0.401	-0.006	0.560	-0.002	0.332	0.001
	(48.005)***	(10.394)***	-0.267	(5.416)***	(-0.013)		

*This table presents estimates from equation (4). All sub-periods in panel B and C start from 1st April and end 31st March of the given year, except the last sub-period which ends 30th September 2016. The cut-off date for dividing the sample into pre and post war sub-period is 19th May, 2009. The numbers in parentheses are t-statistics based on the Newey and West (1987) test for heteroskedasticity and autocorrelation consistent standard errors. The F statistic tests the null hypothesis that $\gamma_2=\gamma_4$. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.*

Panel A exhibits significantly negative herding coefficients during both high and low volatility market days, indicating the existence of herding during both of these market states for the total sample period. Despite higher herding coefficient, in absolute terms, in low volatility days, compared to that relating to high volatility days, a stronger herding is

not evident for the former since *F* statistic specifies an insignificant difference between these two coefficients. However, sub-period analyses reveal consistently investors' tendency to herd during high volatility days of the first half of the sample period only. It seems to be absence with respect to low volatility day for all sub-periods given in panel B, C and D with the exception of 2004-2008 sub-period in panel C, of which herding coefficient is significantly negative at 10% level. These results are not consistent with similar previous studies conducted by Balcilar et al. (2013) and Guney et al. (2017) in the context of frontier markets, which find herding in both high and low volatility days, and asymmetry between them. Similar to the results discussed in section 4.1. and 4.2., the evidence does not suggest presence of herd behavior in the second half of the sample period.

5. Conclusion

Although herd behavior is expected to be more pronounced in frontier stock markets, compared to developed and emerging markets, the current empirical evidence relating to the nature of such behavior in frontier markets is relatively limited. Thus, as evident mainly in emerging stock markets, this study examines whether market performance and volatility determine investors' tendency to herd in the frontier stock market of Sri Lanka, the CSE. According to the findings of the study, the herding appears in up and down markets days as well as in high volatility days relating to the first half of the sample period (2000-2008) only. Since the results do not provides strong evidence on significant difference of the behavior between up and down market days, we do not suggest market performance as a determinant of herd evolution. Thus, investors tend to herd irrespective of the direction of market movement during the first half of the sample period, supporting the prediction that inherent limitations in frontier stock markets encourage investors to herd based on the trading pattern of individual stocks rather than the market performance. With respect to the market volatility, herd behavior is evident during high volatility days only, which confirms the fact that market uncertainties induce investors to herd disregarding their private information and beliefs.

Interestingly, the herding does not manifest consistently over the second half of the sample period. This may result from the mistake-learning process of market participants, as predicted by the adaptive market hypothesis. It predicts that trading experiences prompt investors to gradually learn their irrational trading behaviors so that their behavioral beliefs, attitudes, and assumptions are expected to shift to adapt more rational behavior in stock trading decisions. The disappeared herding may also be due to the weaknesses of the ordinary least squares approach[13], which may cause biases in the estimations of herd behavior. Accordingly, the future research should be focused on studying what drives for the absence of herding on the CSE during the period 2008-2016.

[13] See Wilcox (2010) for details about weaknesses in ordinary least squares regression and approaches minimizing such weaknesses.

References

Ahsan, A. M., & Sarkar, A. H. (2013). Herding in Dhaka Stock Exchange. *The Journal of Applied Business and Economics, 14*(2), 11-19.

Balcilar, M., Demirer, R., & Hammoudeh, S. (2013). Investor herds and regime-switching: Evidence from Gulf Arab stock markets. *Journal of International Financial Markets, Institutions and Money, 23*, 295-321.

Banerjee, A. V. (1992). A simple model of herd behavior. *The Quarterly Journal of Economics, 107*(3), 797-817.

Bekiros, S., Jlassi, M., Lucey, B., Naoui, K., & Uddin, G. S. (2017). Herding behavior, market sentiment and volatility: Will the bubble resume? *The North American Journal of Economics and Finance, 42*, 107-131.

Bikhchandani, S., Hirshleifer, D., & Welch, I. (1992). A theory of fads, fashion, custom, and cultural change as informational cascades. *Journal of political Economy, 100*(5), 992-1026.

Bikhchandani, S., & Sharma, S. (2000). Herd behavior in financial markets. *IMF Staff papers, 47*, 279-310.

Chang, E. C., Cheng, J. W., & Khorana, A. (2000). An examination of herd behavior in equity markets: An international perspective. *Journal of Banking & Finance, 24*(10), 1651-1679.

Christie, W. G., & Huang, R. D. (1995). Following the pied piper: Do individual returns herd around the market?. *Financial Analysts Journal, 51*(4), 31-37.

Clements, A., Hurn, S., & Shi, S. (2017). An empirical investigation of herding in the US stock market. *Economic Modelling, 67*, 184-192.

Dang, H. V., & Lin, M. (2016). Herd mentality in the stock market: On the role of idiosyncratic participants with heterogeneous information. *International Review of Financial Analysis, 48*, 247-260.

Economou, F., Kostakis, A., & Philippas, N. (2011). Cross-country effects in herding behaviour: Evidence from four south European markets. *Journal of International Financial Markets, Institutions and Money, 21*(3), 443-460.

Focardi, S., Cincotti, S., & Marchesi, M. (2002). Self-organization and market crashes. *Journal of Economic Behavior & Organization, 49*(2), 241-267.

Galariotis, E. C., Rong, W., & Spyrou, S. I. (2015). Herding on fundamental information: A comparative study. *Journal of Banking and Finance, 50*, 589-598.

Gavriilidis, K., Kallinterakis, V., & Ferreira, M. P. L. (2013). Institutional industry herding: Intentional or spurious? *Journal of International Financial Markets, Institutions and Money, 26*, 192-214.

Guney, Y., Kallinterakis, V., & Komba, G. (2017). Herding in frontier markets: Evidence from African stock exchanges. *Journal of International Financial Markets, Institutions and Money, 47*, 152-175.

Holmes, P., Kallinterakis, V., & Ferreira, M. (2013). Herding in a concentrated market: a question of intent. *European Financial Management, 19*(3), 497-520.

Klein, A. C. (2013). Time-variations in herding behavior: Evidence from a Markov switching SUR model. *Journal of International Financial Markets, Institutions and Money, 26*, 291-304.

Kumar, S., & Goyal, N. (2015). Behavioural biases in investment decision making–a systematic literature review. *Qualitative Research in financial markets, 7*(1), 88-108.

Lux, T. (1995). Herd behaviour, bubbles and crashes. *The economic journal, 105*, 881-896.

Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica, 55*, 703-708.

Sewwandi, W. G. T. (2016). Herding in Colombo Stock Exchange. *EPRA International Journal of Multidisciplinary Research, 2*(3), 182-186.

Spyrou, S. (2013). Herding in financial markets: a review of the literature. *Review of Behavioral Finance, 5*(2), 175-194.

Tan, L., Chiang, T. C., Mason, J. R., & Nelling, E. (2008). Herding behavior in Chinese stock markets: An examination of A and B shares. *Pacific-Basin Finance Journal, 16*(1), 61-77.

Vo, X. V., & Phan, D. B. A. (2016). Herd Behavior in Emerging Equity Markets: Evidence from Vietnam. *Asian Journal of Law and Economics, 7*(3), 369-383.

Wilcox, R. R. (2010). *Fundamentals of modern statistical methods: Substantially improving power and accuracy*: Springer Science & Business Media.

Xiaofang, C., & Shantha, K. V. A. (2017). *Empirical Study on Herding Behavior in Sri Lankan Stock Market: Evidence from Quantile Regression Approach*. Paper presented at the 14th International Conference on Innovation and Management.

Zhou, J., & Anderson, R. I. (2013). An empirical investigation of herding behavior in the US REIT market. *The Journal of Real Estate Finance and Economics, 47*(1), 83-108.

Journal of Management Matters

Journal homepage: www.rjt.ac.lk/mgt

Faculty of Management Studies, Rajarata University of Sri Lanka

Factors affecting on consumer purchasing behavior of *Ayurvedic* skin care products: A study of female consumers in Colombo District of Sri Lanka

C.R. Pathmaperuma and P.I.N. Fernando
Faculty of Management, Uva Wellassa University, Badulla, Sri Lanka
Corresponding author: pimalifernando@yahoo.com

Abstract

The incessant demand for cosmetic products is quite visible by captivating the attention of consumers worldwide. The flourishing cosmetics industry with its lush and extravagant growth has ensured a colossal amount of money is penetrated to economy. This study examines the factors that would effect on female consumers' purchasing behavior of skin care products containing Ayurvedic ingredients. The study was ground on the Theory of Reasoned Action which was originally developed by Fishbein and Ajzen in 1975. A survey was conducted by distributing questionnaires to 150 female consumers in Colombo District of Sri Lanka. The sample was chosen through a multi-stage sampling. Data were analyzed by using uni–variate, bi–variate and multivariate analysis ingrained with mediation effect. The result demonstrates that beliefs and attitudes have a positive effect on purchasing intention and behavior of the consumers. The result leads for significant managerial implications to the sector.

Keywords*: Ayurvedic ingredients, consumer purchasing behaviour, skin care products.*

1. Introduction

The unparalleled growth of the cosmetics industry has ensured that the global playing field is being levelled that people's needs for appearances and materialism is increasing significantly with the change of beauty consciousness and wellbeing (Vigneron, Jhonson, & Franck, 1999). Therefore, behavior towards purchasing skin care products had drastically changed over the past few decades. While females tend to be the highly interested in purchasing skin care products skin care product category seems to be ranked ahead in terms of retail sales generation worldwide ((Dutton & Barbalova, 2011). Particularly in Sri Lanka, a keen interest in skin care products manufactured locally had captured the attention of many female consumers causing the demand to rise gradually. The current market value of Cosmetics and Toiletries (C&T) market in Sri Lanka is

estimated to be US $ 150mn and has an average annual growth rate of 11percent. Moreover, it is quite visible that there is a definite linkage between beliefs – attitudes of female consumers with their purchase intention towards skin care products and the relationship between purchase intention and purchasing behaviour observed when acquiring such beautification items. Such purchasing behavior can be defined as the decision process and physical activity individuals engage in when evaluating, acquiring, using or disposing of goods and services (Loudan & Bitta, 1986). Further, purchase intention can be defined as a measure of the strength of an individual's intention to perform a specified behavior (Fishbein & Ajzen, 1975).

With comparison to other Asian countries such as Japan, China, South Korea, India, Bangladesh and Thailand, Sri Lanka seems to be lagging behind with regard to recognition, profitability and sales generation of cosmetics market. Furthermore various trends such as decline the value in local market, fierce competition with international key players let the industry lag behind. Low motivation and incentives for the domestic producers are also the reasons for this position. Thus, this study aims to explore the factors that effect on female consumers' purchasing behaviour of *Ayurvedic* skin care products in Sri Lanka.

2. Review of literature

The need of application and usage of skin care products by female consumers in particular, had been discussed abundantly through past works of literature by various researchers. The general concept is that people's needs for appearance and materialism is increasing significantly with the change of beauty consciousness among people (Vigneron et al., 1999; Sinha, 2003). With the advancement of technology and equipment, a growing demand for personal and skin care products can be observed. Therefore, more people are inclined towards purchasing skin care and cosmetics items as their preferences are gradually changing from 'merely functional' to 'more advanced and specialized' products (Nair & Pillai, 2016). As Moteiro (2003) pointed out, due to increased level of literacy and growing influence of the media, the women employment has been increased. The resulted purchasing power led women to enliven their lifestyles by adapting to more hygienically accepted beauty treatments (Souiden & Diagne, 2009). As Vanessa and Sandra (2011) argued, the cosmetics and skin care products are basically used due to sexual attractiveness and social and professional attractiveness (Vanessa & Sandra, 2011). Most of the women feel confident after the application of cosmetics and skin care products and in turn reflects in their attitudes or behaviors which assist them when dealing with public relations (Cox & Glick, 1986). In order to grasp a better image of the cosmetics industry, the current situation and evolving trends must be clearly recognized.

Sri Lanka's contribution is comparatively lower for the segment in the international arena as renowned for their famous disposition emerging markets where BRIC countries have captured 81 percent of the global cosmetics sales growth (Euromonitor, 2016). In Asian skin care market, the major focus is on producing skin whitening products due to the belief of pale skin is the ideal resemblance of a beauty. High purchase orientation and usage of skin whiteners, a significant portion of consumers are also fascinated about the anti-aging properties contained in these products. The cosmetics and skin care segment is

one of the profitable business sectors in modern world as market segment being attractive and irresistible can be identified as rising hygiene and beauty consciousness due to changing demographics and lifestyle, deeper consumer pockets, rising media exposure, greater product choice, growth in retail segment and wider availability (Euromonitor, 2016). Further the success and growth of cosmetics industry is the increasing fashion and beauty consciousness is coupled with rising income and focus on health and fitness (Malhotra, 2003).

A number of studies has been conducted on usage pattern and factors affecting the choice of products in order to predict the future behavior of consumers and trends prevailing within market segments (Ajzen & Fishbein, 1980). According to Reuters, Asia is seen to be a growing market for skin care. Indonesia has been overlooked by cosmetic firms and it is expected to become the third biggest beauty market in Asia (Charlton, 2012). Interestingly, there are theories in opposition to the identification and development of skincare segment and the importance it holds over human consumption. It has been stated that despite the increasing importance of the cosmetic segment, a little attention has been given to capture the growing demand of cosmetics industry (Sabhrawal, Mann & Kumar, 2014). Female consumers are more inclined towards purchasing skincare products which they perceive as being natural or herbal, thereby reducing the negative impact on the skin. The users tend to search for skincare products which contain fewer chemicals or chemical free skincare products, in order to have a youthful and improved appearance (Kim & Chung, 2011). WHO estimates that at least 80 percent of the population globally relies on traditional medicine to meet their primary health care needs and it could apply when purchasing organic/ herbal skin care products because women are more prone towards purchasing more natural products rather than selecting a routine product advertised on the television (Basha, Anjaneyulul & Sudarsanam, 2013). The role of herbal ingredients is widely recognized in the beauty care industry, and as a result, interests in the exploitation of medicinal and aromatic plants as well as pharmaceuticals, herbal remedies, flavouring, perfumes, cosmetics and other natural products have been increased (Rao & Arora, 2004).

