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**ADOPTION OF GREEN SUPPLY CHAIN MANAGEMENT (GSCM) PRACTICES AND THEIR
IMPACT ON CORPORATE PERFORMANCE; WITH SPECIAL REFERENCE TO RUBBER
PRODUCTS INDUSTRY IN SRI LANKA**

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Abstract

This study presents one of the earliest surveys on GSCM practices in Sri Lankan rubber products industry. The main objective of this study was to survey the impact of green supply chain management practices adoption on corporate performance in Sri Lankan rubber products industry. The population of the study was all the firms in Sri Lankan rubber product industry and it composed of 187 firms. Convenience sampling technique was used to select 123 respondents. A structured questionnaire was used to collect data and they were statistically analyzed using correlation and linear regression analysis. Some of the major findings of the survey were as follows. Majority of firms in Sri Lankan rubber product industry were in trial level which means the awareness on green supply chain management was quite good. The findings of the study concluded that green supply chain management practices had a significantly positive impact on environmental and social performance while it shows insignificantly positive impact on economic and operational performance. The overall results concluded that green supply chain management practices adoption has a significantly positive impact on corporate performance. As a limitation, study only focused on rubber products manufacturing industry which was categorized under manufacturing sector and the study carried out in the Sri Lankan context only. The study offered some insights on the types of GSCM practices that firm needs to be adopted to improve the targeted performance dimensions. This study contributed to a better understanding of the links between GSCM practices and corporate performance.

Keywords: Green Supply Chain Management; Environmental Performance; Economic performance; Operational Performance; Social Performance

Introduction

Fast realization of climatic changes caused to increase environmental concerns and as a result of that it becomes a top most priority among governments and corporate world wide (Shukla & Kanda, 2009). Therefore, green supply chain management has gained an increased attention in recent years to fight against negative impacts of supply chains(Shukla & Kanda, 2009). Nowadays, most of organizations are greening their businesses to address the environmental sustainability (Seman et. al, 2012). In some developed countries, greening the supply chain has become an organizational mandate (Younis, Sundarakani & Vel, 2016).

Sri Lanka is one of the fast growing developing countries (Jayasuriya, 2016). As per the report of Department of Census and Statistics (2017), manufacturing is the largest industry sector which has 82.8% of the total industrial establishments. Manufacture of rubber and plastic products industry division includes manufacture of rubber products and manufacture of plastic products (Department of Census and Statistics, 2017). This study only focuses on the manufacture of rubber products industry

3rd Interdisciplinary Conference of Management Researchers
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(Export Development Board, Sri Lanka, 2017). Rubber and rubber products consist of around 6.9% of the total annual export value (EDB, 2017). USA, Germany, Italy, Belgium, & UK are the major markets for manufactured rubber products (EDB, 2017).

In line with Jayasuriya (2016), GSCM practices adoption and their impact on GSCM performance had not been supported by published prevailing literature so far in Sri Lankan context. Hence, this study makes several compelling contributions to existing GSCM researches in Sri Lankan perspective. Zhu & Sarkis (2004) indicated that firms who are engaging in exports have to overcome green barriers in order to enhance competitiveness and cater customer requirements in the global market. Further, Zhu et al., (2005), stated that the resources scarcity and pressure of green barriers stress the firms to adapt GSCM practices. Therefore, Sri Lankan firms who are engaging in exports and who are expecting to enter global market have to consider on GSCM practices to survive in the market. In that context, this study will provide guidance on GSCM implementation and help to determine whether adopting these GSCM practices is worth to the effort of organization in terms of performance (Zhu & Sarkis, 2004). It will also help to identify the significant relationships and worthwhile practices to adopt (Zhu & Sarkis, 2004). Thus, the findings from this research can be useful for developing countries in order to develop the appropriate GSCM practices and help to reduce the environmental problems (Seman et al, 2012).

