Sri Lanka Society of Transport and Logistics

Journal of South Asian Logistics and Transport
Volume 2 Issue 2 September 2022
JSALT 2.2.2: pp. 19-41
DOI: http://doi.org/10.4038/jsalt.v2i2.48

THE ROLE OF SUPPLIER SWITCHING COSTS AND SUPPLY CHAIN RESPONSIVENESS

G C I Gunarathne [a], K V Weerasinghe [b]*, A Thibbotuwawa [b] and H N Perera [c]

[a] Department of Operations Management, University of Peradeniya, Sri Lanka.

[b] Center for Supply Chain, Operations and Logistics Optimization, University of Moratuwa, Sri Lanka.

[c] Professor H.Y. Ranjit Perera Institute for Applied Research, Nugegoda, Sri Lanka.

* Correspondence should be addressed to *vimashaweerasinghe@gmail.com*

ABSTRACT

This study explored the effect of supplier switching costs on supply chain responsiveness in Sri Lankan Small and Medium-scale manufacturing firms. It considered three types of switching costs: procedural, financial, and relational switching costs. Survey data were collected from 188 manufacturing firms and analysed using Structural Equation Modelling. The results revealed that, procedural switching cost was positively related to supply chain responsiveness, while the relational switching cost, the most important predictor, was negatively related. The relationship between financial switching costs and supply chain responsiveness was not significant. No significant relationship was found between supplier switching costs and supply chain responsiveness either, possibly due to a different set of variables influencing this relationship. No significant impact was found on the price and product competition in the context of Sri Lankan manufacturing sector indicating that supplier switching costs do not play a significant role on these variables. Yet, there may be an influence from intervening variables due to internal organisational situation and external factors such as market conditions. Switching suppliers is not an issue for some companies as they already have well-defined supplier networks with multiple providers for the same raw materials. However, this differs based on companies' relationships with suppliers and the availability of resource supplies.

Keywords: *Supplier switching costs, Supply chain responsiveness, Structural equation modelling.*

1. INTRODUCTION

The corporate environment has become more global and competitive in recent years. Modern business is characterised by shorter product life cycles, rapid releases of new products, and clients who are increasingly aware and well informed. These changes require supply networks that preserve and gain competitive advantage, by responding quickly, effectively, and efficiently to market changes. So far, a majority of studies have concentrated on supply chain flexibility or agility. It is also worthwhile to investigate supply chain responsiveness [1]. Evaluating supply chain performance can facilitate a greater understanding of the supply chain, influence performers' behaviour, and enhance its overall performance [2]. In their study of measurements of supply chain efficiency and supply chain responsiveness, Suraweera and Galahitiyawa [3] find that the concepts are interrelated but opposed to one another (duality). Based on this finding, the present study considers supply chain responsiveness as a construct measuring supply chain performance.

Switching cost is an influential business strategy because increasing switching costs will help to retain customers. [4]. This strategy contributes to supply chain performance. Matzler et al. [4] claim that studies on the causes and repercussions of switching costs in a business-to-business (B2B) setting are few. According to McLaren, Head & Yuan [5], many earlier studies attest to the transaction cost savings of existing inter-organisational networks, but fail to account for the costs of moving partners or business processes. Despite the fact that McLaren, Head, and Yuan [5] highlighted switching cost as a contributing component to performance measurement, their findings do not provide any clear information on the various aspects of switching cost. It is clear that their study does not include the three main types of switching costs; procedural, financial, and relational switching costs [6] in measuring supply chain performance.

Sri Lanka's manufacturing sector is a major contributor to the country's economy, with SMEs (small and medium-sized enterprises) playing a critical role [7]. As the nature of SME interactions is interpersonal: their focal enterprises are determined based on the relationship between supply chain managers. As a result, supplier switching cost is of fundamental importance to supply chain performance. The key objective of the study is to investigate how three types of supplier switching costs namely procedural switching costs, financial switching costs, and relational switching costs lead to supply chain responsiveness.

This research contributes to both theory and practice. The study looks at the impact of all three dimensions of supplier switching costs (procedural switching costs, financial switching costs, and relational switching costs) on supply chain

responsiveness. Few prior studies use empirical methods to conduct this type of research. This study also makes recommendations on potential improvements to supply chain performance metrics through lower supplier switching costs based on existing supply chain management methods. These improvements directly affect a firm's competitive advantage.

The theoretical background to this study and underlying theories are described in the next section. Thereafter, the study method and statistical analysis results are presented. Finally, the paper ends with a discussion of the findings, their ramifications, and future research objectives.

2. LITERATURE REVIEW

2.1. Supplier switching cost

Switching costs, which have been identified as a determinant in supply chain performance, result in lower relationship costs and higher revenues [4]. Switching cost is also mentioned by McLaren et al. [5] as a factor contributing to performance measurement. Customers are increasingly trying to cut costs by switching suppliers, according to Matzler et al. [4]; notably in business-to-business (B2B) settings [8]. Switching costs, described as “costs a buyer perceives, anticipates, and/or experiences when switching a connection from one vendor to another” [9], are seen as effective defensive marketing techniques [10]. According to Wu [11], when a business customer switches to a new supplier, they must pay switching costs, which Wu [11], defines as "the one-time charges that customers identify with the process of moving from one provider to another" [6]; [12].