3. Methodology

Theory of Reasoned Action was adopted in this study to conceptualize the relationship between beliefs and attitudes, normative influences, purchasing intention and purchasing behavior of *Ayurvedic s*kin care products (Figure 1).

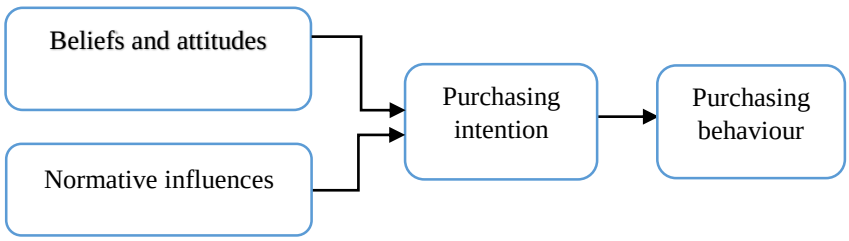

Figure 1 Conceptual framework

Hypotheses of the study are as follows.

Hypothesis 1: Beliefs and attitudes have a positive effect on purchasing intention of female consumers

Hypothesis 2: Normative influences have a positive effect on purchasing intention of female consumers

Hypothesis 3: Purchasing intention positively effects on female consumers' purchasing behavior

A multi-stage sampling was adopted by selecting 150 respondents in Colombo District. Four major supermarkets, Cargills Food City, Keells Super, Arpico Super Center and Laughs Sunup, were selected for the survey (Retail Intelligence, 2013). The internal validity of the questionnaire has been tested by Chronbach's Alpha. The sampling procedure utilized; as the first stage to choose province and four supermarkets, multi stage sampling method has been adopted. In second stage, number of supermarket outlets within each supermarket chain was identified and two outlets from each chain was selected by adopting simple random sampling. Next step was to select respondents proportionately from each supermarket. When selecting respondents, the time slot method was devised and the sample time frame was 9.00a.m to 5.00p.m on any given day. Data were collected using a questionnaire, and analyzed using descriptive statistics and the mediating effect through Barron and Kenney method and Sobel's test.

4. Results and discussion

The result indicates the most preferred brand of the respondents was 4ever Skin Naturals and highly purchased products were cream, face wash and cleansers. The descriptive statistics shown in Table 1 signify that beliefs and attitudes, and normative influences towards the *Ayurvedic* skin care products are moderately high even though their purchase intention is relatively low when compared with the purchasing behavior.

Table1
Descriptive statistics

Variable	Mean	Standard Deviation	Variance	Evaluation criteria		
				Almost agree (%)	Moderately agree (%)	Almost disagree(%)
Beliefs and attitudes (BA)	3.592	0.468	0.288	56	42.7	1.3
Normative influences (NI)	3.464	0.573	0.109	46	48.7	5.3
Purchase intention (PI)	2.558	0.724	0.275	66	32	2
Purchasing behavior (PB)	3.763	0.848	0.282	68.7	26.7	4.6

The result of correlation analysis (see Table 2) reveals that beliefs and attitudes are positively correlated with purchase intention ($r=.567, p<.01$). The result further indicates that there is a positive relationship between normative influences and purchase intention ($r=.346, p<.01$). These signify that optimistic beliefs and attitudes, and normative influences towards *Ayurvedic* skin care products would make positive purchasing intention among the customers.

Table 2
Result of the correction analysis

Variable	BA	NI	PI
Beliefs and attitudes (BA)	-		
Normative influences (NI)	0.123	-	
Purchasing intention (PI)	0.567**	0.346**	-
Purchasing behavior (PB)	0.362**	0.235**	0.457**

** *Correlation is significant at 0.01 (1%) level*

A hierarchical regression analysis was performed in the multivariate analysis with assist of Barron and Kenney method and Soble's test. The analysis consists of three steps. The Step 1 examines the direct effect of beliefs and attitudes, and normative influences on the purchasing behavior. In Step 2, beliefs and attitudes, and normative influences were regressed against purchasing intention and finally all the variables were inserted to the model to predict the purchasing behavior. Results shown in Table 3 for Model I indicate that beliefs and attitudes, and normative influences have positive and significant effects on purchasing behavior. The result for Model II also confirms the positive effect of beliefs and attitudes, and normative influences on purchasing intention as depicted the correction analysis. Model III signifies that it has ability to account greater variation of purchasing behavior than that of Model I (*Adj. R^2 change =.203*). Moreover, weakening effect of beliefs and attitudes, and normative influences (*Unstandardized Beta coefficients*) on purchasing behavior in Model III, when compared with Model I, also confirms the mediating role of purchasing intention in the relationship between beliefs and attitudes, and normative influences and processing behavior. Sobel's test also confirms this mediating effect ($Z_{BAvs.PI}$ *=69.98,* $Z_{PIvs.PB}$ *85.13, p<.01*). These results support all the hypotheses of the study indicating that beliefs and attitudes, and normative influences are important predictors in creating purchasing intention of *Ayurvedic* skin care product among the women, which finally becomes action.

Table 3
Result of linear regression analysis

Variable	Model I	Model II	Model III
Constant	1.739**	0.796**	1.528*
Beliefs and Attitudes (B vs A)	0.416**	0.634**	0.247*
Normative influences (NI)	0.291**	0.316**	0.190*
Purchase Intention (PI)			0.319**
Adjusted R^2	*0.245*	*0.440*	*0.448*
Adjusted R^2 change	-	-	*0.203*
F	*38.23*	*57.80*	*59.55*
F change	-	-	*21.30*

The result also shows that the majority of the respondents is looking for local *Ayurvedic* skin care products due to their trustworthiness, easily access for any customer and availability. However, they had some concerns over price and quality of Sri Lankan brands. Mostly customers are more concerned about the product ingredients and quality of production process.

5. Conclusion

This study adopted Theory of Reasoned Action to examine the female consumers' purchasing behavior with respect to *Ayurvedic* skin care products. The result reveals that beliefs and attitudes, and normative influences are significant factors in creating purchasing intention of *Ayurvedic* skin care products among female consumers. This implies that positive beliefs and attitudes would develop higher the purchasing intention. Normative influences also play a vital role in this phenomenon. Further, it was found that the consumers give higher priority to Sri Lankan products rather foreign bands due to the trustworthiness, easy accessibility and availability, and low price of the local brands. Even through the products are routinely purchased by the consumers, awareness about the brands was minimum. Hence effective promotional strategies focusing the production process should be carried out to make consumers more aware about the brands and their quality maintaining strategies.

The findings also suggest that the current domestic manufacturers should have a clear vision towards building a sustainable market for the skin care product. Further brands developed with *Ayurvedic* ingredients would attract a larger market since today's consumers are more concerned about the green and herbal products.

References

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Prentice-Hall, Englewood Cliffs, NJ

Basha, S., Anjaneyulul, E., & Sudarsanam, G. (2013). Herbal plants for wound healing among Sugali tribes of Yerramali forest of Kernool district. *Indian Journal of Applied and Pure Biology, 28*(1), 19-25.

Charlton, A. (2014). *Quarterly Essay 54 Dragon's Tail: The Lucky Country After the China Boom* (Vol. 54). Quarterly Essay.

Cox, C., & Glick, W. (1986). esume evaluations and cosmetic use : when more is not better. *14*(1), 51-58.

Dutton, & Barbalova. (2011). *Global Beauty Industry Trends , Euromonitor International*. Growing consumer cosmetics consumption in BRICS countries. *5*.

Euromonitor. (2016). Beauty and Personal Care in Portugal, Retrieved from http://www.euromonitor.com/beauty-and-personal-care-in-portugal/report

Fishbein, & Ajzen. (1975). *Belief, Attitude, Intention and Behavior:An Introduction to Theory and Research.* Addison-Wesley.

Huda, M., & Sultan, P. (2013). Buying Motives of Herbal Skin Care Products: The Case of Genration Y in Bangladesh. *Intrnational Review of Business Research Papers, 9*(5), 68-80.

Kim, H., & Chung, J. (2011). Consumer purchase intention for organic personal care

products. *Journal of Consumer Marketing, 28*(1), 40-47.

Loudan, D., & Bitta, D. (1986). *Consumer Behavior : Concepts and Application.* New York: McGraw - Hill.

Malhotra, P. (2003). The beauty of being a beautician. Chandigarh, *The Tribune*.

Monteiro, N. (2003). The global distribution of average volume of alcohol consumption and patterns of drinking. *European addiction research*, *9*(4), 147-156.

Nair, V., & Pillai, P. (2016). A study on Purchase Patterns of cosmetics among consumers in Kerala. *International Conference on Marketing & Society*, 581-595.

Rao, V., & Arora, R. (2004). Rationale for conservation of medicinal plants - Research in Asia. *The framework and project work plans Kuala Lampur, 1*, 7-22.

Sabhrawal, V., Mann, S., & Kumar, P. (2014). Women buying behavior and Consumption pattern of Facial Skin Care Products. *International Journal of Management and Social Science Research, 3*(9), 1-13.

Sinha, P. (2003). *Shopping Orientation in the Evolving Indian Market, Vikalpa, 28*(2), 13-22.

Souiden, N., & Diagne, M. (2009). Canadian and French women;s consumption of cosmetics : a comparison of their attitudes and motives. *Journal of Consumer Marketing, 26*(2), 97-109.

Sundari, R., & Murugan, M. (2011). Brand Loyalty's Influence on Women's Buying Behavior with special reference to personal care products. *International Journal of Commerece,IT and Management,* 1(2), 56-62.

Vanessa, A., H, P., & Sandra, S. D. (2011). Women satisfaction with cosmetic brands : The role of dissatisfaction and hedonic brand benefits. *African Journal of Business Management, 5*(3), 792-802.

Vigneron, Jhonson, & Franck. (1999). A review in a conceptual framework of prestige seeking consumer behavior. *Academy of marketing science Review*, 1(1), 1-15.

Journal of Management Matters

Journal homepage: www.rjt.ac.lk/mgt

Faculty of Management Studies, Rajarata University of Sri Lanka

Health awareness and health issues among international tourists visiting Sri Lanka

W.H.M.S. Samarathunga
Department of Tourism and Hospitality Management, Faculty of Management Studies, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.
Corresponding author: manoj.susl@gmail.com

Janith Warnasekara
Department of Community Medicine, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.

Abstract

Although Sri Lanka is a famous tourist destination in South Asia, the literature keeps on silent about the health related information among the international tourists. This study was conducted at seventeen popular tourist destinations in Sri Lanka from March 2017 to June 2017. Participants completed a questionnaire to elicit information concerning demographics, trip characteristics, health awareness, pre-tour health preparation and health issues encountered during the stay in Sri Lanka. The questionnaire was completed by 385 foreign travelers from 44 countries, representing all continents except Africa. Descriptive statistics were used to analyze the data. The result revels that the majority of tourists was aware that dengue is a common problem while most of tourists was aware that Hepatitis A, Hepatitis B, Tetanus, Rabies and Typhoid are common diseases in the country. Surprisingly, Yellow fever, Malaria, Zeca and Ebola were also reported as common diseases in Sri Lanka, although they are not recorded from Sri Lanka during the recent past. The result further indicates that the majority of tourists sought medical advices before visiting Sri Lanka. Vaccination and taking prophylactic medication were found to be the most common health precautions taken. Health issues are not very common among tourists to Sri Lanka since only very few tourists were reported with certain health issues. Most issues were minor, with spontaneous recovery.

Keywords: *Health issues, international tourists, prophylactic medication travelers, vaccination.*

1. Introduction

With the decisive conclusion of the war in 2009, Sri Lanka with its peaceful environment is now considered as one of the safest destinations for tourists to travel. Arrival of two millions of tourists in 2016 paved a new ground stone in the tourism industry of Sri Lanka (Sri Lanka Tourism Development Authority, 2017). Unlike the war time, the tourists can travel anywhere in Sri Lanka without being stopped by the authorities for security purposes. This situation has lead the tourists to diversify their experience from traditional sun, sea and sand to niche tourism practices including community based tourism, ethnic tourism, eco-tourism, adventure tourism etc. Tourism in Sri Lanka has surged to a new limit of over 2.1 million (2,116,407) arrivals in 2017, which is an increase of 372 percent over 2009 arrivals (447,890) and a continuous growth of tourists arrival to Sri Lanka is expected (Sri Lanka Tourism Development Authority, 2018).

Health and safety associated with international travel possibly the primary concern of modern international travelers. As a result, destination areas are taking adequate measures to ensure that the departing tourists are safe and happy while maintaining an acceptable level of health precautions to make sure that the international tourists do not get affected with communicable diseases available in the country visited (Ryan, 1997). Travel and tourism on the other hand is one of the most common ways in spread of diseases since it involves the movement of large number of people across the borders. International travelers porn to serious health issues with respect to the food, water, accommodation and hygiene factors (Baker, 2015; Lawton & Page 1997). Previous studies stated that 55percent of international tourists to developing countries are recorded with some health problems and 8percent seek physicians either during their tour or upon returning home (Ericsson et al., 2006; Shaw, 2006; Steffen & Grieve, 2013). Although, Sri Lanka is a paradise for tourists, it is still been categorized as a developing country (United Nations, 2017). The most common reported health complications by the tourists visited developing countries include diarrheal diseases, followed by febrile illness, respiratory tract problems, skin problems, animal bites and injuries (Hill, 2000; Rack et al., 2005). However, deaths related to international travelers are very rare with one death out of 100,000 tourists visited to a developing country (Steffen, Amitirigala & Mutsch, 2008). Although international literature provides some valuable blue prints, many researchers (Greenwood et al., 2008; Redman et al., 2006; Sanders et al., 2008) identified that health problems of international tourists can vary greatly as per the geographical area of travel and traveler's characteristics.