As per literature, There are numerous studies on GSCM with relevant to the countries like China, Taiwan, Korea, US, Italy, Thailand, Spain, India and Sri Lanka. The research problem in this thesis has emerged from the gaps in previous researches. There is a need of understanding the relationship between green supply chain management practices and performance measurements (Jayasuriya, 2016; Laosirihongthong, Adebajo & Tan, 2013; Green et al., 2012; Perotti et al., 2012; Zhu, Sarkis & Lai, 2008b; Chien & Shih, 2007; Zhu, Sarkis & Geng, 2005; Rao & Holt, 2005; Zhu & Sarkis, 2004). Moreover the studies suggest the need of replicating the study with relevant to specific industry sectors (Tachizawa, Gimenez & Sierra, 2015; Vijayvargy, Thakkar, & Agarwal, 2014; Mitra & Datta, 2014; Green et al., 2012; Lee, Kim & Choi, 2012; Zhu et al., 2008b; Zhu & Sarkis, 2004). And also researchers suggest this study for different countries for cross cultural comparison (Tachizawa et al., 2015, Seman et al., 2012; Green et al., 2012; Lee et al., 2012; Rao & Holt, 2005; Zhu et al., 2008b; Zhu & Sarkis, 2004). Previous literature suggests replication of this study with larger samples to generalize the results (Rha, 2010; Rao & Holt, 2005; Zhu & Sarkis, 2004; Green et al., 2012). Since, studies on GSCM practices are limited in developing countries literature suggests more studies on developing countries (Mitra & Datta, 2014; Seman et al., 2012). Seman et al., (2012) explained the need of investigating on GSCM implementation and adoption. Investigations and findings on GSCM are still relatively exploratory (Jayasuriya, 2016; Mitra & Datta, 2014; Lee et al., 2012; Perotti et al., 2012; Zhu et al., 2005; Zhu & Sarkis, 2004). Social performance should be measured in the performance measurements with relevant to GSCM (Chien & Shih, 2007; Mitra & Datta, 2014). Zhu et al., (2008a) and Zhu et al., (2008b) suggested that it is important to identify ways that can help manufacturers to improve performance through GSCM implementation with relevant to specific industries. Zhu & Sarkis (2004) further suggested to measure operational performance in addition to environmental and economic performance.

It is important to identify the adoption of GSCM practices and their impact on corporate performance in rubber products manufacturing industry in Sri Lanka, which remains uninvestigated, as the significance of such a kind of investigation has been highlighted by some scholars as discussed above. In accordance with the above justification of the gap in literature on GSCM practices adoption and its performances, the following research problem has been derived for the current study.

- ❖ What is the level of green supply chain management practices adoption, how green supply chain management practices adoption impact on corporate performance in rubber products manufacturing industry in Sri Lanka?

Objectives of the Study

Based on the above problem background the objectives of this study were; first to identify the impact of green supply chain management practices adoption on corporate performance in Sri Lankan rubber products industry, second to identify the level of green supply chain management practices adoption in

Sri Lankan rubber products industry and third to give recommendations for improving corporate performance in Sri Lankan rubber products industry.

Literature Review and Hypothesis Development

Supply chains developed through the agrarian period, industrial revolution and post-industrial revolution respectively into the more complex supply chains found today (Nelson, Marsillac & Rao, 2012). Supply chains were more complex and only focused on efficiency, cost and economy of scales in the period of industrial revolution (Nelson et al., 2012). Complex and long supply chains are result in excessive usage of materials, large waste, excessive usage of energy, heat and emission generation (Shukla & Kanda, 2009). When firms and supply chains increased in size and complexity, they also tended to seek pathways towards sustainability (Nelson et al., 2012). As a result of that, the scope of traditional SCM has expanded to consider the environmental impacts of all activities in the supply chain from the raw material processing to the final disposal of goods (Srivastava 2007).

Srivastava (2007) defined GSCM as, “Integrating environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing process, delivery of the final product to the consumers as well as end-of-life management of the product after its useful life” (p.54-55). GSCM Practices

Internal Environmental Management (IEM)

Zhu et al., (2008a) defined IEM as the “practice of developing green supply chain management as a strategic organizational imperative through commitment and support of the imperative from senior and mid-level managers”. Zhu et al., (2005) identified IEM as the commitment from top-level managers and support from mid-level managers which is necessary to develop any GSCM program in China.