Literature explores many typologies for switching costs [8]; [6]; [12]. Burnham et al. [6] establish a generic understanding of switching costs based on a thorough assessment of this literature and interviews with industry management and consumer focus groups.

Figure 1: A typology of consumer perceptions of switching costs [6]

As illustrated in Figure 1, the typology of switching costs given by Burnham et al. [6] was employed for the purposes of this study. Their cost scale contains eight first-order factors, categorised into three higher-order factors. The eight elements of switching costs are economic risk costs, assessment costs, learning costs, setup costs, benefit loss costs, monetary loss costs, personal relationship loss costs, and brand relationship loss costs. These can be categorised into three higher-order switching costs: procedural switching costs (primarily time and effort), relational switching costs (psychological and emotional discomfort), and financial switching costs (loss of financially quantifiable resources).

2.2. Procedural switching costs

These costs are related to the time and effort spent evaluating alternative offerings and establishing a relationship with a new supplier.

They include:

- Economic risk costs: expenditures incurred as a result of uncertainty regarding the new provider's performance,
- Evaluation costs: costs associated with evaluating other options and making a selection, such as time and effort spent searching for and analysing them [6]
- Learning costs: Costs expended as a result of the time and effort required to learn how to use a new product or service efficiently
- Setup costs: incurred as a result of the time and effort required to initiate a relationship with new customer.

2.3. Financial switching costs

As Burnham et al. [6] explained, these costs are associated with the loss of financially determinable resources as a result of relocation.

Examples include:

- Benefit loss expenses (costs incurred as a result of the loss of discounts or similar benefits provided by the existing provider but not guaranteed by the new supplier),
- Monetary loss costs (one-time costs associated with switching suppliers that are not related to the cost of the new product itself) are two examples of these costs.
- Financial loss cost: the cost of one-time financial expenses, such as asset replacement for specific transactions that are required to begin working with the new supplier.

2.4. Relational switching costs

Relational switching costs are costs associated with the psychological or emotional distress associated with severing ties with the existing supplier.

- Personal relationship loss: expenditures incurred as a result of the emotional losses resulting from the breakdown of bonds with the supplying firm's employees,
- Brand relationship loss: cost incurred as a result of the emotional losses incurred as a result of the provider's brand being broken, are the costs directly impact for the relational switching costs [6].

2.5. Supply chain responsiveness

The ability to respond rapidly and the degree to which the supply network can adjust to changes in consumer demand are both referred to as supply chain responsiveness [13]; [14]; [15]; [16]. Compared with the past, it is essential that organizations and supply chains grow significantly more flexible and responsive to competition [17]. Although studying supply chain responsiveness from the standpoint of supply interference would be interesting, the current study focuses on customer demand using three sub-constructs for supply chain responsiveness: operations system responsiveness (OSR), logistics process responsiveness (LPR), and supplier network responsiveness (SNR). Thatte, [1] has discussed supply chain responsiveness and above mentioned three dimensions in his work. This study further discusses supply chain responsiveness by incorporating supply chain switching costs.

2.6. Operations system responsiveness

The production system's ability to respond to changes in client demand can be introduced as operation system responsiveness. Manufacturing and service operations are both affected by the responsiveness of the operations system. In conceptual research, Duclos et al. [16] and Lummus et al. [15] state that supply chain responsiveness includes operations system responsiveness at each node of the chain. They further highlighted that in order to satisfy the end customer expectation, each business in the supply chain must deliver the output on-time and reliably. The dimensions in this category would be used to assess the responsiveness of a supply chain node (business) [16]; [15]. Further, OSR is directly influenced by the demand fluctuations, switching cost should be a vital factor when setting product pricing [1].

2.7. Logistics process responsiveness

Logistics process responsiveness includes the capacity of outbound transportation, distribution, and warehousing infrastructure to respond to changing client demands.

The responsiveness of logistics procedures is critical to the success of a responsive supply chain strategy [13]. Logistics and distribution management handle the transportation of goods from suppliers to manufacturers and then to the final locations of consumption through distribution hubs [16]; [15]. These logistics activities include warehousing, packing, and shipping, as well as transportation planning and management, inventory management, reverse logistics, and order tracking and delivery. According to Duclos et al. [16], a company's logistics system is critical in giving value to its consumers. This value generation for a company's clients entails maintaining logistics flexibility and speed throughout the supply chain to meet the unique needs of each client [16]; [15].

2.8. Supplier network responsiveness

The ability of a company's key suppliers to respond to changes in demand is referred to as supplier network responsiveness. Upstream and downstream of the focal business, the presence of responsive and flexible partners is crucial to supplier network responsiveness [18]. Businesses' ability to adapt quickly to client demand is dependent on suppliers' ability to adjust the volume quickly. According to Slack [19], the basic building blocks of a flexible system are supplier networks.

According to many interviews with operations managers at Volvo's European automobile assembly plants [13], the company's response was delayed due to a lack of supplier network flexibility. Supply chain responsiveness includes both supplier network flexibility [20] and supplier network responsiveness. According to Holweg [13], the capacity to respond to changes in consumer demand requires supplier network flexibility. As a result, in this study, supplier network responsiveness is considered as a dimension of supply chain responsiveness.