The literature pertaining to tourists' health issues at the point of sale of tourism products are extremely limited (Lawton & Page, 1997). Similarly, the health awareness and incidents of health problems among the international tourists to Sri Lanka remains unknown. Present study is the first study to assess the health awareness and health problems among international tourists to Sri Lanka. Therefore, it is aimed to identify the health awareness of international tourists and spectrum of health problems among the international travelers to Sri Lanka. The findings will be significant to stakeholders of Sri Lanka tourism industry to develop Sri Lanka tourism through branding Sri Lanka as a safe destination to visit. Further, the health care professional will also be benefitted by being able to recommend appropriate preventive measures for international travelers to Sri Lanka.

2. Review of literature

Rapid international travel has provoked spread of many communicable diseases including Severe Acute Respiratory Syndrome (SAARS), Chikungunya, Dengue, Influenza, Ebola, Diarrhea, Malaria, sexually transmitted diseases (STD). SAARS outbreak in 2002 reports more than 8000 infections that attributed with 774 fatalities across five continents (World Health Organization, 2003). Olsen et al. (2003) reports that 0 percent to 18.3 percent of SAARS is transmitted through aircrafts. According to World Tourism Organization (2004), SAARS and related travel warnings has caused decline of nine percent of international tourist travel in 2003. The Chikungunya virus which was first reported in Africa in 1952, is transmitted through mosquito and often carried by travelers to different parts of the world (Baker, 2015). The outbreak of Chikungunya spreads over many countries and regions including India, Mauritius, Comoros, Seychelles, Madagascar, Indonesia, Europe, United States, Australia and Hong Kong through travelers (Bruce, Johnson & Tran, 2007; Charrel, Lamballerie & Raoult, 2007; Lanciotte, Kosoy & Laven, 2007; Lee, Wong & Lam, 2006; Panning, Grywna & Van Esbroeck, 2007).

Dengue is a flavivirus and spreads over Southeast Asia, South Asia, the Pacific, Caribbean, and Central, and South America (Gubler, 2002). The incidents in the United States were mostly reported in international travelers (Baker, 2015). About 30,000 travelers of the developing countries are infected with malaria annually (Kain & Keystone, 1998). However, the incidents reported from South Asia is around 0.1 – 0.01 percent per month (Steffen et al., 1999; Ohrt et al., 1997). Influenza, which is a global challenge even now, spread through aerosol or direct contact and usually, aircrafts provide an ideal enclosed space for transmission of the virus (Baker, 2015; Moser et al., 1979). Influenza has also been reported on cruise ships (Mutsch et al., 2005). Wilderness experience sometimes brings infectious diseases to the travelers. Bush-meat is an important source of income for millions of people living around the national parks (Karesh & Noble, 2009). However, bush-meat hunting, preparation and consumption are related to spread of several epidemics and pandemics including human immunodeficiency virus (HIV), Ebola, and severe acute respiratory syndrome (SARS) (Baker, 2015). There are many instances of travelers being affected by these viruses.

Ebola was first reported in West African countries including Liberia, Guinea, Sierra Leone and Nigeria. The tourists visiting infected areas are at a high risk if safety precautions are not followed. African tourism industry greatly suffered due to the spread of Ebola although few countries are reported with the same virus (Baker, 2015). Diarrhea is one of the most commonly found illnesses among international travelers (Fairley, 2014; Olanwijitwong et al., 2017; Ryan, Wilson & Kai, 2002). According to Steffen et al. (1983) and Ericsson (1998) 10 to 60 percent of travelers to developing countries get diarrhea, twenty percent were reported discontinuing their tours, and about 40 percent change their travel plan due to diarrhea. Further, it has been discovered that 43 – 79 percent of travelers to South Asian countries were also reported with diarrhea (Angelo et al., 2017). Travelers, with their anonymity, may place themselves at a great risk at foreign countries by engaged with sexual activities (Mulhall, 1993). According to Stricker et al. (1990) around five percent of travelers engage in casual sex during international travels and condoms are not being used by 50 percent of them. Ryan and Kain (2000) recommend that tourists must use condoms or relevant vaccine as pre and post precaution methods.

Personal safety is one of the prime motives of international travelers before selecting a destination to travel. The tourists expect a destination to be safe and clean (Haywood, 1990). Some researches indicate that tourists are rather concern about safety than that of the cost of the trip (Evans & Stabler, 1995; Ritchie, 1991). In addition to that, the Japanese tourists, Hong Kong residents and American travelers to Canada consider safety and cleanliness among the more important factors when selecting a destination to travel (Nozawa, 1992). Many studies identified some characteristics of the travelers who found with some health problems during their travels. They are less likely to receive pre-travel health precautions (Leder et al., 2004), more likely to visit and stay in remote rural areas (McCarthy, 2001), have direct contact with locals (Cobelens et al., 2000), use high-risk foods and beverages, travel at the last minute, and have longer trip durations (Mahon et al., 1996). However, according to Rudkin and Hall (1996), travel agents and tour operators tend to have less knowledge about the health risks faced by international travelers. Further, Dawood (1989) records that the professionals in travel agencies are unaware of the risks faced by the travelers.

3. Methodology

This study is a descriptive cross-sectional study conducted among international travelers who were visiting Sri Lanka, who can read and able to fully understand either English, French or German language, in which the questionnaire is developed. The study was conducted in main tourist destinations in Sri Lanka covering a broad geographical area including Anuradhapura, Polonnaruwa, Sigiriya, Dambula, Habarana, Kandy, Matale, Nuwara Eliya, Bandarawela, Colombo, Negombo, Galle, Kalpitiya, Yala, Trincomalee, Batticaloya, and Jaffna.

The tourists were asked whether they like to participate in the survey. With their consent, self-administered questionnaires were distributed. Not more than one member from a tourist group was given a questionnaire to complete to reach a wider audience. Simple random sampling technique was adopted in this study. Every 3rd tourist was given a questionnaire to fill. The questionnaire collected information on demographic, travel characteristics, pre-travel health precautions and knowledge of prevailing diseases in Sri Lanka among the international travelers. The validity of the questionnaire was ensured by closely referring to the previous works on travelers' health awareness and communicable diseases, and health issues faced by the tourists. The data were collected during the period of March 2017 to June 2017. The population includes all the foreign tourists visited Sri Lanka during that period, which is 593,567 (Sri Lanka Tourism Development Authority, 2018). At a 95 percent confidence level, a population of 593,567 requires 384 samples, while a 1,000,000 will also need 384 samples (Saunders, Lewis & Thornhill, 2009). However, 412 questionnaires were distributed till the researchers reach a sample of 385 number of usable questionnaires.

Descriptive statistical analyses were conducted using SPSS for Windows, version 21 software. Continuous data are presented as mean with standard deviation for normally distributed values and median with range for non-normally distributed values. Categorical data are presented as number and percentage.

The study procedure including study setting and data collection using questionnaires were reviewed and approved by the Ethics Review Committee of the Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka (ref. n. ERC/2017/09) before initiation of the data collection.

4. Results and discussion

4.1 Demographics

The questionnaires were completed by 384 foreign travelers from 44 countries representing all continents except Africa. Demographic information of the international tourists who participated in the survey are given in Table 1. Among 384 participants 57.1 percent were female and 46.6 percent of the respondents was in 21 – 30 year age category. About 73 percent of them had at least a university degree. About 30.6 percent was professionals. It was further identified that a relatively even number of respondents are distributed among four income categories as mentioned in Table 1.

Table 1
Demographic characteristics of the respondents

Description	Percentage	n	Description	Percentage	n
Sex			Age (mean age 33.88)		
Male	42.9	159	Below 20	7.7	28
Female	57.1	212	21 – 30	46.6	169
Missing		14			
Educational level			31 – 40	19.3	70
High school	14.7	56	41 – 50	11.0	40
College graduate	12.3	47	51 – 60	10.8	39
University graduate	37.8	144	Above 60	4.4	16
Master's & above	35.2	134	Missing		23
Missing		4	Occupation		
			Business	11.7	44
Income			Professionals	30.6	115
Less than US $20,000	25.6	91	Scientists & technicians	19.7	74
US $20,001– 35,000	27.3	97	Retired	4.0	15
US $35,001 – 50,000	25.4	90	No occupations	9.3	35
Above US $50,001	21.7	77	Other occupations	24.7	93
Missing		30	Missing		9

4.2 Travel characteristics of the respondents

It was revealed that international travelers to Sri Lanka had several different travel behaviors. Only 14 percent of the tourists had been to Sri Lanka before. A vast majority (68.1%) of the tourists were staying more than 14 days in Sri Lanka. Also 73.5 percent of the tourists were travelling for pleasure and 59.7 percent were recorded as back packers who make self-arrange tours. The most popular destinations among the respondents were Kandy and Pinnawela (79.5%), Anuradhapura (72.9%), Colombo (70.3%), Sigiriya and

Dambulla (67.9%), Bandarawela and Ella (53.5%), Galle and Unawatuna (48%) and Nuwara Eliya and Kitulgala (42.6%).

4.3 Knowledge of prevailing diseases in Sri Lanka

According to Table 2, it was revealed that 79.85 percent of the respondents are aware of existing Dengue epidemic in Sri Lanka followed by Hepatitis A and Hepatitis B with the awareness level of 75.5 and 71.9 percent respectively. Further, 63.6 percent, 63.23 percent, 58.92 percent and 53.53 percent of the tourists responded that they are aware of availability of Tetanus, HIV, Rabies and Typhoid as existing diseases in Sri Lanka respectively. However, the study revealed that the majority of the respondents are not aware of availability of Leishmaniasis (70.72%), Leptospirosis (64.74%), Chikungunya (64.54%), H1N1 (59.80%), and Japanese Encephalitis (52.77%) diseases in Sri Lanka.

About 53 percent of the respondents was in the opinion that Sri Lanka is still affected by Malaria. Further, 41.87 percent of the respondents stated that there is Yellow Fever in Sri Lanka, although there is not. In contrast, 45.20 percent of the responded was right about non-availability of Ebola virus in Sri Lanka. Also, nearly 50 percent and 53 percent of the tourists indicated that they do not know whether there is Zeca and Leprosy in Sri Lanka, which are not available in Sri Lanka.

Table 2
Knowledge of prevailing diseases in Sri Lanka

Disease	Available (%)	Not available (%)	Don't know (%)
Diphtheria	45.3	7.6	47.1
Leprosy	25.7	21.9	52.5
Hepatitis A	75.5	3.2	21.3
Hepatitis B	71.9	3.3	24.9
Malaria	53	28.9	18.1
Merscov viral infection	15.14	10.21	74.65
Ebola	22.42	45.20	32.37
Dengue	79.85	5.46	14.70
Rabies	58.92	5.87	35.21
H1N1	24.88	15.32	59.80
Tetanus	63.6	5.77	30.62
Yellow Fever	41.87	22.73	35.41
Typhoid	53.53	4.16	42.31
Leptospirosis	27.44	7.82	64.74
Japanese Encephalitis	35.89	11.33	52.77
Leishmaniasis	20.78	8.51	70.72
Chikungunya	24.49	10.98	64.54
Cholera	39.04	16.27	44.70
Zeca	30.47	19.83	49.70
HIV	63.23	6.38	30.39
Tuberculosis	57.53	7.65	34.82

4.4 Pre-travel health preparations before visiting Sri Lanka

The preliminary analysis confirmed that 64.2 percent of tourists sought medical advices before visiting Sri Lanka. About 37 percent of tourists expressed that taking protective vaccinations is their main health advice received, while 20.1 percent expressed that they were warned against Typhoid, Hepatitis A, Hepatitis B, Rabies, Japanese encephalitis, Diphtheria, Tetanus, and Pertussis (DTP) and Tuberculosis (TB). Nearly 16 percent and 13 percent of the respondents had been advised about prevailing dengue epidemic in Sri Lanka and to drink only purified water respectively. Surprisingly, 2 percent of the respondent were advised to take precautions against Malayria although it is not reported from Sri Lanka during the recent past. Further, less than 1 percent of the tourists were warned against yellow fever and zeca, although they were never reported from Sri Lanka. Details of pre-travel health preparations are shown in Table 3.

Table 3
Pre-travel health preparations

Pre-travel health advises received	Percentage	Frequency
Receiving protective vaccinations	36.9	130
Warning against Typhoid, Hepatitis A, Hepatitis B, Rabies, Japanese encephalitis, Diphtheria, Tetanus, and Pertussis (DTP), Tuberculosis	20.1	71
Dengue, mosquitos warnings	15.6	55
Drink only purified water	12.7	45
Street food, food poisoning warnings	3.6	13
Malaria (paludism) warnings	2	7
Caution for Monkeys and street dogs bites	1.7	6
Avoid raw vegetables	1.4	5
Wash hands	1.1	4
Immunization	1.1	4
Stay out of direct sun	0.8	3
Yellow fever	0.8	3
First-aid	0.8	3
Paddy fields (rice)	0.5	2
Zeca	0.2	1

4.5 Health precautions of the tourists

The respondents have taken numerous measurements to protect themselves from communicable diseases during their travel in Sri Lanka (see Table 4). A vast majority of the respondents. i.e., 74.9, 71.2 and 63.5 percent had taken protective vaccines against Hepatitis A, Hepatitis B and Tetanus respectively prior to visit Sri Lanka. Further, the international tourists had taken vaccines against Diphtheria (55.5%), Typhoid (53.3%) and Dengue (35%). Also, as a precaution against Dengue the respondents were wearing long clothes with a response rate of 32.7 percent. Taking prophylactic medication found to be the most famous health precaution taken by the sample group against Mescov (94.7%), Rabies (79.7%), H1N1 (92.3%), Leptospirosis (96.4%), Japanese Encephalitis (73.4%), Leishmaniasis (93.9%), Chikungunya (88.1%), Cholera (92.3%), Tuberculosis (71.8%). It was further observed that the international tourists are taking prophylactic

medication against Malaria (47.7%), Ebola (91.9%), Yellow Fever (62.3%), Leprosy (79.4%), and Zeca (90%) mainly due to the low awareness of Sri Lankan health condition.