Cooperation with Customers (CC)

“Cooperation with customers requires working with customers to design cleaner production processes that produce environmentally sustainable products with green packaging” (Zhu et al., 2008a).

Eco-design (ED)

“Eco-design requires that manufacturers design products that minimize consumption of materials and energy that facilitate the reuse, recycle, and recovery of component materials and parts, and that avoid or reduce the use of hazardous products within the manufacturing process” (Zhu et al., 2008b). Zhu et al., (2008b) revealed that eco-design address product functionality while minimizing life-cycle environmental impacts of a product in order to improve organizational environmental performance and close supply chain loop.

Green purchasing (GP)

“Green purchasing focuses on cooperating with suppliers for the purpose of developing products that are environmentally sustainable” (Zhu et al., 2008a). The study of Zhu et al., (2008b) revealed that GP is an important GSCM practice to organizations and products for closing the supply chain loop.

Investment recovery (IR)

“Investment recovery requires the sale of excess inventories, scrap and used materials, and excess capital equipment” (Zhu et al., 2008a). Zhu & Sarkis, (2004) identified investment recovery as a traditional business practice which also considered as green practice that reduces waste. Moreover they explained that IR extends life span of product or material by recycling. Mitra & Datta (2014), revealed that IR not only for economic opportunities but also for projecting environmental responsibility and enhancing corporate image.

Environmental performance (EP)

“Environmental performance relates the ability of manufacturing plants to reduce air emissions, effluent waste, and solid wastes and the ability to decrease consumption of hazardous and toxic materials” (Zhu et al., 2008a). EP is focused on decreases in the levels of environmental pollutants (Green et. al, 2012).

Economic performance(ECP)

“Economic performance relates to the manufacturing plant’s ability to reduce costs associated with purchased materials, energy consumption, waste treatment, waste discharge, and fines for environmental accidents” (Zhu et al., 2008a). ECP is typically the most important driver for enterprises that wish to implement environmental management practices, especially for enterprises in developing countries (Zhu & Sarkis, 2004).

Operational performance (OP)

“Operational performance relates to the manufacturing plant’s capabilities to more efficiently produce and deliver products to customers” (Zhu et al., 2008a). As for the operational performance, the companies have highlighted only a minor increase in goods delivered on time, partially connected to the implementation of distribution and transportation practices (Perotti et al., 2012).

Social performance (SP)

“A business organization’s configuration of principles of social responsibility processes of social responsiveness, and policies, programs and observable outcomes as they relate to the firm’s societal relationships” (Woods, 1991 as cited in Younis et al., 2016).

Zhu & Sarkis (2004) found that enterprises with higher levels GSCM adoption are having better environmental performance and positive economic performance. They posit a direct relationship with enterprises’ performance improvements. The research of Rao & Holt (2005) pointed out that organizations adopting GSCM in the South East Asian region ultimately enhanced both competitiveness and economic performance. Chien & Shih (2007) found that the implementation of GSCM practices has a positive effect on environmental and financial performance. Green et al., (2012) found that ED is positively associated with EP and negatively associated with ECP. IR is directly and positively associated with EP but not ECP. GP does not significantly impact EP, while significantly and positively impact ECP. CC is directly and positively associated with both EP and indirectly and positively associated with ECP. Overall, the adoption of GSCM practices by manufacturing organizations leads to better economic performance. Zhu et al., (2013) indicated that IEM improves both EP and OP. The study of Mitra & Datta (2014) show that supplier collaboration has a positive impact on competitiveness and ECP. Younis et al., (2016) revealed that enterprises with higher levels of GSCM adoption are having better environmental and positive economic performance. ED and reverse logistics practices failed to impact the OP in UAE. As far as ECP is concerned, only GP was found to have a significant impact on ECP. The study found that none of the GSCM practices have any impact on the environmental performance. The study did not find any significant impact of other green practices; ED, environmental cooperation & reverse logistics on the corporate economic performance. OP positively improved when implementing GP and environmental cooperation practices.