3. HYPOTHESES AND CONCEPTUAL FRAMEWORK

3.1. Supplier switching costs and supply chain responsiveness

With the exception of a few studies [5], little thought has been given to how supplier switching costs affect supply chain performance. Similarly, McLaren, Head, and Yuan [5] found switching cost as a contributing element to a performance measure, despite the fact that their findings provide no clear information on the many aspects or types of switching costs in B2B context. Switching costs have also been linked to higher profits [19], inelastic response to price [21] increased product preannouncements [22], and barriers to market entry and sustainable strategies advantage [23] [24]. According to Burnham, Frels & Mahajan [6], it is sometimes noticed that a client does not discontinue a supplier relationship immediately even where there is a low level of satisfaction. This is primarily due to the cost of

transitioning [25]. Customers may be compelled to stay with suppliers notwithstanding the level of satisfaction established in the relationship if switching obstacles are high [26]. Supplier switching costs, when added together, can cause major supply chain disruptions, limiting a company's ability to continue operations, reliably fulfil customer orders in a timely way, and offer vital services to end customers [25]. Consequently, this study can hypothesize:

Alternative hypothesis H1: Supplier switching costs have an impact on supply chain responsiveness.

3.2. Three types of supplier switching costs and supply chain responsiveness

Although McLaren, Head, and Yuan [5] identify switching cost as a factor contributing to performance measurement, the findings do not provide any clear information on the various aspects of switching cost, and it is clear that it has failed to incorporate the three types of switching cost, namely procedural switching cost, financial switching cost, and relational switching cost [6] in measuring supply chain performance. Previous studies have emphasised that in addition to these switching costs, the buyer's company will also consider competitive reactions and economies of scale of incumbent suppliers [27].

Using three different forms of switching costs, this study aims to fill a theoretical gap by assessing the impact of supplier switching costs on supply chain responsiveness. Past research has theoretically demonstrated that supply chain responsiveness is influenced by supply chain management practices such as strategic supplier partnership, customer relationship, information sharing and modularity-based manufacturing methods [1]. They have emphasised the importance of hypothesizing these relationships.

This study can hypothesize the following to fill this theoretical gap:

- *Alternative hypothesis H2 (a):*
  Procedural switching costs have a significant impact on supply chain responsiveness.
- *Alternative hypothesis H2 (b):*
  Financial switching costs have a significant impact on supply chain responsiveness.
- *Alternative hypothesis H2 (c):*
  Relational switching costs have a significant impact on supply chain responsiveness.

The conceptual framework depicted in the Figure 2 was built based on the above literature.

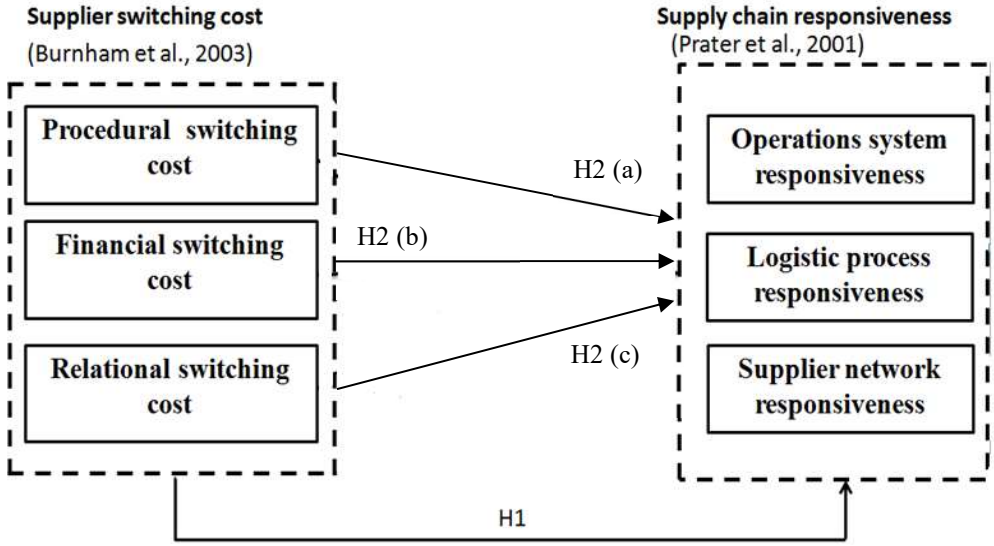

Figure 2: Conceptual framework

4. METHODOLOGY

4.1. Participants and procedure

This study adopts the positivist paradigm, given the nature of its objectives. The study deals with real-life social events, and its outcome can be applied to similar situations [28]. The positivist paradigm allows researchers to develop knowledge objectively and investigate further. The population of this study is made up of all SME manufacturers in operation with the Board of Investment (BOI); there are 360 such SMEs. A sample was drawn from the population using a basic random sampling procedure. The sample unit covered several industries: agro-processing and beverages, high-tech industries, machinery and equipment, pharmaceuticals, garments, and rubber-based products. The unit of analysis was the BOI registered SMEs (business customers) in the manufacturing sector. Senior managers, supply chain managers, executives working in the field of supply management, and owners were the most appropriate respondents for supply chain performance and supplier information, according to previous research [29]; [30]. As a result, the supply chain manager, operations manager, general manager, or the company's owners were the point of contact or respondent in this study. When these managerial positions were not available, the designated persons in charge of dealing with particular suppliers were contacted directly. The survey was administered in person and online. As a result, the researcher individually completed 40 questionnaires. More than 300 online questionnaires were emailed to a random sample of respondents. The in-person technique had an 80 percent response rate, while the online method had a lower