Table 4
Precautions taken before/while travelling in Sri Lanka

Disease	Taking the vaccine	Appropriate barrier methods (Long clothes, masks, gloves, condoms)	Using repellants	Taking Prophylactic medication
Diphtheria	55.5	0.7	2.2	41.5
Leprosy	13.1	0.9	6.6	79.4
Hepatitis A	74.9	0.7	2.3	22.1
Hepatitis B	71.2	1.4	2.1	25.3
Malaria	12.2	37.6	2.5	47.7
Merscov viral Infection	2.2	1.3	1.8	94.7
Ebola	2.6	2.1	3.4	91.9
Dengue	35	32.7	2	30.3
Rabies	14.4	1.7	4.7	79.7
H1N1	4.5	1.4	1.8	92.3
Tetanus	63.5	1.1	1.8	33.7
Yellow Fever	31.5	3.8	2.3	62.3
Typhoid	53.3	1.1	1.9	43.7
Leptospirosis	0.4	2.2	0.9	96.4
Japanese Encephalitis	12.5	13.3	0.8	73.4
Leishmaniasis	2.6	2.2	1.3	93.9
Chikungunya	3.8	6.4	1.7	88.1
Cholera	3.9	0.9	3.0	92.3
Zeca	1.3	3.5	5.2	90
HIV	19	1.6	2.8	76.6
Tuberculosis	23.8	2.0	2.0	71.8

Table 5
Reasons for seeking medical advices in Sri Lanka

Reasons for seeking medical advices in Sri Lanka	Percentage	Frequency
Ayurveda treatments	5.2	2
Diarrhea	7.8	3
Dengue	2.6	1
Flu and cold	18.4	7
Hypertension	2.6	1
Injury	13.2	5
Pregnancy	2.6	1
Risk with dengue, cholera	2.2	2
Sandflies bite	2.6	1
Skin rash	7.8	3
Vaccinations	31.5	12

4.6 Incidence and impact of health problems

A total 10.6 percent (38) of international travelers had consulted a physician during their travel in Sri Lanka. However, this includes 31.5 percent of the tourists who obtained protective vaccines in Sri Lanka. Flu and cold (18.4%) were the most common health problem among the respondents. The second and third most common health problems were injuries (13.2%), skin rashes (7.8%) and diarrhea (7.8%). Information regarding the incidence of health problems is given in Table 5.

5. Discussion

Although the number of international travelers visiting Sri Lanka continue to grow at a double digit growth rate, health awareness, health related problems associated with international tourists are largely unknown. In this study, it was revealed that a vast majority (79.85) of the tourists are aware of existing dengue epidemic in Sri Lanka. However, only 32.7 percent of the tourists were covering their bodies as a precaution against dengue while 35 percent were taking protective vaccine against the same. Fortunately, only one tourist (0.002%) was reported with Dengue from the entire sample. Sri Lankan situation is well below the South Asian reports that records of 0.1 – 0.01 percent of the tourists per month are infected with Dengue virus (Steffen et al., 1999; Ohrt et al., 1997). The awareness about Hepatitis A and Hepatitis B was also at a very high level indicating 75.5 percent and 71.9 percent responses respectively. That has lead 74.9 percent and 71.2 percent of tourists to take the protective vaccines prior to visit Sri Lanka respectively. This is contrast to the findings of Herck et al. (2004) who concluded that nearly 60 percent of European travelers to the developing countries have no protection against Hepatitis A.

Further, about 63.6 percent, 58.92 percent and 53.53 percent of the tourists responded that they are aware of availability of Tetanus, Rabies and Typhoid as existing diseases in Sri Lanka respectively. However, contrast to their level of awareness, only 63.5 percent had taken vaccine protection against Tetanus, 79.7 percent rely on prophylactic medication against Rabies and 53.3 percent are taking vaccines against Typhoid. The respondents' awareness about the existing health situation proved to be highly inadequate since a majority of the respondents stated that they do not know about availability of Leishmaniasis (70.72%), Leptospirosis (64.74%), Chikungunya (64.54%), H1N1 (59.80%), Japanese Encephalitis (52.77%) in Sri Lanka. Additionally, a significant number of tourists responded that there is Malaria (53%), and Yellow fever (41.87%) in Sri Lanka while 45.20 percent of the tourists correctly mentioned that there is no Ebola virus in Sri Lanka. However, World Health Organization (2016) declared that Sri Lanka is free from Malaria since 2013 while Yellow Fever is reported only from the African and South American countries (World Health Organization, 2017). Also, nearly 50 percent and 53 percent of the tourists indicated that they do not know whether there is Zeca and Leprosy in Sri Lanka, which are not existing in Sri Lanka. The study further identified that 64.2 percent of tourists sought medical advices before visiting Sri Lanka while a European Airport Survey confirms only 52.1 percent had sought medical advices before their trips to the developing countries (Herck et al., 2004).

In this study, flu and cold was found as a the most common diseases among the international travelers that counts up to 18.4 percent. Physical injuries as a result of travel records second common health problem in Sri Lanka with 13.2 percent response rate whereas Hill (2000) and Rack et al. (2005) reports that injuries are frequent health problems faced by the tourists. Interestingly, contrast to other international findings, only 7.8 tourists were recorded with diarrhea, while previous studies including Black (1990) and Angelo et al., (2017) records that about 50 and 43 – 79 percent of travelers to Indian subcontinents are recorded with diarrhea respectively. As a result, the researchers can conclude that diarrhea is not particularly high in Sri Lanka when compared with other countries in the region. Further exotic diseases that includes H1N1, leptospirosis, typhoid etc. were not reported during the period. However, this does not mean that the tourists are not affected with exotic diseases, but the data collection might have been completed before or during the disease incubation time.

6. Conclusion

This study explored the health awareness and health issues of the tourists visiting Sri Lanka. It was discovered that international tourists' knowledge pertaining to communicable diseases and preventive measures are not adequate. However, most travelers found to have taking different preventive measures to avoid communicable diseases during their travels to Sri Lanka and as a result, tourists are facing relatively less health problems during their stay in Sri Lanka. Since Sri Lanka has high expectations over the tourism industry as a strong contributor towards it's fast development, much attention need to pay upon traveler's health knowledge that seriously affect the overall tour satisfaction. Thus, the study recommends the tourism stakeholders to increase the health awareness of the tourists visiting Sri Lanka to avoid any possible health complications. In addition to that tourism suppliers also have a responsibility towards the travelers' health since they are direct encounters with the tourists. Further, adequate measurements need to be taken to cultivate an overall health friendly environment in Sri Lanka to control communicable diseases. The results further gives valuable information to health care professionals when recommending appropriate preventive procedures for international travelers visiting Sri Lanka.

There are some limitations of this study. Since this is a cross-sectional study, it only records the health concerns of the tourists visiting Sri Lanka over a limited period of time (four months). The travelers during this period might not have been reflective of travelers throughout the year. Further, the tourists were travelling in Sri Lanka when they participated in this survey and there is no follow up regarding their post-travel health conditions. In addition, all health prevention activities were recorded on tourists' memory, subject to recall biasness.

References

Angelo, K. M., Kozarsky, P. E., Ryan, E. T., Chen, L. H., & Sotir, M. J. (2017). What proportion of international travelers acquire a travel-related illness? A review of the literature. *Journal of Travel Medicine*, *24*(5).

Baker, D. M. A. (2015). Tourism and the Health Effects of Infectious Diseases: Are There Potential Risks for Tourists? *International Journal of Safety and Security in Tourism and Hospitality*, *1*(12), 1.

Black, R. E. (1990). Epidemiology of travelers' diarrhea and relative importance of various pathogens. *Reviews of infectious diseases*, *12*(1), 73-79.

Bruce, J.D., Johnson, D.F., & Tran, T. (2007). Chikungunya virus infection in traveler to Australia. *Emerging Infectious Disease*, *13*(3), 509–10.

Charrel, R. N., de Lamballerie, X., & Raoult, D. (2007). Chikungunya outbreaks-the globalization of vectorborne diseases. *New England Journal of Medicine*, *356*(8), 769.

Cobelens, F. G., van Deutekom, H., Draayer-Jansen, I. W., Schepp-Beelen, A. C., van Gerven, P. J., van Kessel, R. P., & Mensen, M. E. (2000). Risk of infection with Mycobacterium tuberculosis in travelers to areas of high tuberculosis endemicity. *The Lancet*, *356*(9228), 461-465.

Dawood, R. (1989). Tourists' health - could the travel industry do more? *Tourism Management*, *10*(4), 285-287.

Ericsson, C. D. (1998). Travelers' diarrhea: Epidemiology, Prevention, and Self-Treatment. *Infectious Disease Clinics*, *12*(2), 285-303.

Ericsson, C. D., Hatz, C., Leder, K., Tong, S., Weld, L., Kain, K. C., … & Torresi, J. (2006). Illness in travelers visiting friends and relatives: a review of the GeoSentinel Surveillance Network. *Clinical Infectious Diseases*, *43*(9), 1185-1193.

Evans, N. G., & Stabler, M. J. (1995). A future for the package tour operator in the 21st century?. *Tourism Economics*, *1*(3), 245-264.

Fairley, J. K. (2014). General approach to the returned traveler. In Centers for Disease Control and Prevention (Ed.), *CDC Health Information for International Travel* (470-473). London: Oxford University Press.

Greenwood, Z., Black, J., Weld, L., O'Brien, D., Leder, K., Von Sonnenburg, F., & Freedman, D. O. (2008). Gastrointestinal infection among international travelers globally. *Journal of Travel Medicine*, *15*(4), 221-228.

Gubler, D. J. (2002). Epidemic dengue/dengue hemorrhagic fever as a public health, social and economic problem in the 21st century. *Trends in Microbiology*, *10*(2), 100-103.

Haywood, K. M. (1990). Revising and implementing the marketing concept as it applies to tourism. *Tourism Management*, *11*(3), 195-205.

Herck, K., Castelli, F., Zuckerman, J., Nothdurft, H., Damme, P., Dahlgren, A. L., & Walker, E. (2004). Knowledge, attitudes and practices in travel-related infectious diseases: the European airport survey. *Journal of Travel Medicine*, *11*(1), 3-8.

Hill, D. R. (2000). Health problems in a large cohort of Americans traveling to developing countries. *Journal of Travel Medicine*, *7*(5), 259-266.

Kain, K. C., & Keystone, J. S. (1998). Malaria in travelers: epidemiology, disease, and prevention. *Infectious Disease Clinics*, *12*(2), 267-284.

Karesh, W. B., & Noble, E. (2009). The bush meat trade: increased opportunities for transmission of zoonotic disease. *Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine*, *76*(5), 429-434.

Lanciotti, R.S., Kosoy, O.L., & Laven, J.J. (2007). Chikungunya virus in US travelers returning from India, 2006. *Emerging Infectious Disease, 13*(5): 764–767.

Lawton, G., & Page, S. (1997). Evaluating travel agents' provision of health advice to travellers. *Tourism Management*, *18*(2), 89-104.

Leder, K., Black, J., O'brien, D., Greenwood, Z., Kain, K. C., Schwartz, E., ... & Torresi, J. (2004). Malaria in travelers: a review of the GeoSentinel surveillance network. *Clinical infectious diseases*, *39*(8), 1104-1112.

Lee, N., Wong, C.K., Lam, W.Y. (2006). Chikungunya fever, Hong Kong. *Emerging Infectious Diseases*, *12*(11):1790–2.

Mahon, B. E., Mintz, E. D., Greene, K. D., Wells, J. G., & Tauxe, R. V. (1996). Reported cholera in the United States, 1992-1994: a reflection of global changes in cholera epidemiology. *Jama*, *276*(4), 307-312.

McCarthy, M. (2001). Should visits to relatives carry a health warning? *The Lancet*, *357*(9259), 862.

Moser, M. R., Bender, T. R., Margolis, H. S., Noble, G. R., Kendal, A. P., & Ritter, D. G. (1979). An outbreak of influenza aboard a commercial airliner. *American journal of epidemiology*, *110*(1), 1-6.

Mulhall, B. P. (1993). Sexually transmissible diseases and travel. *British medical bulletin*, *49*(2), 394-411.

Mutsch, M., Tavernini, M., Marx, A., Gregory, V., Lin, Y. P., Hay, A. J., ... & Steffen, R. (2005). Influenza virus infection in travelers to tropical and subtropical countries. *Clinical infectious diseases*, *40*(9), 1282-1287.

Nozawa, H. (1992). A marketing analysis of Japanese outbound travel. *Tourism Management*, *13*(2), 226-234.

Ohrt, C., Richie, T. L., Widjaja, H., Shanks, G. D., Fitriadi, J., Fryauff, D. J., ... & Hadiarso, L. (1997). Mefloquine compared with doxycycline for the prophylaxis of malaria in Indonesian soldiers: a randomized, double-blind, placebo-controlled trial. *Annals of Internal Medicine*, *126*(12), 963-972.

Olanwijitwong, J., Piyaphanee, W., Poovorawan, K., Lawpoolsri, S., Chanthavanich, P., Wichainprasast, P., & Tantawichien, T. (2017). Health problems among Thai tourists returning from India. *Journal of travel medicine*, *24*(4), 1-6.

Olsen, S. J., Chang, H. L., Cheung, T. Y. Y., Tang, A. F. Y., Fisk, T. L., Ooi, S. P. L., ... & Hsu, K. H. (2003). Transmission of the severe acute respiratory syndrome on aircraft. *New England Journal of Medicine*, *349*(25), 2416-2422.

Panning, M., Grywna, K., & Van Esbroeck, M. (2007).Chikungunya fever in travelers returning to Europe from the Indian Ocean region, 2006. Emerging Infectious Diseases 14(3), 416–22.

Rack, J., Wichmann, O., Kamara, B., Günther, M., Cramer, J., Schönfeld, C., & Friedrich-Jänicke, B. (2005). Risk and spectrum of diseases in travelers to popular tourist destinations. *Journal of travel medicine*, *12*(5), 248-253.