Conceptual Framework

The framework shown in Figure 3.1 had been developed to investigate the primary objective of this study, which is to identify the impact of GSCM practices adoption on corporate performance in Sri Lankan rubber products manufacturing industry. According to Perotti et al., (2012), one of the most comprehensive frameworks for classifying GSCP has been proposed by Zhu and Sarkis (2004) and Zhu et al., (2008b). As per their framework, GSCP are classified into five main categories, namely IEM, GP, CC, IR, and ED dimensions. Younis et al., (2016) developed a model to examine the relationship between GSCM practices and corporate performance. Performance measurements include environmental, operational economic and social performance.

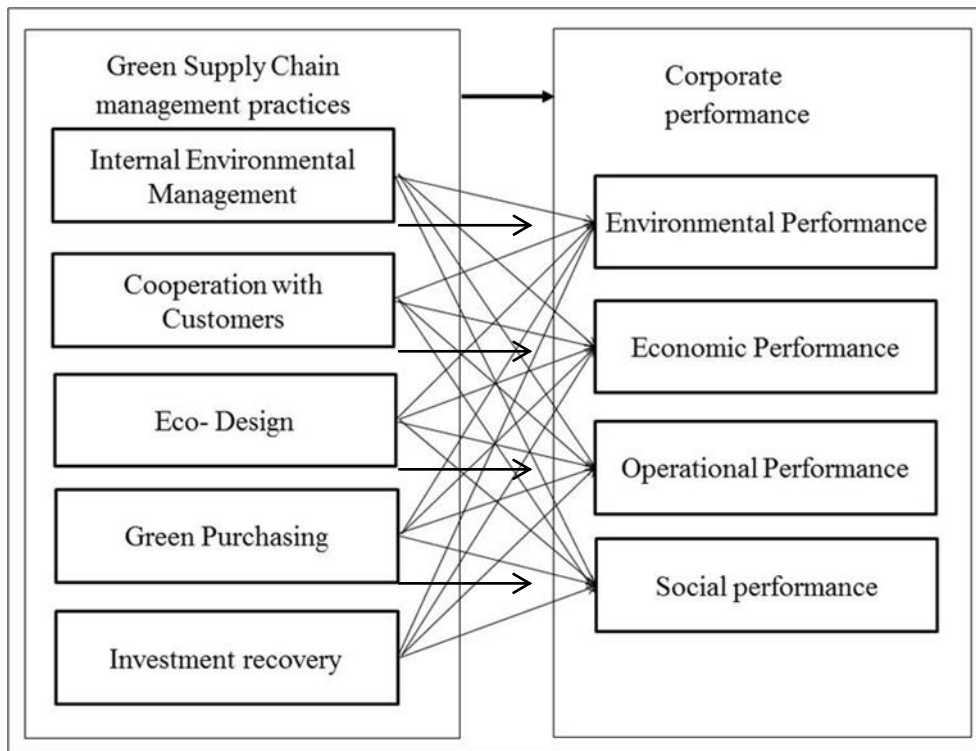


Figure 1: Conceptual Framework

Source: (Researcher constructed, 2018)

Studies such as Zhu and Sarkis (2004), Rao and Holt (2005) and Green et al., (2012) found positive relationships between environmental practices and organizational performance. Perotti et. al, (2012) stated that companies can improve their overall performance through the adoption of GSCP. Younis et al., (2016) concluded that overall GSCM practices impact CP positively. As per the framework developed by Zhu & Zarkis (2004), they posited that the four GSCM practice factors which are internal environmental management, external GSCM practices, investment recovery and eco design have a positive, direct relationship with enterprises' environmental and economic performance improvements. Therefore, each of the hypothesis depicted follow is theorized as being direct and positive.

H1a. IEM has a positive impact on EP of an organization.

H1b. GP has a positive impact on EP of an organization.

H1c. CC has a positive impact on EP of an organization.

H1d. ED has a positive impact EP of an organization.

H1e. IR has a positive impact on EP of an organization.

H2a. IEM has a positive impact on ECP of an organization.