response rate of 54%, where only 162 responses out of 300 were received. The questionnaires were then examined, and incomplete responses were removed from the sample; 188 questionnaires were analysed for this study. Data analysis was conducted using Structural Equation Modelling (SEM) by SPSS AMOS 23.0 software.

4.2. Measures

The questionnaire consists of 48 questions, and they were used to evaluate six components: procedural switching costs, financial switching costs, relational switching costs, operations system responsiveness, logistic process responsiveness and supplier network responsiveness. The experience in terms of switching cost and responsiveness were questioned and respondents were asked to react using a rating scale depending on the type of purchase (raw materials, accessories, or capital items) and the type of industry. The survey was divided into two parts. The component (A) contains questions designed to gain a general understanding of the participants, such as their title, location of employment, type of the company's product, suppliers' names, and previous switching experience. The section (B) contains information on switching costs, such as procedural switching costs (18 elements), pecuniary switching costs (5 elements), and relational switching costs (7 elements). All three forms of switching costs were measured using a seven-point Likert scale. The following section contains information on supply chain responsiveness, including operations system responsiveness (7 elements), logistic process responsiveness (5 items), and supplier network responsiveness (6 items). All three characteristics of supply chain responsiveness were evaluated using a five-point Likert scale. Every question in the study was generated from questions that had previously been assessed.

5. DATA ANALYSIS AND RESULTS

A pilot survey of 30 people was undertaken to identify and remove possible flaws in the survey instrument design as well as to test the validity and reliability of measurements. In the pilot survey, Cronbach's alpha coefficient was more than 0.7 for all constructs [26], as summarised in Table 1.

Table 1: Reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.883	.868	55

Cronbach’s Alpha test is used to see if multiple-question Likert scale surveys are reliable and have internal consistency. It will tell that the test has designed is

accurately measuring the variable of interest. If the alpha value of 0.9 will indicate a perfectly reliable test. However, having 0.7 as the alpha value is an acceptable signal to go ahead with the analysis [25].

The data for this study was first entered into the IBM Statistical Package for Social Science (SPSS) software version 23.0 after the pilot survey. All data were winsorised at a 95 percent level to exclude outliers, and the 188 occurrences were transmitted for missing value analysis. A winsorisation is an initial replacement of the smallest and largest values with the observations that are nearest to them in an average, which is a statistical measure of central tendency.

In any of the 188 surveys included in this study, there were no missing values. After missing value data analysis and outlier detection, the data was checked for multivariate assumptions such as normality, linearity, homoscedasticity, and multicollinearity. The results required to be within +2.0 and were checked for normality using skewness and kurtosis. Popović, [26] measured linearity and .homoscedasticity using normal probability plots (p-plots) and scatter plots, and found no deviations. Finally, multicollinearity was measured using a correlation matrix, and all inter-correlation values were less than 0.9. According to the results of multivariate assumptions, all variables were guaranteed to be normal, linear, homoscedastic, and multicollinear. The Kaiser-Meyer-Olkin (KMO) test was used to determine the appropriateness of the study's sample. According to the KMO statistics, the sample adequacy of all constructs is more than 0.5, indicating that the sample is adequate. To ensure that all structures were uni-dimensional, exploratory factor analysis (EFA) was used. EFA and confirmatory factor analysis (CFA) are similar techniques. Since we can specify the factors used in the survey, it can move ahead with CFA. However, in this study, EFA was done prior to CFA to ensure the measured variables are related to every latent variable. The data was then sent for multivariate analysis, having confirmed the reliability of all constructs through Cronbach’s alpha.

5.1. The measurement model

The measuring model “specifies the indicators for each concept and allows construct validity to be assessed” [24]. Procedural switching costs (PSC), financial switching costs (FSC), relational switching costs (RSC), operations system responsiveness (OSR), logistics process responsiveness (LPR), and supplier network responsiveness (SNR) are the six latent variables identified by the conceptual model. Because the initial measurement model had a poor match, modification indices were used to improve the model. To improve the baseline model, stepwise deletion of items with a loading of less than 0.5 factors was used. Six items were deleted during the revision

process due to low standardised regression weights. To develop the latent variables, impact of all the supply chain cost types to supply chain responsiveness and impact of supply chain flexibility to responsiveness were observed separately. Covariances were also constructed between the error terms of numerous items with the goal of improving them. The final measurement model was found to be a good fit.