Redman, C. A., MacLennan, A., Wilson, E., & Walker, E. (2006). Diarrhea and respiratory symptoms among travelers to Asia, Africa, and South and Central America from Scotland. *Journal of travel medicine*, *13*(4), 203-211.

Ritchie, J. B. (1991). *New Realities New Horizons: Leisure, Tourism and Society in the Third Millennium*. University of Calgary, World Tourism Education & Research Centre. New York, American Express.

Rudkin, B., & Hall, C. M. (1996) Off the beaten track: the health implications for the development of special interest tourism activities in South East Asia and the South Pacific. In Cliff, S., & Page, S. (Ed's.), *Health and the International Tourist* (pp. 89-107). London: Routledge.

Ryan, E. T., Wilson, M. E., & Kain, K. C. (2002). Illness after international travel. *New England Journal of Medicine*, *347*(7), 505-516.

Ryan, C. (Ed.). (1997). *The tourist experience* (1st ed.). London: Cassell.

Ryan, E. T., & Kain, K. C. (2000). Health advice and immunizations for travelers. *New England Journal of Medicine*, *342*(23), 1716-1725.

Sanders, J. W., Riddle, M. S., Brewster, S. J., & Taylor, D. N. (2008). *Epidemiology of traveler's diarrhea.* In J. S. Keystone (Ed.), Travel Medicine (pp. 114-126). Atlanta: Elsevier.

Saunders, M., Lewis, P., & Thornhill, A., (2009). *Research Methods for Business Students* (5th Ed). England: Pearson Education Limited.

Shaw, M. (2006). Running a travel clinic. *Travel Medicine and Infectious Disease*, *4*(3), 109-126.

Sri Lanka Tourism Development Authority. (2017). *Annual Statistical Report of Sri Lanka Tourism – 2016*, Sri Lanka Tourism Development Authority, Colombo.

Sri Lanka Tourism Development Authority. (2018). *Monthly Statistical Report - January*, Sri Lanka Tourism Development Authority, Colombo.

Steffen, R., & Grieve, S. (2013) Epidemiology: morbidity and mortality in travelers. In Keystone, J,S., Freedman, D,O., Kozarsky, P.E., et al., (eds). *Travel Medicine* (4-11). St. Louis: Elsevier Inc.

Steffen R., Amitirigala I., & Mutsch M. (2008). Health risks among travelers — need for regular updates. *Journal of Travel Medicine*, *15*(3), 145–6.

Steffen, R., Jong, E. C., Guerrant, R. L., Walker, D. H., & Wyler, P. F. (1999). Travelers' and immigrants' health. *Clinical Infectious Diseases*, *30*(5), 816-816.

Steffen, R., van der Linde, F., Gyr, K., & Schär, M. (1983). Epidemiology of diarrhea in travelers. *Jama*, *249*(9), 1176-1180.

Stricker, M., Steffen, R., Hornung, R., Gutzwiller, F., Eichmann, A., & Witassek, F. (1990). Flüchtige sexuelle Kontakte von Schweizer Touristen in den Tropen. *Munch Med Wschr*, *132*(1), 175-7.

United Nations. (2017). World Economic Situation and Prospects 2017. Retrieved from https://www.unescap.org/events/launch-india-world-economic-situation-and-prospects-2017

World Health Organization. (2003). Summary of probable SARS cases with onset of illness from 1 November 2002 to 31 July 2003. Retrieved from http://www.who.int/csr/sars/country/table2004_04_21/en/

World Health Organization. (2016). *Malaria-free Sri Lanka*. Regional Office for South East Asia, India.

World Health Organization. (2017). Yellow Fever. Retrieved from http://www.who.int/news-room/feature-stories/detail/yellow-fever-global-vaccine-stockpile-in-emergencies

World Tourism Organization. (2004). Tourism highlights, edition 2004. Retrieved from https://www.e-unwto.org/doi/book/10.18111/9789284407910

Journal of Management Matters

Journal homepage: www.rjt.ac.lk/mgt

Faculty of Management Studies, Rajarata University of Sri Lanka

Profit efficiency of paddy farming in Sri Lanka: A case of Huruluwewa Colonization Scheme in Anuradhapura District

R.P.I.R. Prasanna and S.A.U. Neranjala
Department of Social Sciences, Faculty of Social Sciences and Humanities,
Rajarata University of Sri Lanka, Mihintale, Sri Lanka
Corresponding author: prasannarjt@gmail.com

Abstract

Today, paddy farmers, particularly in major colonization schemes, confront problem of less capability of deriving a satisfactory profit after spending much for cultivation. This study aimed to analyze the level of profit efficiency of paddy farming in one of the major modernized colonization schemes, Huruluwewa Modern Colonization Scheme, in North Central Province, Sri Lanka. The actual normalized profit function approach was employed to determine the level of profit efficiency for each farm. Data for the study were drawn from a field survey conducted in Huruluwewa Colonization Scheme in January 2018. The survey covered 110 farm households by applying simple random sampling method. The results of the study revealed that the average profit efficiency score of paddy farming is inadequate in the scheme indicating the potentiality for further improvement. The inefficiency model revealed that the period that the harvest hold for marketing is critical for the profit level of paddy farming. The results lead for important policy implications to sustain the modernized colonization schemes in Sri Lanka: first, it is essential to further strengthen the paddy market price or a guaranteed price of paddy stabilization mechanism. Second, as paddy farming does not support the majority of farmers to earn a sufficient profit, paddy farming should only be promoted in the areas where farmers can derive high profits, while rest of the paddy farming area should be converted to other profitable alternative crops.

Keywords: *Huruluwewa colonization scheme, paddy farming, profit efficiency.*

1. Introduction

The modern agricultural colonization schemes were introduced to the dry zone of Sri Lanka with the aim of achieving self-sufficiency in paddy production, and addressing the unemployment problem and pressure of higher population density in some regions of the

country (Farmer, 1977; Irangani & Prasanna, 2017). At present, paddy sector occupies 34 percent of the cultivated area of domestic agriculture and provides a livelihood for approximately 1.8 million farmers. About 75percent paddy cultivated area is irrigated, and a majority of the farmers (approximately 70 percent) are smallholders owing less than 1 *ha* land area (Weerahewa, 2004). Currently, 95percent of national rice requirement is fulfilled by domestic production (Department of Agriculture, 2017).

The country managed to increase paddy production dramatically during the last few decades along with technological changes in paddy farming and extending the cultivated area mainly through the agricultural colonization schemes. However, the paddy farmers, particularly in the major colonization schemes, confront some problems. One problem they faced is less capability of deriving a satisfactory profit after spending much for cultivation (The World Bank, 2003; Prasanna, 2006; Rupasena & Wijayakumar, 2006; Kikuchi et al., 2002; Rupasena & Naik, 2009). This trend has put the livelihoods of impoverished farmers in jeopardy. As a result, farmers are moving away from paddy farming to alternative crops such as banana, sugarcane, and soybean (Henegedara, 2010). The younger generation, predominantly in the colonization schemes, are less interested in continuing with paddy farming (Sudarshanie, 2014; Thivanka, 2017).

Literature in this subject outlined numerous reasons for less profitability of paddy farming in Sri Lanka; high cost of production, land fragmentation issues, the small size of paddy lands, and marketing-related issues are the highlighted areas (Kikuchi et al., 2002; Rupasena & Wijayakumar, 2006). Using the Domestic Cost Approach, Rafeek and Samaratunga (2000) have pointed out that Sri Lanka does not have comparative advantages in producing paddy. Weerahewa (2004) emphasized that competitiveness in paddy farming could be observed in some areas of irrigated paddy farming, practicing at adequate levels of scale. Due to less profitability of paddy farming, the government has to spend more on subsidy programs such as fertilizer subsidy, intervene to free irrigation water supply and management, and marketing. Thus, the country could achieve self-sufficiency in rice at a high cost to the society (Thiruchelvum, 2005).

Since a more substantial proportion of paddy is produced by major colonization schemes and the majority of paddy farmers are smallholders and resource-poor (Chandrasiri, 2010; Prasanna, 2006), this emerged issue—less profitability of paddy farming— put country's paddy production into a problem and thereby food security is at risk. Thus, identification of methods to improve farmers' capacity to enhance the profitability of paddy farming, given the farm-specific output prices, and fixed inputs are of paramount importance to sustain the modern colonization schemes in Sri Lanka.

Thus, this study aims to investigate the level of profit efficiency of paddy farming in the Modern Colonization Schemes (MCS) in Sri Lanka with the intention of identifying existing opportunity to enhance the profitability of paddy farming. To fulfill the above objective, following specific objectives need to be realized: 1) identify the socioeconomic status of smallholder farmers in the MCS, 2) determine the level of profit efficiency of smallholder paddy farms, and 3) identify the determinants of profit inefficiency of smallholder paddy farming in the MCS.

2. Review of literature

Profit efficiency is defined as the ability of a farm to achieve the highest possible profit under given prices of inputs and levels of fixed factors (Ali, Parikh, & Sha, 1989). The profit inefficiency in this context is defined as the loss of profit from not operating on the frontier (Ali et al., 1989). The subject of profit efficiency of rice farming is gaining increasing interest among the scholars since rice is the staple food of many countries. This section of the paper attempts to signify the levels of the inefficiency of rice farming in many countries and the factors influencing the efficiency levels. For instance, age, education level of farmers, irrigation, land size, training attendance, experience, level of agriculture infrastructure, soil fertility, extension services, share of non-agricultural income, amount of fertilizer usage, labour and machinery usage, household size, accessibility to credit, seed type, and price and amount have been highlighted in the literature related to efficiency models of rice farming.

Trong and Napasintuwrong (2015) investigated the profit inefficiency among hybrid rice farmers in Central Vietnam. The study identifies that age, educational level, irrigation, the share of rice income, the share of hybrid rice area, frequency of training attendance about hybrid rice production, hybrid rice production experience, and topography of farm are the leading factors affecting farmer profit inefficiency in hybrid rice production. Further, it revealed that the lowland rice farmers operate production more efficiently than the upland farmers in Central Vietnam. The study reveals the differences among the farmers between lowland and upland in terms of socioeconomic conditions as reasons for such differences in profit efficiency between lowland and upland in Central Vietnam.

A research work of Rahaman (2003) on profit efficiency of rice farmers in Bangladesh reveals a high level of profit inefficiency in modern rice production. The reasons for high-profit inefficiency in the study area are the inadequacy of infrastructure facilities in agriculture areas, soil fertility, and experience in farming, extension services, tenancy, and the share of non-agricultural income. Kolawole (2006) attempted to derive a statistical measure of profit efficiency of small-scale upland rice farmers in Nigeria and found a negative relationship between the unit cost of fertilizer and profit efficiency, and negative impacts of farmers' age, educational level, farming experience, and household size on profit inefficiency.

Ali et al. (1989) have estimated the level of profit inefficiency in terms of Basmati rice variety in Pakistan Panjab. According to the findings, the farm households' low education level and off-farm employment activities are the socioeconomic factors that negatively affect the profit efficiency. Interestingly, the studies on profit efficiency revealed that the institutional determinants, i.e., credit constraints, water constraints, and the late application of fertilizer, negatively affects profit efficiency, but Abdulai and Huffman (2000) and Magreta et al. (2013) noted a positive relationship between credit facilities and profit efficiency.

Abdulai and Huffman (2000) have examined profit efficiency of rice farming and the relationship between farm and household attributes and profit inefficiency in Northern Ghana. The results indicate that the average level of profit efficiency is relatively high in the area, but identify a higher variation in efficiency and inefficiency levels of farmers. The results of the inefficiency model disclose that high education level of household

heads, access to credit, production specialization, and being located in districts with extension services and better infrastructure facilities are significant determinants positively affecting the profit efficiency. Similar to results of the study of Ali and Flinn (1989), this study also confirms the negative impact of increasing participation in off-farm activities by farmers on profit efficiency. According to Chang, Chen, Tsend and Hu (2015), in Taiwan, farmers in the contract farms are more profit efficient than those of the non-contract farms in a comparable operating environment.

According to Magreta et al. (2013), Southern Malavi has an average technical, allocative, and economic efficiency levels of 65percent, 59percent, and 53percent of rice farmers, respectively. This suggests that farmers can further increase the rice production by 35percent. The average economic efficiency level entails that farmers can raise their profitability or rice production by 47percnet by adjusting the input use. Soil fertility status, access to credit, household size, and farmers' experiences were the factors that influence the efficiency levels of smallholder rice farmers.

In the Sri Lankan context, researchers have paid less attention to estimate profit efficiency of paddy production. Abeysekara (1972) has analyzed underlying input-output relationships in paddy farming in Sri Lanka and observes that the levels of fertilizer applied, machinery usage, and the amount of labour used help to increase the production level. Thiruchelvam (2005) examined factors of the inefficiency of rice production and issues relating to the cost of production in the districts of Anuradhapura and Polonnaruwa in Sri Lanka and the study reveals the negative association of farm management issues with the production efficiency of rice farming in the study area. Rathnayake and Amaratunge (2016) estimated the technical and allocative efficiency of paddy farming in Sri Lanka and observed that the estimated average technical efficiency of the farmers is 78.3 percent, suggesting there is a scope to increase paddy productivity using present technology. Age, schooling, alcohol consumption, agricultural training, farmers' attitudes, and the distance between the land and the primary water source are significant determinants of technical efficiency. According to the analysis of allocative efficiency, there exists inefficiency in allocating resources, where land and machinery resources are under-utilized while labour is over-utilized.

Gunaratne and Thiruchelvam (2002) estimated the technical efficiency of paddy production in the Rajangana major irrigation scheme and the Elayapattuwa minor irrigation areas in the Anuradhapura district. Results of the study indicate substantial differences in productivity, resource usage, and technical efficiency in the two types of irrigation schemes. The low asset level of the farmers and poor participation in farmer organization activities have significantly influenced the technical efficiency of farmers in Elayapattuwa. It was also evident that part-time farming is associated with a higher level of inefficiency in the both study areas.