H2b. GP has a positive impact on ECP of an organization.

H2c. CC has a positive impact on ECP of an organization.

H2d. ED has a positive impact on ECP of an organization.

H2e. IR has a positive impact on ECP of an organization.

H3a. IEM has a positive impact on OP of an organization.

H3b. GP has a positive impact on OP of an organization.

H3c. CC has a positive impact on OP of an organization.

- H3d. ED has a positive impact on OP of an organization.
- H3e. IR has a positive impact on OP of an organization.
- H4a. IEM has a positive impact on SP of an organization.
- H4b. GP has a positive impact on SP of an organization.
- H4c. CC has a positive impact on SP of an organization.
- H4d. ED has a positive impact on SP of an organization.
- H4e. IR has a positive impact on SP of an organization.
- H5a. Adoption of GSCM practices has a positive impact on EP of an organization.
- H5b. Adoption of GSCM practices have a positive impact on ECP of an organization.
- H5c. Adoption of GSCM practices have a positive impact on OP of an organization.
- H5d. Adoption of GSCM practices have a positive impact on SP of an organization.
- H5e. Adoption of GSCM practices have a positive impact on CP of an organization.

Methodology

The research methodology was based on a questionnaire-based survey carried out among manufacture of rubber products industry in Sri Lanka to identify the impact of GSCM practices adoption on corporate performance.

Primary sources of data are used for the study since the information obtained first hand by the researcher on the variables of interest for the specific purpose of study (Sekaran, 2003). The population for this study consists of all establishments in Sri Lankan rubber products manufacturing industry with 25 employees & above. Here small firms classified under Sri Lankan rubber products manufacturing industry were excluded (Younis et al., 2016). Department of Census and Statistics (2017), shows that 187 establishments under Sri Lankan rubber products manufacturing industry with 25 or more persons engaged in the whole of Sri Lanka. In obedience to the Krejcie & Morgan (1970) the sample size was determined as 123. Data will be collected from a sample of plant-level managers (Kenneth et al., 2012) working for rubber products manufacturing industry in Sri Lanka.

The survey instrument was administered using convenience sampling (Zhu & Sarkis, 2004). Convenience sample was deemed the most feasible approach. Due to the difficulties in obtaining data, convenience samples are used. Study methodology also has precedence in of the research work of Christmann & Taylor (2001) and Zhu & Sarkis (2004), which saw the same difficulty in data collection for Chinese organizational practices. As observed by Zhu and Sarkis (2004), convenience sampling appropriate for a developing country at the stage of low level awareness of GSCM which leading to difficulties in data collection (Mitra & Datta, 2014). This is a difficult limitation to overcome since the cultural and regulatory issues in Sri Lanka make it difficult to randomly identify and deliver surveys. Yet, overall, researcher does believe the validity of the results is not hindered for this sample (Zhu & Sarkis, 2004).

The data were collected during the months of February, March and April through personally administered questionnaires and electronic questionnaires as per convenience of the respondents. An electronic questionnaire was sent via an online survey tool (survey monkey) to the plant level managers within each firm (Younis et al., 2016). Researcher has developed a questionnaire to collect primary data based on the questionnaires used by past researchers Zhu et al., (2008a) and Younis et al., (2016) (See APPENDIX A). The survey questionnaire has two sections in addition to the introduction which is meant to brief the reader with the purpose of the survey. First part will be measured the GSCM practices implementation and second part will be measured performance outcomes. GSCM practices consist with five dimensions as IEM, GP, CC, ED and IR as per the model of Zhu et al., (2008a). Corporate performance consists with four dimensions as EP, ECP, OP and SP as per the model of Zhu et al., (2008a) and Younis et al., (2016). IEM is measured through 7 indicators. In order to measure these

3rd Interdisciplinary Conference of Management Researchers
23rd – 25th October 2018 – Sabaragamuwa University of Sri Lanka

indicators 8 questions were used (Q1-Q8). GP is measured through 6 indicators. In order to measure these 6 indicators of GP, 6 questions were used (Q9-Q14). GSCM practices uses a five-point scale: 1=not considering it, 2=planning to consider it, 3=considering it currently, 4=initiating implementation, 5= implementing successfully and corporate performance uses a five point scale: 1=not at all, 2=a little bit, 3= to some degree, 4=relatively significant and 5=significant in the survey instrument to quantify the existence of each measure.