Table 2: Model-fit statistics of measurement model

Absolute					Incremental		Parsimony
CMIN/DF	GFI	AGFI	RMSEA	IFI	TLI	CFI	PRATIO
1.012	.811	.779	.054	.876	.871	.824	.821

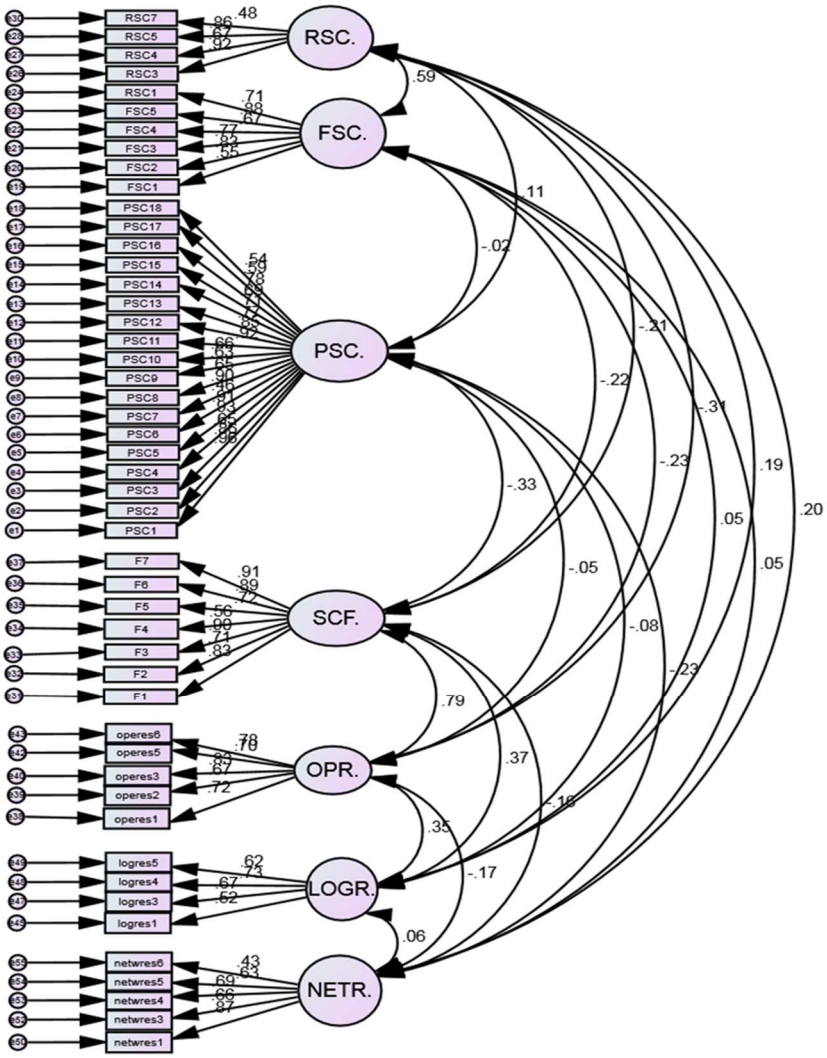

Figure 3: Modified measurement model

According to Popović, [26] a satisfactory model fit is indicated by a CMIN/DF (X2/df) value around one and not exceeding 3, a Comparative Fit Index (CFI) value near one, a Tucker-Lewis Index (TLI) value near one, and a Root Mean Square Error of Approximation (RMSEA) value of roughly 0.08 or less. According to Popović, 2015 [26] the .stated GOF (goodness of fit) suggests that at least one absolute measure (X2/df/p value/GFI/RMSR/.RMSEA), one incremental measure (NFI/.CFI/TLI/RNI), and one parsimony (PRATIO/PCFI/PNFI) fit measure must be included. The measurement model's CIMIN/DF is close to 0.1 and below 0.3, and the RMSEA is 0.054, as reported in Table 2, indicating absolute model fit. In addition, the incremental and parsimony indices in Table 2 are near to 1, indicating a good model fit.

Table 3: Convergent and discriminant validity

	AVE	CR	MSV	ASV	PSC	FSC	RSC	OSR	LPR	SNR
PSC	.808	.987	.623	.332	**.899**					
FSC	.692	.918	.546	.279	.212	**.832**				
RSC	.755	.955	.589	.296	.236	.641	**.868**			
OSR	.623	.918	.518	.263	.044	.026	.687	**.789**		
LPR	.622	.888	.518	.252	.343	.407	.456	.354	**.788**	
SNR	.748	.918	.588	.293	.562	.035	.357	.235	.437	**.865**

Note: Diagonal 5 entries (in bold) are the square root of AVE for all constructs; sub-diagonal entries are the correlation coefficients estimates between each construct

Confirmatory Factor Analysis (CFA) was performed to further test the components' convergent and discriminant validity. According to Malhotra & Dash [31], acceptable convergent validity requires 0.5 or higher factor loading and 0.5 or more Average Variance Extracted (AVE). Furthermore, Composite Reliability (CR) must be at least 0.7. If the square root of the VAE is greater than the correlation coefficients, discriminant validity is generally guaranteed [32]. Furthermore, the Maximum Shared Variance (MSV) and Average Shared Variance (ASV) must be less than AVE to ensure discriminant validity [26]. Furthermore, the study constructs' correlation coefficients do not exceed 0.85. As a result, each of the constructions in the study represents a distinct concept. The convergent and discriminant validities are satisfactory because all of the aforesaid requirements are met, as shown in Table 2.