3. Methodology

3.1 Model specification

Profit efficiency estimates the capacity of a farm to achieve the highest possible profit by considering farm-specific prices and the level of fixed factors. In this study, Stochastic

Frontier Analysis (SFA) was used to estimate the profit efficiency of paddy farms in the survey area owing to the capability of the SFA to accommodate random variations in the model. The actual normalized profit function for this study is specified as follows:

$$N(\pi_i) = f(p_i, z_i)\exp(v_i - u_i) \quad (1)$$

Where, $N(\pi_i)$ represents the normalized profit of the i^{th} farm, which is measured by dividing the profit by the price of output (price of paddy), p_i represents the price of i^{th}variable inputs divided by output price, and z_i represents fixed factors employed by the i^{th} farm. v_i is assumed to be independently and identically distributed as $N(0, \sigma^2)$. This is associated with various random shocks and measurement errors. u_i is the non-negative random variable (one-sided error term), which associates with farm-specific profit inefficiencies.

In this study, stochastic production frontier model developed by Battest and Coelli (1995) and widely used in efficiency analysis was used to estimate the profit efficiency for each paddy farm. Cobb-Douglas functional form determined the relationship between farm-level normalized profit and specific inputs specified as follows:

$$Ln\ N\ (\pi_i) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + (v_i - u_i) \quad (2)$$

Where;$N\ (\pi_i)$ - Normalized profit gained by i^{th} farm, X_1 - Farm size (acres), X_2 - Cost of labor (per acre) normalized by unit price of rice, X_3 - Cost of fertilizer (per acre) normalized by unit price of rice, X_4 - Cost of seeds (per acre) normalized by unit price of rice, X_5 - Cost of agrochemical (per acre) normalized by unit price of rice, X_6 - Cost of machinery (per acre) normalized by unit price of rice, β_i - Parameters to be estimated.

Profit inefficiency model is defined as follows:

$$Ui = \alpha_0 + \alpha_1 Z_1 + \alpha_2 Z_2 + \alpha_3 Z_3 + \alpha_4 Z_4 + \alpha_5 Z_5 + \alpha_6 Z_6 \quad (3)$$

Where; Z_1 - Educational level (year of schooling), Z_2 - Household size, Z_3 - Years of experience in farming, Z_4 - Training in farming (dummy; if yes = 1, otherwise = 0), Z_5 - Extension services (if received = 1, otherwise = 0), Z_6 - Storage time (if more than 4 weeks storage time = 1, otherwise = 0), α_i are the scalar parameters to be estimated.

3.2 Sample and data collection

Empirical data for the study were drawn from a field survey conducted in the HMCS in the Anuradhapura district in January 2018. The field sites were selected considering both right-bank and left-bank of the HMCS due to the differences between the people settled in the area—traditionally lived, and outside people. Six typical Grama Niladari (GN) divisions from both the left-bank and right-bank were selected for the farmer household survey. The survey covered 110 farm households by giving equal probabilities to all farm households to be in the sample. Sampled farmers were interviewed by administering a pre-tested survey questionnaire. The questionnaire was designed to elicit the data on paddy cultivation practices (cost of production, yield, etc.), marketing, and socioeconomic background of the farm households. Also, experienced agricultural officers and selected adult farmers in the area were interviewed to identify the project-specific issues related to the study.

4. Results and discussion

4.1 Socioeconomic status of the farmers

Socioeconomic profile of the sample revealed that almost all farmers are smallholders with an average farm size of 1.8 acres. Average age of a farmer is 54-years with 32 years of farming experience. It implies that the most of farmers is in the middle age, economically active, and experienced in farming. But it also indicates that paddy farming is less attractive to the younger persons in the area.

All farmers use their own land for rice cultivation. The average paddy production per acre is 1,429 kg, which is below the national average of 1,743 kg per acre (Department of Agriculture, 2017). The average selling price of paddy in the concerned season of the study was Rs. 39, and only 47 farmers were able to sell their production at this average price. Almost all farmers use chemical fertilizer, pesticides, and weedicides in farming, and only two farmers reported that they use organic fertilizer in paddy farming. The average cost of production and profit of paddy farming in the area are Rs. 59,592 and Rs. 7,194, respectively. Another important parameter of the surveyed sample is the educational level where the majority (53%) has studied until the GCE O/L examination.

4.2 Estimation of profit efficiency model parameters

The normalized profit function and profit inefficiency model were estimated together, and the results are presented in Table 1. Coefficients of normalized profit model were with the expected sign and significant at 0.01 level. The coefficient for farm size is 0.013 and it is highly inelastic, indicating 1 percent increase of land size leads to 0.0138 increase of *per acre* profit level of paddy farming.

The land is a limiting factor for the paddy farmers due to land fragmentation issue in colonization schemes and water management problems. Rest of the variables, cost of labor, cost of fertilizer, cost of seeds, cost of agrochemicals, cost of machinery, associated with both sides of production and cost of paddy farming indicate negative impact on profitability. However, coefficients specify that the elasticity values are highly inelastic (see Table 1). Farmers mainly purchase chemical fertilizer from private traders in the area, spending the money received from the fertilizer subsidy scheme. However, farmers reported weaknesses of the fertilizer subsidy scheme, which increased the real cost for farmers in fertilizer application. The results reveal that the average cost of fertilizer application per acre is Rs. 8,151 in the scheme.

Rest of the inputs, seeds, agrochemicals, and machinery, are directly obtained from private traders in the area, and a majority of these inputs and machinery suppliers are participants in the paddy marketing channel in the area. Interviews with farmers and extension officers in the scheme reported that domination of input and agro-machinery supply market by the private traders in the paddy marketing channel weakens the farmers' bargaining power in paddy marketing, as these farmers are resource-poor and smallholders. It indicates the requirement of an alternative mechanism to supply these inputs and machinery.

Table 1
Maximum Likelihood Estimates of the stochastic profit frontier model

Variable	Coefficient	p>|z|
Variable in the normalized profit function		
Farm size (acre)	0.0138***	0.000
Cost of labor (per acre)	-0.0153***	0.000
Cost of fertilizer (per acre)	-0.0139***	0.000
Cost of seeds (per acre)	-0.0310***	0.000
Cost of agrochemicals (per acre)	-0.0047***	0.000
Cost of machinery (per acre)	-0.0416***	0.000
Variable in the inefficiency model		
Educational level	0.0451	0.760
Household size	0.0167	0.898
Experience in Farming	-0.0001	0.858
Training in farming (1 for trained, 0 for otherwise)	1.4544***	0.006
Access to extension services (1 for received, 0 for not received)	-0.0602	0.839
Marketing period (1 for selling paddy after 1 month, 0 for otherwise)	-0.6716**	0.047
Constant	-0.9034	0.165
Log likelihood = -28.880		
Number of observations = 110		
Prob > chi 2 = 0.000		

*Note: *, **, and *** represent level significance at 10%, 5% and 1%, respectively.*

The frequency distribution of profit efficiency of smallholder paddy farmers is tabulated and presented in Table 2. The average profit efficiency score for paddy farming in the area is 61percent, and it implies that remaining 39percent level of profit in paddy farming is achievable by considering the farm-specific prices and fixed inputs. The determinants that affect the level of profit inefficiency in paddy farming in the scheme show that paddy marketing period or storage time, whether paddy production is sold soon after harvesting or not, is the critical factor influencing the profitability of paddy farming in the scheme.

Table 2
Distribution of profit efficiency score

Range	No. of farmers	%
Less than 0.40	13	11.8
0.40-0.60	32	29.1
0.60-0.80	50	45.5
More than 0.80	15	13.6
Mean Score	0.61	

As harvesting takes place at the same period and existence of paddy surplus in the market at the harvesting time, the price of paddy declines significantly during the harvesting period. Analysis shows that 85 farmers (77%) had marketed their paddy production immediately after (less than one month) harvesting. Table 3 presents the reasons for selling output at the harvesting time. It demonstrates that 41.2 percent and 43.5percent of

farmers, who sold their output at the harvesting time, have respectively sold their output since they had to repay the loans borrowed for paddy farming, and pay the labor cost, input cost, and machinery cost of paddy farming. No farmers reported that they lack storage facilities. This indicates that continues insufficient derivation of profit in paddy farming has reduced the farmers into the debt trap. Farmers mostly borrow from the village-level money lenders, who are in the paddy supply chain. It has constricted the bargaining power of the paddy farmers in paddy marketing, and hence, they are compelled to accept the trading terms offered by the rice traders in the area. The majority of large-scale machineries also belong to the traders in the schemes, and thus, farmers have to sell their output to these traders to pay the machinery cost. Therefore, a paddy price stabilization mechanism to the scheme is highly necessary to fulfill the gap between the actual and potential level of profit of paddy farming in the HMCS.

Table 3
Reasons for selling output at the harvesting time

Reason	No. of farmers	%
To repay the loan borrowed for the paddy farming	35	41.2
To pay for labour cost, input cost, and machinery cost of paddy farming	37	43.5
To repay the loan borrowed for reasons other than the paddy farming	9	10.6
Emergency needs	2	2.4
Due to risk of pest attacks	2	2.4
Insufficient storage facilities	0	0.0

Table 4
Number of farmers among different profit ranges

Range	No. of farmers	%	Std. Deviation	Min.	Max.
More than Rs.30,000	15	13.6	12,829	33,826	76,350
Rs.20,000 – 30,000	7	6.4	3,173	20,220	28,828
Rs.10,000 – 20,000	20	18.2	2,652	10,012	19,134
Rs.0 – 10,000	30	27.3	2,714	160	9,108
Less the Rs.0	36	32.7	12,612	-1,672	-49,233
Total (for entire sample)	110	100	22,920	-49,233	76,350

Table 4 presents the distribution of farmers in different profit ranges. The minimum and maximum profit reports by the farmers were Rs.-49,233 and 76,350 respectively. The profit analysis revealed that the average level of profit of surveyed sample is Rs.7,159 which is not sufficient to sustain the paddy farming in the scheme. However, there are 22 (20%) farmers who derived a profit over Rs.20, 000, while 36 (32.7%) farmers have reported a negative profit. These findings indicate that paddy farming should be promoted in the land or areas of the scheme having farming supports to derive higher profit. Figure 1, which shows the relationship between farm productivity and per acre normalized profit, clearly illustrates a positive relationship between two variables. This further supports the argument that paddy farming should only be promoted in the areas where the level of productivity is high, as it leads to derive a sufficient level of profit in farming.

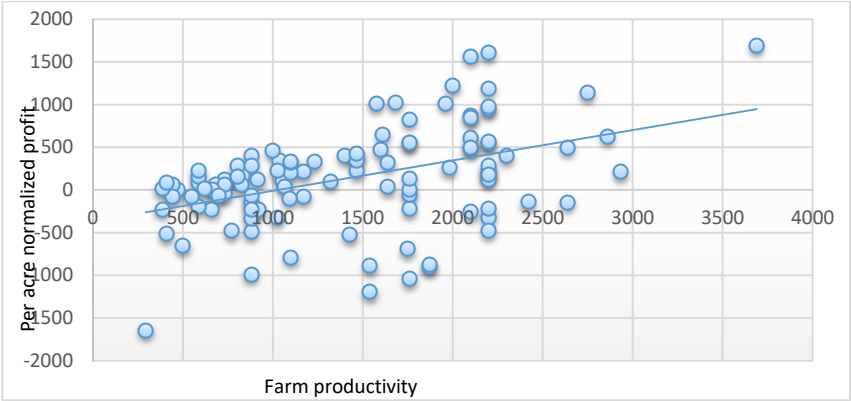

Figure 1 Relationship between farm productivity and normalized profit

5. Conclusion

This study aimed to analyze the level of profit efficiency of paddy farming in one of the major modernized colonization schemes, Huruluwewa MCS, in North Central Province, Sri Lanka. The results of the study revealed that the moderate level of average profit efficiency score of paddy farming in the area indicating the potentiality of further increasing the level of profitability of paddy farming. The Inefficiency model revealed that the period that the harvest hold for marketing is critical for the profit level of paddy farming. However, by spending large amount of money, the farmers in the scheme earn very less net income *per acre*. The higher variation of profit level of paddy farms, and minimum and maximum profit levels signified that a group of farmers earn a higher profit while a group loses the profitability.

The findings of the study leads to following policy implications: First, it is essential to further strengthen the paddy market price or a guaranteed price of paddy stabilization mechanism. As farmers are selling the harvest at the harvesting time due to debt problem and lack of finance to cover the main variable cost items of the paddy farming, particularly at the harvesting time, a formal credit institution-initiated special credit scheme is required with coordination of village-level agricultural officers to address the financial shortage of farmers. Further, extending the functions of farmer organizations to input and output marketing of paddy farming and credits functions may help to strengthen the power of the farmers in paddy marketing, and reduce the cost of production of paddy farming. Second, as paddy farming does not support the majority of farmers to earn a sufficient profit, paddy farming should only be promoted in the areas where farmers can derive high profits, while rest of the paddy farming area should be converted into other profitable alternative crops.

References

Abdulai, A., & Huffman, W. (2000). Structural Adjustment and Economic Efficiency of Rice Farmers in Nothern Ghana. *Economic Development and Cultural Change, 48*(3), 504-519.

Abeysekara, W. (1972). *A Production Function Analysis of Paddy Farming in Sri Lanka.* Vancouver: The University of British Colombia.

Ali, M., & Flinn, J. (1989). Profit Efficiency Among Basmathi Rice Producers in Pakistan Punjab. *American Jounal of Agricultural Economics*, 71(2), 303-310.

Battest, G.E & Coelli, T.J. (1995). *A model for technical ineffeciency effects in a stochastic production function for panel data. Empirical economics*, *20*(2), 325-332.

Chandrasiri, J. (2010). *Impact of Informal Land Transactions in Settlement Scheemes in Sri Lanka.* Colombo: Hector Kobbekaduwa, Agrarian Research and Trainning Institute, Colombo.

Chang, C., Chen, C., Tsend, W., & Hu, W. (2015). *Estimating the Profit Efficiency of Contract and Non-Contract Rice Farms in Taiwan: A Meta-Frontier and A Cross Frontier Approach Application*. California: Western Agricultural Economics Association.