The data which is collected will be analyzed using the Statistical Package for Social Science (IBM SPSS 21.0). Firstly, the goodness of data was measured. Normality has been tested using Skewness, Kurtosis and normal Q-Q plot. The reliability was measured using Cronbach's Alpha. Validity was tested under KMO and Bartlett's test of sphericity. In the final step, hypotheses testing was conducted using Pearson correlation and simple linear regression analysis to reach main objective of the study. The adoption level of GSCM practices with relevant to manufacture of rubber products industry in Sri Lanka is analyzed according to the Scoring method which is introduced by Schwartz et al., (2002) was used to calculate the adoption level of GSCM practices. Level of adoption is determined according to the Ovwigho (2007).

Data Analysis

Sample of the study consist 123 manufacturing firms in Sri Lankan rubber products manufacturing industry with 25 employees or more. Data were collected through questionnaires. In total, 108 responses were received with 87 percent response rate; however, only 100 responses were found complete which could be used for the statistical testing. The normality of corporate performance was tested in order to distinguish between uses of parametric tests. Skewness and Kurtosis are -0.267 and -0.487 for corporate performance which can be stated that data are normally distributed. Normality is observed via Normal Q-Q Plot (Figure 4.2) which indicates that points are closer to the diagonal, which ensure that the data are normally distributed.

Level of GSCM adoption

In accordance with the study of Jayarathna (2016) suggested scoring method of Schwartz et al., (2002) was used to calculate the adoption level of GSCM practices. As per Schwartz et al., (2002) summated value of green supply chain practices are taken by adding individual scores of the 24 items and that score can obtain any value between 24 (1 x 24) to 120 (5 x 24). For univariate analysis the range (24-120) is sub divided into five levels as mentioned by Ovwigho (2007) as follows.

24-42 Awareness- 1

43-62 Interest-2

63-81 Evaluation- 3

82-101 Trial - 4

102-120 Adoption- 5

Figure 2 indicates that most of firms in manufacture of rubber products industry in Sri Lanka are in the trial level in GSCP adoption. It shows 62% from the total sample. Respectively 21% of firms in manufacture of rubber products industry are in the evaluation level of GSCM practices adoption. 17% of firms are in the level of adoption. There are no firms in the levels of awareness and interest in the manufacture of rubber products industry in Sri Lanka.

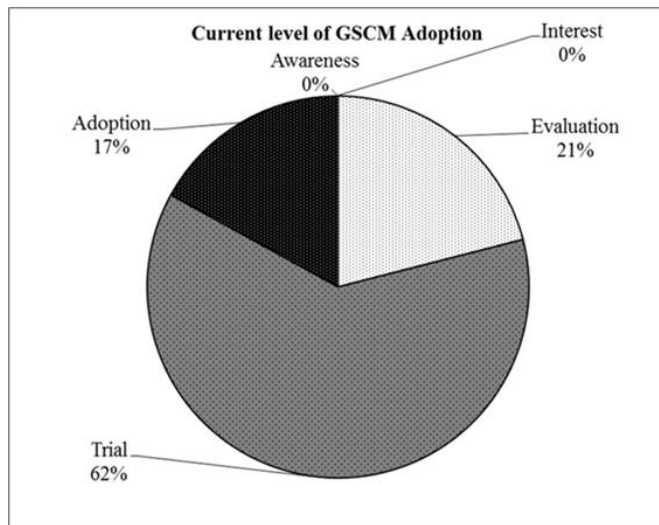


Figure 2: Current Level of GSCM Adoption

Source: (Survey Data, 2018)

Inferential Statistics: Pearson Correlation

A Pearson correlation matrix indicates the direction, strength and significance of the bivariate relationships of all the variables in the study (Sekaran, 2003). The correlation is derived by assessing the variations in one variable as another variable also varies (Sekaran, 2003). (See APPENDIX H)