5.2. The structural model

The structural model investigates the direct links between constructs. The first structural model was created to see if there was a direct link between supplier switching costs (SSC) and supply chain responsiveness (SCR). Figure 4 depicts the

output path diagram of structural model 1. The structural model 2 was created to investigate the link between three forms of supplier switching costs (procedural switching costs (PSC), financial switching costs (FSC), and relational switching costs (RSC)) and supply chain responsiveness (SCR). The output path diagram of the structural model 2 is shown in Figure 5. At a 95% confidence level, all hypotheses were examined.

Table 4: Model-fit statistics of structural model 1

	Absolute				Incremental		Parsimony
CIMIN/DF	GFI	AGFI	RMSEA	IFI	TLI	CFI	PRATIO
1.166	.804	.874	.029	.901	.858	.825	.931

The model fit data for structural model 1 are summarised in Table 4. As a result, the structural model 1 model fit statistics results show that the model is well-fit. The CIMIN/DF ratio is less than three (CIMIN/DF = 1.166, GFI =0.804, RMSEA =0.029, IFI =0.901, TLI =0.858, CFI =0.825). The GFI is greater than 0.8, and the RMSEA suggests good absolute model fit. Incremental metrics (IFI, TLI, CFI) also show that the model is well-fit. Furthermore, Parsimony indices show that model fit is satisfactory.

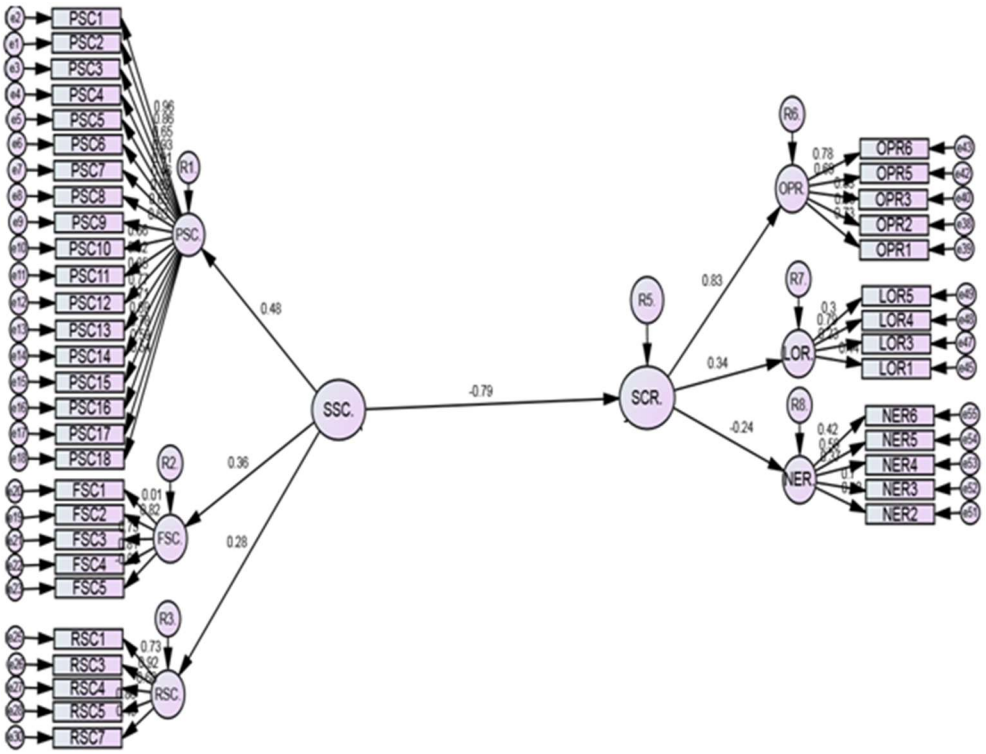

Figure 4: The structural model 1

Figure 4 shows the direct path hypothesis testing (H1) outcome. As depicted, it was hypothesised that supplier switching costs (SSC) has an impact on supply chain responsiveness (SCR). The result of hypothesis 1 shows that SSC has an insignificant negative impact on SCR. (β = *-0.79, p = 0.121) at* the 95% confidence level.

Table 5: Model-fit statistics of structural model 2

	Absolute				Incremental		Parsimony
CIMIN/DF	GFI	AGFI	RMSEA	IFI	TLI	CFI	PRATIO
2.331	.712	.701	.044	.821	.801	.728	.802

Table 5 summarises the model fit statistics for structural model 2. Only the GFI and other absolute indices indicate a moderate model fit, but CIMIN/DF and other fit indices (e.g., RMSEA, .RMR) imply a high incremental model fit. In addition, Parsimony indices show that the model is well-fit. Figure 5 shows the results of hypothesis testing (H2a, H2b, and H2c) for direct pathways.