Department of Agriculture. (2017). *Agricultural Statistics*. Department of Agriculture, Sri Lanka.

Farmer, B. (1977). *Green Revolution? Technology and Change in Rice-growing Areas of Tamil Nadu and Sri Lanka.* Boulder: Co: Westview Press.

Gunarathna, R., & Thiruchelvam, S. (2002). Comparative Study on Technical Efficiency of Paddy Production under Major and Minor Irrigation Schemes in Anuradhapura District. *Tropical Agricultural Research, 14*, 341-350.

Henegedara, G. (2010). An Analysis of Economic Gains of Paddy Farming in Sri Lanka. *Sri Lanka Journal of Agrarian Studies ,*1-25.

Irangani, M., & Prasanna, R. (2017). The Fallacy of Underlying Assumptions of Green Revolution Technology in Sri Lanka: A Historical Comparative Analysis . In Q. Vinh, *Sri Lanka: Economic, Political and Social Issues* (pp. 1-30). Washinton DC: Nova Publications .

Kikuchi, M., Barker, R., Samad, M., & Weligamage, P. (2002). Comparative advantage of rice production in Sri Lanka with special reference to irrigation costs. *Developments in the Asian Rice Economy*, 343-368.

Kolawole, O. (2006). Determinants of profit efficiency among small scale rice farmers in Nigeria: A profit function approach. *Research Journal of Applied Sciences*, *1*(1), 116-122.

Magreta, R., Edriss, A. K., Mapemba, L., & Zingore, S. (2013, September). Economic efficiency of rice production in smallholder irrigation schemes: A case of Nkhate irrigation scheme in Southern Malawi. In *4th International Conference of the African Association of Agricultural Economists*.

Prasanna, R. (2006). Time to Rethinking Sri Lankan Agricultural Policy: An Analysis of the Sri Lankan Paddy Sector. *Economic Review*, 26-31.

Rafeek, K., & Samaratunga, P. (2000). Trade Liberalization and Its Impact on Rice Sector of Sri Lanka. *Sri Lanka Journal of Agricultural Economics, 3*(1).

Rahman, S. (2003). Profit efficiency among Bangladeshi rice farmers. *Food policy*, *28*(5-6), 487-503.

Rathnayake, R., & Amaratunga, S. (2016). An Analysis of Technical and Allocative Efficiency of Paddy Farming: The Case of Mahaweli System H. *Sri Lanka Journal of Economic Research, 4*(1), 35-57.

Rupasena, L., & Naik, A. (2009). Economics of RIce Production and Its Competing Crops . *Sri Lanka Journal of Agrarian Studies* , 15-22.

Rupasena, L.P. & Vijayakumar, H. S. (2006). *Comparative Analysis of Rice Marketing System in Sri Lanka: Pre and Post Liberalization Period*. Department of Agricultural Marketing Co-operation and Agribusiness Management, University of Agricultural Sciences, Dharwad.

Sudarshanie, S. D. P. (2014). *Factors Affecting on youth participation and satisfaction in occuation related to agriculture,* Colombo: University of Moratuwa.

The World Bank. (2003). *Sri Lanka Promoting Agriculture and Rural Non-Farm Sector Growth.* Washinton DC.: Rural Development Unit, South Asian Region, The World Bank.

Thiruchelvum, S. (2005). Efficiency of Rice Production and Issues Relating to Cost of Production in the Districts of Anuradhapura and Polonnaruwa. *Journal of National Science Foundation Sri Lanka, 33*(4).

Thivanka, M., 2017. *Why Sri Lankas' youth stepping down from agriculture?,* Colombo: Daily FT Be Empowered e Paper.

Trong, P. H., & Napasintuwong, O. (2015). Profit inefficiency among hybrid rice farmers in central Vietnam. *Agriculture and Agricultural Science Procedia*, *5*, 89-95.

Weerahewa, J. (2004). *Impact of Trade Liberalization and Market Reforms on the Paddy/Rice Sector in Sri Lanka.* Washinton DC: International Food Policy Research Institute .

Journal of Management Matters

Journal homepage: www.rjt.ac.lk/mgt

Faculty of Management Studies, Rajarata University of Sri Lanka

Impact of social media marketing on purchase intention: Creation of brand equity for Sri Lankan brands

M.I.M. Hilal
Department of Management, Faculty of Management and Commerce
South Eastern University of Sri Lanka, Oluvil, Sri Lanka.
mujahidh@seu.ac.lk

Abstract

Major objectives of the study are to examine the contribution of social media marketing to the purchase intention of consumers and to investigate the mediating effect of the brand equity components such as brand awareness and brand image of products in Sri Lanka. The research approach was quantitative in nature. The sample consists of 297 customers who use social media. This was drawn using convenience sampling as it is very difficult process of selecting the customers. Regression was used to analyze the data. Findings reveal that social media marketing creates brand equity and brand image among the consumers. Further it is found that brand awareness and brand image is well mediating the effect of social media making on purchase intention. .

Keywords: *Brand awareness, brand equity, brand image, social media marketing.*

1. Introduction

Social media marketing is growing intensely and it is addressed by academics and practitioners all over the world (Wang & Kim, 2017). Everyone in the world today use smartphones, tabs and laptops for their social media access. Nowadays, consumers are using many social media platforms like Facebook, Twitter, YouTube, Whatsup and LinkedIn to interact with their friends and family and are exposed to marketing communications spots and product and service details for their transactions.

Social media marketing is a latest practice of business engaged in marketing goods, services, ideas and information through the online transaction (Dahnil et al., 2014). Social media marketing is a process of creating the online marketing offering and deliver it through social media platforms enabling the organizations to build and maintain relationship of stakeholders (Yadav & Rahman, 2017). Most of the companies are using social media to communicate distinctively (Eagleman, 2013) with its target markets.

Social media marketing is also considered as extension of traditional marketing (Eagleman, 2013). Marketers are using social media for creating an impact on the reputation of the brand they market (Kim et al., 2015).

In Sri Lanka now organizations in the product and service categories are engaged in social media marketing in order to get the attention of target markets. However, the existing and potential customers obtain details about the products or services from social media they are exposed to. Further, social media marketing supports the organizations in the way that it creates customer relationship benefits to the organizations by inducing the consumers' interaction with brands they use in their categories and enhance the value, profitability and generate word of mouth (Wang & Kim, 2017; Kim & Ko, 2012; Trainor et al., 2014). With the creation of interactive customer networks, social media paves the way to obtain customer feedback and marketing information relevant to the current market (Kim et al., 2015). It is worthwhile to note here that the social media marketing activities create an empirical value to the brand than the indirect brand experience of the traditional marketing (Kim & Ko, 2012).

While social media marketing is used as marketing communication tool in Sri Lanka, it is essential to investigate the relationship between the social media marketing and purchase intention, and how the customer based brand equity components such as brand awareness and brand image mediating in between. Therefore, the aim of this study is to investigate the relationship between social media marketing and customers' purchase intention. The specific objectives are to find the role of brand awareness and brand image of product and service categories in Sri Lanka. This paper is organized in following line. Firstly, the review of literature and hypothesis development is addressed. Secondly, the methodological aspects are explained. Thirdly, analysis of the results is given and finally, the conclusion and recommendations along with the limitations of the study are presented.

2. Review of literature and theoretical framework

2.1 Social media marketing

Social media marketing is *"delivering of marketing information through social media, has become one of the most significant promotion methods for business. It can exploit the power of social influence and word of mouth to deliver marketing information"* (Li et al., 2017). Social media marketing is an innovative way of reaching the potential customers. It is a process of getting fans' attention and acceptance via social media (Risius & Beck, 2015).

Social media marketing impacts on the firm financial and nonfinancial performance (Charoensukmongkol & Sasatanun., 2017; Karjaluoto, Mäkinen & Järvinen, 2015). Adding to the fact that organizations using social media relates to the firm performance through mediating marketing capabilities which include branding (Tajvidi & Karami, 2017). Therefore, it could be said that the brand marketing activities can be done with social media. Further, organizations are relying on the fan feedback to formulate its online marketing strategies (Garcia, 2011).

Organizations need to engage in social media marketing activities in order to receive potent information, failing which there is a possibility for the organizations to lose large number potential customers. Social media marketing helps organizations to understand the customer motivations and provide an opportunity to the firms to understand social media platforms. This also offers an inexpensive structure to enhance the brand awareness so that the company can reach more fans and resultantly, social media function as distinctive marketing communication at lower cost and also it enables firms to interact with fans publically (Eagleman, 2013). The marketing communication via social media is vital for the customers since it reduces the insensitiveness of the consumers towards advertisement and induce the customers to react (Newman, Stem & Sprott, 2004). The social media campaigns help to achieve marketing communication objectives by connecting the people and creating mutual benefits. When an organization asks to share certain things among the friends, it achieves its advertising objectives and it also shows that people care each other (Zhu & Chen, 2014).

2.2 Brand equity

The model suggested by Keller (1993) is one of the prominent concepts which addresses the connection of brand awareness and brand image as its components. Keller and Lehmann (2006) defines customer based brand equity as *"the differential effect that brand knowledge has on consumer response to the marketing that brand"*. Here the brand knowledge contains brand awareness and brand image of the brand. It is important to explore the two components of the brand equity. Brand awareness is one of the components of the brand equity and it positively contributes to the brand equity of any brands (Mohan & Sequeira, 2016; Li et al., 2017). The brand awareness is one of the most serious dimensions of customer-based brand equity (Li et al., 2017). It is recalling and recognizing a brand (Huang & Sarigollu, 2016). In the case of social media marketing, still there is a challenge for the marketers what kind of reviews generate larger recall of the brand (Hofacker & Belanche, 2016).

In the case relationship between the social media and the brand awareness, social media creates and increase the brand awareness and customers become more committed to the brand (Seo & Park, 2018). Further, the social media marketing of a luxury brand also positively influences on the brand awareness (Bruno et al., 2016). Social media marketing activities of firms significantly influencing on the brand equity value, value of the relationship and on the value of the brand (Kim et al., 2015). When a consumer shows higher awareness towards a brand, they are committed towards the particular brands in the market and thus, purchase intension for that brand is created (Erdem, Swait & Valenzuela, 2006). This is also confirmed in a study on social media marketing activities in the e-commerce industry by exploring a positive impact on the purchase intention and on the brand equity (Yadav & Rahman, 2017).

The second component of the brand equity is brand image which is a consumer perception directed to the brand (Dobni & Zinkhan, 1990) and is vital in marketing (Dirsehan & Kurtulus, 2018). Brand image is also leading to the generation of word of mouth and create customer commitment (Seo & Park, 2018). A brand can enjoy its benefits from the brand image kept in the consumers' mind when it has a positive image created through strong, favorable and unique associations (Keller, 2012). Despite the fact that brand image

is one of the main components of the brand equity, the brand image is expressively affected by social media marketing activities. This is confirmed by many studies in the field of social media marketing. There was a study on effects of the social media marketing on the brand equity and customer response in the airline industry (Seo & Park, 2018). The positive association of the social media marketing and brand image is discussed in a study and the social media marketing and its effect on brand equity and consumer behavior of the luxury brands (Bruno et al., 2016). Moreover, there is a positive and significant relationship between brand image and purchase intention of consumers (Li et al., 2017). In the selection of event to attend, consumers consider the brand image and brand performance (Dolan & Goodman, 2017).

2.3 Brand equity and purchase intention

Brand equity containing the brand awareness and the brand image generated from the social media may lead consumers to intent a purchase. Purchase intention consists of interest of consumers and likely buying of a product and the brand equity reflects the actual purchase (Kim & Ko, 2012). When a brand has higher brand equity, results in enhanced brand preference, customer loyalty and payment of high prices (Keller & Lehmann, 2006); Kim & Kim, 2005). These outcomes of the brand equity are also due to the purchase intention. This is further confirmed that brand equity created from the social media marketing forms the purchase response (Kim & Ko, 2012). In addition, the social media marketing contributes to the consumer responses with the mediation of the brand equity (Godey et al., 2016; Seo & Park, 2018).

Electronic word of mouth is created by brand awareness and has positive impact on the purchase intention which is bigger effect than the effect caused by the ads. Hence, the social media marketing creates significant positive impact on the purchase intention (Balakrishnan, Dahnil & Yi, 2014). The purpose of the social media marketing is marketing communication and that should result in brand equity and positively impact on purchase intention (Kim & Ko, 2012).

In the case of products and services in Sri Lanka, the same relationship between variables is applicable. This infers that social media marketing in the product and service categories in Sri Lanka leads to brand awareness and brand image. Consequently, these two components create purchase intention in the product and service categories. With the supports of the literature discussed above the following conceptual framework (Figure 1) is formulated.

Hypotheses of the study are as follows.

Hypothesis 1: Social media marketing in product and service categories in Sri Lanka leads to brand awareness

Hypothesis 2: Social media marketing in product and service categories in Sri Lankan leads to brand image.

Hypothesis 3: Brand awareness created by the social media marketing in the product and service categories positively impact on the consumer purchase intention

Hypothesis 4: Brand image created by the social media marketing in the product and service categories positively impact on the consumer purchase intention

Hypothesis 5: Social media marketing in the product and service categories leads to purchase intention

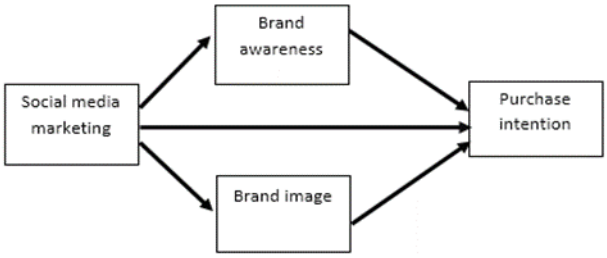

Figure 1 Conceptual model

3. Methodology

The study is quantitative in nature. Deductive approach has been used to develop hypotheses. The research strategy used for this study is survey questionnaire and the study was cross sectional. Convenience sampling technique was adopted for this study. This is because of the fact that there is a large number of customers using the social media marketing and getting the responses from each and every one is cumbersome process. Hence, 297 customers using the social media were given the questionnaires. The questionnaire was uploaded in the Facebook with link of the google drive to collect the responses and printed questionnaires were also given.