Table 1. Pearson's Correlation Matrix

		EP	ECP	OP	SP
IEM	Pearson Correlation	.538**	.125	-.09	.296**
	Sig. (1-tailed)	.000	.108	.313	.001
GP	Pearson Correlation	-.148	-.037	.104	.293**
	Sig. (1-tailed)	.071	.356	.151	.002
CC	Pearson Correlation	.338**	.159	.096	.400**
	Sig. (1-tailed)	.000	.057	.172	.000
ED	Pearson Correlation	.017	.190*	.019	.279**
	Sig. (1-tailed)	.431	.029	.427	.002
IR	Pearson Correlation	.706**	.161	-.196*	.096
	Sig. (1-tailed)	.000	.055	.025	.171

Source: (Survey Data, 2018)

There is positive and significant relationship between IEM & EP, IEM & SP, GP & SP, CC & EP, CC & SP, ED & ECP, ED & SP and IR & EP. It shows a negative and significant relationship between IR & OP. There is a positive and insignificant relationship between IEM & ECP, GP & OP, CC & ECP, CC & OP, ED & EP, ED & OP, IR & ECP and IR & SP. It shows negative and insignificant relationship between IEM & OP, GP & EP and GP & ECP.

Hypothesis Testing

For the purpose of this study, twenty-five hypotheses have been developed in order to test the research objectives. The results of each of the hypothesis are as follows:

3rd Interdisciplinary Conference of Management Researchers
23rd – 25th October 2018 – Sabaragamuwa University of Sri Lanka

To achieve the main objective of the study, linear regression analysis was carried out. Performance of regression analysis results in three tables: Model Summary, ANOVA and Coefficients. According to Sekaran (2010) analysis of variance (ANOVA) test shows that the regression model is significant or not, if the output P value is less than the critical P value (0.05), that model is significant.

Table 2. Model Summary- Adjusted R Square

Adjusted R square	EP	ECP	OP	SP	CP
IEM	0.283	0.006	-0.008	0.088	
GP	0.012	-0.009	0.001	0.077	
CC	0.105	0.015	-0.001	0.151	
ED	-0.010	0.026	-0.010	0.069	
IR	0.493	0.016	0.029	-0.001	
GSCM	0.129	0.016	-0.010	0.163	0.114

Table 3. ANOVA- Significance Value

Significance value	EP	ECP	OP	SP	CP
IEM	0.000	0.216	0.626	0.003	
GP	0.142	0.712	0.301	0.003	
CC	0.001	0.114	0.344	0.000	
ED	0.863	0.058	0.855	0.005	
IR	0.000	0.111	0.050	0.342	
GSCM	0.000	0.108	0.932	0.000	0.000

Table 4. Coefficient and Significance Value

		EP	ECP	OP	SP	CP
IEM	β coefficient	0.568	0.149	-0.074	0.258	
	Sig. value	0.000	0.216	0.626	0.003	
GP	β coefficient	-0.087	-0.025	0.087	0.142	
	Sig. value	0.142	0.712	0.301	0.003	
CC	β coefficient	0.267	0.142	0.108	0.261	
	Sig. value	0.001	0.114	0.344	0.000	
ED	β coefficient	0.015	0.178	0.022	0.191	
	Sig. value	0.863	0.058	0.855	0.005	

IR	β coefficient	0.582	0.150	-0.231	0.065	
	Sig. value	0.000	0.111	0.050	0.342	
GSCM	β coefficient	0.442	0.217	0.015	0.407	0.270
	Sig. value	0.000	0.108	0.932	0.000	0.000

Discussion

As observed via this study, adoption of GSCM practices have a significantly positive impact on environmental performance. The direct relationships between GSCM practices and environmental performance expectations are very promising (Zhu & Sarkis, 2004). As per the study of Zhu & Sarkis (2004), authors found that enterprises with higher levels of GSCM adoption are having better environmental performance. Chien & Shih (2007) found that the implementation of GSCM practices has a positive effect on environmental performance. Adoption of GSCM practice in Chinese enterprises has improved environmental performance (Zhu et al., 2005).