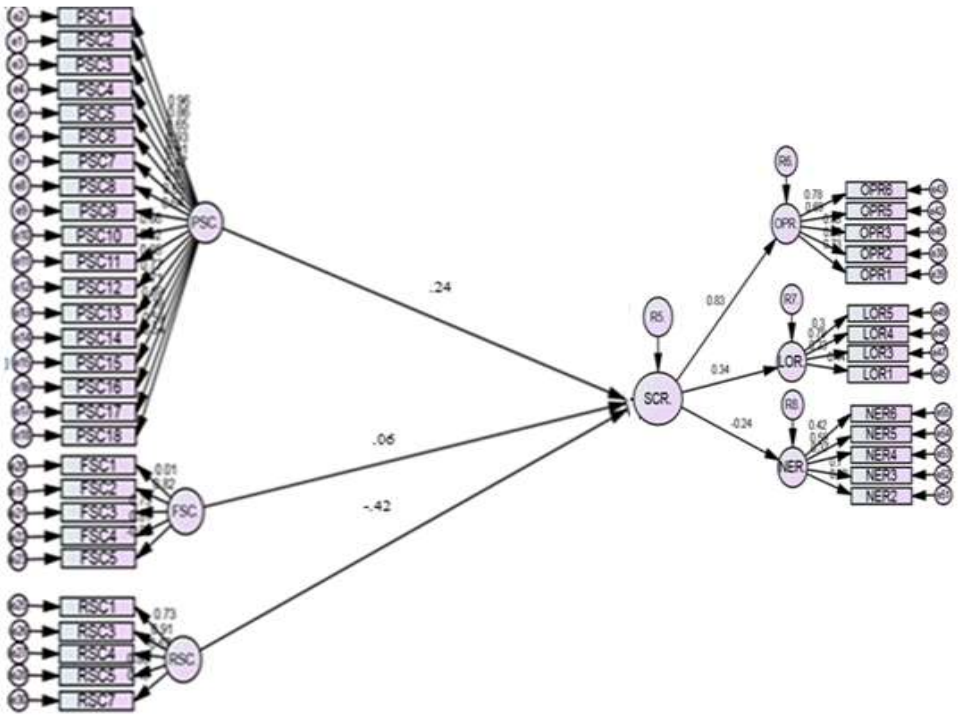

Figure 5: The structural model 2

As depicted in Figure 5, hypothesis 2a investigates the relationship between procedural switching cost (PSC) and supply chain responsiveness (SCR). It was hypothesised that there would be a relationship between PSC and SCR. The result demonstrates positive and significant paths from PSC and SCR ($\beta = 0.24$, $p = 0.002$).

Thus, hypothesis 2a is supported. Hypothesis 2b tested the relationship between financial switching cost (FSC) and supply chain responsiveness (SCR). It was hypothesised that there would be a relationship between FSC and SCR. The finding reveals a positive but statistically insignificant connection between FSC and SCR (= 0.61, p = 0.113). As a result, hypothesis 2b is unsupported. Hypothesis 2c investigated the relationship between relational switching cost (RSC) and supply chain responsiveness (SCR). It was hypothesised that RSC and SCR would have some sort of link. The results demonstrated a negative and statistically significant connection between RSC and SCR (= -0.42, p = 0.000). As a result, hypothesis 2c is confirmed.

6. DISCUSSION

The first objective of this research is to identify the impact of supplier switching costs on supply chain responsiveness. Empirical evidence indicates that supplier switching costs are associated with decreased supply chain responsiveness. Previous studies investigated the effect of supplier switching cost to customer loyalty, based on the preference level, satisfaction and price indifference of alternative products [33]. Supplier switching costs insignificantly limit a firm's ability to respond to changes in customer demand. It also affects the ability of its outbound transportation, distribution, and warehousing systems and its key suppliers to respond to changes in demand. Thus, for SME manufacturers in Sri Lanka, supplier switching costs have negative insignificant effects on supply chain responsiveness at a 95% confidence level. Accordingly, this relationship might be influenced by different intervening variables. Even though past literature has not measured the relationship strength between switching costs and supply chain responsiveness, it has indicated that impact of switching costs can be mitigated within firms without shifting them downstream [34]. Large-scale firms maintain stocks that allow them to grow more responsive to sudden changes in demand; making their switching costs negligible. The findings of this study are in line with earlier studies conducted in both public and private sector enterprises.

The second goal is to investigate the impact of three different types of supplier switching fees on supply chain responsiveness. Supplier switching costs are divided into three categories: procedural switching costs, financial switching costs, and relational switching costs. Although McLaren, Head, and Yuan [5] identify switching cost as a component contributing to performance measurement, the findings do not provide any clear information on the many aspects of switching cost, and it is clear that the three categories of switching costs are not included, namely, procedural switching costs, financial switching costs and relational switching costs [6] in measuring supply chain performance.