The questionnaire had two parts. The first part asks about the social media used by the respondents and the second part is about the product category respondents used. Items for each variable in the questionnaires were adopted from previous researchers. To measure the social media marketing, the questions were adopted from Kim and Ko (2012). The measurement items for the brand awareness were adopted from Kim and Kim (2005) and the items for brand image were adopted from Severi and Ling (2017). The measurement for the purchase intention was adopted from Moon, Chadee and Tikoo (2008) and from Liu and Brock (2011). Thus, five items for social media marketing, five items for brand awareness, four items for brand image and three items for purchase intention were adopted. All items were measured in five point Likert scale.

The data collected for this study were fed into the SPSS and factor analysis was performed for the data reduction purpose using principle component method. Multiple regression was used to investigate the effect of brand equity components on purchase intention.

4. Results and discussion

4.1 Characteristics of the respondents

The most of the respondents (42%) in the sample falls between the ages of 23 – 30 years. Of the total respondents, 33 percent of them falls between the ages of 31 – 40 years. Other 11 percent and 14 percent are in the categories of 17 – 22 year and above 41 years of age.

In the case of income distribution (per month) of the respondents, 68 percent of the respondents are included within the range of Rs. 50,000 to Rs. 100,000. The others are falling between the range below Rs. 50,000 (14%) and above Rs. 100,000 (18%).

Social media users were asked to provide their social media usage with multiple selection. The majority of respondents uses Facebook as their main social networks. Other social networks included WhatsApp, LinkedIn, YouTube, and Twitter. It was further revealed that people use the social media to make their purchase decision for the products such as food items, cosmetics & homecare products, health care products, financial services and hotels and restaurants.

4.2 Factor analysis and reliability analysis

Factor analysis was carried out for data reduction purpose. KMO values were observed and they show that all values are higher than 0.50 indicating the sampling adequacy for the factor analysis. Communalities for the items were more than 0.5 and hence, the all items were considered for the data analysis. Reliability analysis was also performed. The Cronbach's Alpha values for four variables, social media marketing, brand awareness, brand image and purchase intention, are 0.83, 0.73, 0.81 and 0.84 respectively. All variables have its Cronbach's Alpha values more than 0.70 ensuring the internal consistency of the constructs used.

4.3 Regression analysis and testing of hypotheses

A hierarchical linear regression analysis was performed to examine the effect of social media marketing on purchase intention and mediating role of brand awareness and brand image in the above relationship. The result is given in Table 1. The result in Model 1 and Model 2 significantly support to the first two hypotheses of the study. Hence, social media marketing in product and service categories in Sri Lanka is contributing to the brand awareness (β=.707,p<.05) and brand image (β=.496,p<.05). Thus, marketers need to focus on the social media marketing activities to generate brand awareness and brand image of product and service categories. The investment on the social media marketing activities are essential for promoting their products and services in Sri Lanka.

Table 1
Result of hierarchical regression analysis

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Social media marketing (SM)	0.704**	0.496**		0.623**	0.202*
Brand awareness (BA)			0.470**		0.326*
Brand image (BI)			0.382**		0.384*
R^2 /Adjusted R^2	*0.500*	*0.246*	*0.620*	*0.389*	*0.639*
R^2 /Adjusted R^2 change	-				*0.247*
F	*295.017*	*96.228*	*242.046*	*187.592*	*175.639*

** Coefficient is significant at 0.05 ** Coefficient is significant at 0.01*

The effect of brand awareness and brand image on the purchase intention is depicted by Model 3. The result shows that model is best fitted to the data by supporting to *Hypothesis*

3 and *Hypothesis 4.* The model indicates that 62 percent variation in purchase intention is explained by brand awareness and brand image in the product and service categories in Sri Lanka. Furthermore, VIF values less than 10 indicate that there is no serious multipcolinearity problem exist in between the brand awareness and brand image. The result reveals that brand awareness has a positive and significant effect on purchase intention ($\beta=.470, p<.05$). Therefore, marketers in Sri Lanka can concentrate on the social media marketing activities which make the awareness of the brand marketed among the consumers. Social media marketing efforts should help consumers to recognize the brand and recall the brand when finding the same product category or similar characteristics of the brands. Similarly, brand image also has a positive effect on the purchase intention ($\beta=.382, p<.05$). Thus, Marketers need to create image by the social media marketing activities so that the brand should have unique image by which the consumers can feel special about the product or service brand.

4.4 Mediating effects of brand awareness and brand image

Four steps process of investigating the mediating effects (Baron & Kenny, 1986) of variable has been adopted in this study. Firstly, the association between independent variables and mediating variables were examined. Secondly, the impact of mediating variable on the dependent variable has been analyzed. Thirdly, the impact of independent variable on the dependent variable is looked at. Finally, relationship is explored between independent variable along with mediating variable and dependent variable. Regression results to examine the mediating effect is also given in Table 1.

As explained formerly, Model 1 and Model 2 explain the significant effect of the social media marketing to the brand awareness and the brand image. Model 3 gives an idea about the impact of the brand awareness and brand image generated from the social media marketing to the purchase intention of products and services demonstrating that brand awareness and brand image are well positively influencing on the purchase intention of consumers.

Model 4 indicates that social media marketing of products and services in Sri Lanka well influences on the purchase intention *($\beta=.263, p<.05$).* The final model (Model 5) is explaining the mediation effect of brand awareness and brand image in the relationship between purchase intention and social media marketing ($\beta_{SM}=.202,\ p<.05; \beta_{BA}=.326, p<.05; \beta_{BI}=.384, p<.05$). Although the clear mediation effect of the brand awareness and brand image is depicted in the analysis (*Adj.* $R^2=.387 \rightarrow .639$), the individual influences of social media marketing (β=.623$\rightarrow\beta$=.202) and brand awareness (β=.470$\rightarrow\beta$=.326) on the purchase intention declining when adding social media marketing as independent variable for investigating the mediating effect. In contrast, the contribution of the brand image to the purchase intention is increasing ($\beta=.387 \rightarrow \beta=.639$) exhibiting a greater positive influence on the purchase intention when mediation is taken place. However, marketers in the product and service categories need to focus on the social media marketing activities that create brand awareness and brand image which influence on the purchase intention.

5. Conclusion

The major objective of the study were to investigate the relationship between social media marketing and customers' purchase intention and examine the mediating effect of the brand equity components such as brand awareness and brand image in product and service categories in Sri Lanka. Findings reveal that social media marketing activities of product and service marketing firms create brand awareness brand image for Sri Lankan brands. The nature exhibited by the brand awareness in this study shows that it is one of the major components of the brand equity which influences on the purchase intention and this result is consistent with the findings previous studies that brand awareness is a major component and driving the brand equity. The brand image of the product and service categories in Sri Lanka is also influenced by social media marketing. This is also supporting to the findings of previous studies that brand image is well inserting the stimulus to consumer response by active social media marketing campaigns that consumers are exposed to. In the case of mediating effect of brand awareness and brand image caused by the social media marketing, the findings of this study suggest that there is a mediation of these brand equity components. Despite the fact that these brand equity components mediate to the purchase intention, interesting fact is that the effect of the brand image on the purchase intention of product and service categories in Sri Lanka is declining and the effect of brand awareness and social media marketing is significantly increasing. Therefore, firms in the products and services categories in Sri Lanka should invest on the social media marketing efforts to increase the brand image and brand awareness in such as a way to benefit the organizations. In order to drive and positively influence on the purchase intension, firms are expected to increase social media marketing that not only enhance the brand awareness but that should enhance the brand image of the products and services.

This study also helps Sri Lankan product and service marketers by giving ideas about the use of social media marketing strategy. Social media marketing is important to generate brand awareness and brand image to enhance the brand equity. Thus, firms need to manage the social media marketing efforts in a beneficial way. The study is reckoned with the general product and service brands in Sri Lanka but not with specific brands of Sri Lanka. Hence, future studies can focus on the specific brands. The sample size may not also be sufficient for the study of this nature.

References

Balakrishnan, B. K., Dahnil, M. I., & Yi, W. J. (2014). The impact of social media marketing medium toward purchase intention and brand loyalty among generation Y. *Procedia-Social and Behavioral Sciences*, *148*, 177-185.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and sSocial Psychology*, *51*(6), 1173-1182.

Bruno G., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R., & Singh, R. (2016). Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. *Journal of Business Research*, *69*(12), 5833-5841.

Charoensukmongkol, P., & Sasatanun, P. (2017). Social media use for CRM and business performance satisfaction: The moderating roles of social skills and social media sales intensity. *Asia Pacific Management Review*, *22*(1), 25-34.

Dahnil, M. I., Marzuki, K. M., Langgat, J., & Fabeil, N. F. (2014). Factors influencing SMEs adoption of social media marketing. *Procedia-social and Behavioral Sciences*, *148*, 119-126.

Dirsehan, T., & Kurtuluş, S. (2018). Measuring brand image using a cognitive approach: Representing brands as a network in the Turkish airline industry. *Journal of Air Transport Management*, *67*, 85-93.

Dobni, D., & Zinkhan, G. M. (1990). In search of brand image: A foundation analysis, *Advances in Consumer Research*, 17, 110-119.

Dolan, R., & Goodman, S. (2017). Succeeding on social media: Exploring communication strategies for wine marketing. *Journal of Hospitality and Tourism Management*, *33*, 23-30.

Eagleman, A. N. (2013). Acceptance, motivations, and usage of social media as a marketing communications tool amongst employees of sport national governing bodies. *Sport Management Review*, *16*(4), 488-497.

Erdem, T., Swait, J., & Valenzuela, A. (2006). Brands as signals: A cross-country validation study. *Journal of Marketing*, *70*(1), 34-49.

García, C. (2011). Real Madrid Football Club: Applying a relationship-management model to a sport organization in Spain. *International Journal of Sport Communication*, *4*(3), 284-299.

Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R., & Singh, R. (2016). Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. *Journal of Business Research*, *69*(12), 5833-5841.

Hofacker, C. F., & Belanche, D. (2016). Eight social media challenges for marketing managers. *Spanish Journal of Marketing-ESIC*, *20*(2), 73-80.

Huang, R., & Sarigöllü, E. (2014). How brand awareness relates to market outcome, brand equity, and the marketing mix. In *Fashion Branding and Consumer Behaviors* (pp. 113-132). Springer, New York, NY.

Karjaluoto, H., Mäkinen, H., & Järvinen, J. (2015). A Firm's Activity in Social Media and Its Relationship with Corporate Reputation and Firm Performance. In *Blurring the Boundaries Through Digital Innovation* (pp. 161-172). Springer, Cham.

Keller, K.L. (2012). Strategic brand management: Building, measuring and managing brand equity, (3rd ed.), Pearson, England.

Keller, K. L., & Lehmann, D. R. (2006). Brands and branding: Research findings and future priorities. *Marketing Science*, *25*(6), 740-759.

Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. *The Journal of Marketing*, 57(1), 1-22.

Kim, H. B., & Kim, W. G. (2005). The relationship between brand equity and firms' performance in luxury hotels and chain restaurants. *Tourism Management, 26*(4), 549-560.

Kim, S., Koh, Y., Cha, J., & Lee, S. (2015). Effects of social media on firm value for US restaurant companies. *International Journal of Hospitality Management, 49 (1)*, 40-46.

Kim, A. J., & Ko, E. (2012). Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business Research*, *65*(10), 1480-1486.

Li, Y. M., Lai, C. Y., & Lin, L. F. (2017). A diffusion planning mechanism for social marketing. *Information & Management*, *54*(5), 638-650.

Liu, M. T,, & Brock, J. L. (2011). Selecting a female athlete endorser in China: The effect of attractiveness, match-up, and consumer gender difference. *European Journal of Marketing*, *45*(7/8), 1214-1235.

Mohan, B. C., & Sequeira, A. H. (2016). The impact of customer-based brand equity on the operational performance of FMCG companies in India. *IIMB Management Review*, *28*(1), 13-19.

Moon, J., Chadee, D., & Tikoo, S. (2008). Culture, product type, and price influences on consumer purchase intention to buy personalized products online. *Journal of Business Research*, *61*(1), 31-39.

Newman, E. J., Stem Jr, D. E., & Sprott, D. E. (2004). Banner advertisement and Web site congruity effects on consumer Web site perceptions. *Industrial Management & Data Systems*, *104*(3), 273-281.

Risius, M., & Beck, R. (2015). Effectiveness of corporate social media activities in increasing relational outcomes. *Information & Management*, *52*(7), 824-839.

Seo, E. J., & Park, J. W. (2018). A study on the effects of social media marketing activities on brand equity and customer response in the airline industry. *Journal of Air Transport Management*, *66*, 36-41.

Severi, E., & Ling, K. C. (2013). The mediating effects of brand association, brand loyalty, brand image and perceived quality on brand equity. *Asian Social Science*, *9*(3), 125-137.

Tajvidi, R., & Karami, A. (2017). The effect of social media on firm performance. *Computers in Human Behavior*, 30, 1-10.

Trainor, K. J., Andzulis, J. M., Rapp, A., & Agnihotri, R. (2014). Social media technology usage and customer relationship performance: A capabilities-based examination of social CRM. *Journal of Business Research*, *67*(6), 1201-1208.

Wang, Z., & Kim, H. G. (2017). Can social media marketing improve customer relationship capabilities and firm performance? Dynamic capability perspective. *Journal of Interactive Marketing*, *39*, 15-26.

Yadav, M., & Rahman, Z. (2017). Measuring consumer perception of social media marketing activities in e-commerce industry: Scale development & validation. *Telematics and Informatics*, *34*(7), 1294-1307.

Zhu, Y. Q., & Chen, H. G. (2015). Social media and human need satisfaction: Implications for social media marketing. *Business Horizons*, *58*(3), 335-345.