Findings of the study reveal that adoption of GSCM practices have an insignificantly positive impact on economic performance. Zhu et al., (2005) stated that adoption GSCM practices not supported for economic performance since the mean of positive economic performance is lower than the mean of negative economic performance. In contrast, Zhu & Sarkis (2004) indicated that strong relationship exists between GSCM practices and positive economic performance. Association between the GSCM practices and economic performance is not positive and significant (Green et al., 2012). Rao & Holt (2005) stated that green supply chain lead to better economic performance.

The study found that adoption of GSCM practices have an insignificantly positive impact on operational performance. GSCM practices have a positive relationship on operational performance of alcoholic beverage manufacturers in Kenya (Kyalo, 2015). Adoption of GSCM practice in Chinese enterprises has improved operational performance (Zhu et al., 2005). Significantly lower impact has been observed on the operational performance (Perotti et al., 2012). Researcher found that adoption of GSCM practices have a significantly positive impact on social performance. GSCM and organizational social performance establish a positive causal relation (Chien & Kuei, 2014).

Study revealed that adoption of GSCM practices have a significantly positive impact on corporate performance. It can be claimed that overall, GSCM practices impact CP positively (Younis et al., 2016). Perotti et al., (2012) stated that companies can improve their overall performance through the adoption of GSCP. Zhu, Sarkis, & Geng (2005) indicated that GSCM practices adoption positively impact on performance in Chinese enterprises. Rao and Holt (2005) and Green et al., (2012) found positive relationships between environmental practices and organizational performance.

Conclusion

The findings of the study concluded that the adoption of GSCM practices had a significantly positive impact on corporate performance. Further, study concluded that GSCM practices adoption had a significant and positive impact on environmental and social performance. Nevertheless, GSCM adoption denoted an insignificant impact on economic and operational performance. There was a significant and positive impact of IEM, CC, and IR towards environmental performance. Surprisingly, IR denoted significant and negative impact on operational performance. IEM, GP, CC and ED had significant and positive impact on social performance.

Study concluded that majority of the firms in Sri Lankan rubber product manufacturing industry (62%) were in the trial level in GSCM adoption. This denoted that Sri Lankan rubber product manufacturing industry was more concerning about the environment. Thus researcher concluded that firms in Sri Lankan rubber product manufacturing industry were more tend towards adopting green supply chain management practices. It was a good sign as a country since the global interest towards greening supply chains was increased. In terms of GSCM practices, investment recovery is most likely to be adopted by rubber products manufacturing industry in Sri Lanka. Respectively eco design, internal environmental management and cooperation with customers had taken into practice.

3rd Interdisciplinary Conference of Management Researchers
23rd – 25th October 2018 – Sabaragamuwa University of Sri Lanka

Finally, researcher recommended to the firms who are interested in improving their corporate performance to adopt green supply chain management practices; IEM, GP, CC, ED and IR. Specially, Firms in Sri Lankan rubber product manufacturing industry who are willing to improve environmental and social performance are recommended to adopt green supply chain management.

Recommendations

The study concludes that overall green supply chain management practices adoption has a significantly positive impact on corporate performance. Thus, firms should pay their attention on GSCM adoption and accordingly achieve triple bottom line. Rubber product manufacturing firms who are expecting to improve their corporate performance in terms of environmental and social performance are recommended to adopt green supply chain management practices. Firms are not encouraged to implement GSCM practices with the aim of enhancing economic performance. Moreover, Firms are not encouraged to implement GSCM practices to enhance the operational performance. Firms who are willing to improve their social performance are recommended to adopt IEM, GP, CC and ED since it shows significantly positive impact on social performance. Firms who are willing to improve their environmental performance are recommended to adopt IEM, CC and IR, since it shows significantly positive impact on environmental performance. Researcher recommended to the firms who are interested in improving their corporate performance to adopt green supply chain management practices; IEM, GP, CC, ED and IR.

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