For the purpose of this study, a more inclusive typology consisting of the three main types of switching costs proposed by Burnham, Frels & Mahajan [6] has been used. The findings of the present study reveal that, procedural switching cost has a significant positive impact on supply chain responsiveness at 95% confidence level. As a result of the costs associated with the time and effort required to evaluate alternative offerings and establish a relationship with a new supplier, the ability to adjust to changes in customer demand with the least amount of time penalties increases [6]. The outcomes of this study also show that, at a 95% confidence level, financial switching costs have a negligible positive impact on supply chain responsiveness. As a result, SME manufacturers neglect the costs that can be defined as financial loss caused when they took the switching decision. The results of this study also show that, relational switching costs are associated with decreasing supply chain responsiveness. Especially, relational switching costs are the costs related to the psychological or emotional discomfort related to the breaking of the established bonds with the current suppliers. It encompasses the expenses of severing personal relationships as well as the costs of severing brand relationships [6]. As a result, when switching costs are substantial, the focal firm prefers to stick with its long-term suppliers. However, having high relational switching costs might put a company at risk of becoming too reliant on a single supplier, reducing its competitive advantage. Therefore, the negative relationship between relational switching cost and supply chain responsiveness could be explained logically.

7. THEORETICAL CONTRIBUTIONS

This study uses conclusions from an instrument that is valid and trustworthy given its setting to measure the impact of supplier switching cost and supply chain responsiveness. Furthermore, the study identifies substantial correlations between supplier switching costs and supply chain responsiveness, as well as a research framework. This structure (Figure 2) provides a basis and insight for future supply chain performance researchers. Although some earlier studies have looked at the influence of supplier switching costs on supply chain performance, none have looked at the impact of three types of switching costs: procedural switching costs, financial switching costs, and relational switching costs.

As a result, three significant characteristics of supplier switching costs are captured by the instrument created in this study. The new tool will serve as a better guideline for supply chain performance studies and may thus be classified as a strategic management tool. The study also looks at supply chain responsiveness at the firm level, evaluating a firm's ability to respond to changes in consumer demand in a variety of ways. The degree to which demand changes are addressed at various nodes

of a company (upstream, within the company, and downstream) can be used as a proxy for supply chain responsiveness. Researchers interested in gauging supply chain responsiveness will find this measure useful.

8. MANAGERIAL IMPLICATIONS

The outcomes of this study show that measuring supply chain performance using supplier switching costs is critical because it drives supply chain excellence and helps the firm accomplish its business objectives. Depending on the firm's specific ability of manufacturing system and logistic system to respond changes in consumer demand, the influence of procedural, financial, and relational switching costs on the intention to stay with the existing supplier will be different. The firm's aim in keeping a strong capacity to adjust changes in the market stems from its expectation of high switching costs. Because of the expected high switching costs, capacity preservation is seen as a priority, resulting in a commitment to the changes. Most companies have good relationships with their existing suppliers, based on mutual trust, joint problem solving, and delivery of pre-specified promises, and are better able to adapt to unforeseen changes, identify and produce tailored solutions to organisational problems, and reduce monitoring costs, all of which help improve supply chain performance.

The study provides enterprises with a set of accurate and reliable measurements for evaluating, benchmarking, and comparing supply chain responsiveness at the point where raw materials are supplied. The measurements developed in this study capture several aspects of supply chain responsiveness, allowing practitioners to not only recognise immediate outcomes, but also to comprehend their effects on organisational performance. Based on the outcome of the study, it can be assured that investigated relationships have both practical and statistical significance. It is important when providing implications [1].

Organisations need to be more responsive in today's fast-paced global competition in order to address client expectations quickly. Furthermore, whole firm responsiveness necessitates responses on all dimensions, including supply, internal, and downstream. The term "supply chain responsiveness" is loosely defined, and people's perceptions of what it means vary greatly. The findings show practitioners what makes responsiveness so important, as well as how to achieve it.

The knowledge gathered from the visiting the small and medium scaled firms revealed that manufacturing firms organised in networks had a higher chance of survival than those with arm’s length market contacts but to avoid the risks associated by being tied to particular suppliers the firms maintain a well evaluated supplier base

with a significant number of suppliers for each of the raw materials. The findings also exposed that unlike switching costs, the ability to adjust to sudden changes in customer demand does not always play the frequently mentioned role against price and product competition in the context of manufacturing sector companies [13]. Since most firms as of now have an altogether assessed supplier base with numerous suppliers for the same raw material, exchanging suppliers isn't a major problem as they can be effortlessly replaced.

This study empirically verifies that SMEs compete based on their supply chains and that those with more responsive supply chains enjoy a substantial competitive advantage.

9. LIMITATIONS

Although this study makes substantial contributions from both a theoretical and a practical standpoint, it does have several drawbacks. Because of the limited number of investigations, the data collected may be confined to the area covered by the survey instrument. To increase response rates, new email lists and research approaches can be deployed. Because this cross-sectional study was conducted for such a short period of time, the long-term impact of supplier switching costs was not recorded. This survey asked individual respondents (high-level executives from procurement, operations, .materials, and logistics functions) to respond to supply chain responsiveness practices. However, no single person in an organisation is in charge of the entire supply chain: purchasing managers, for example, are primarily responsible for purchasing and supply; they may not be qualified to reply to supply chain responsiveness questions. As a result, relying on a single respondent may lead to measurement errors.

10. DIRECTIONS FOR FUTURE RESEARCH

The use of a single respondent to represent intra/inter-organisational factors may result in some inaccuracy, in addition to the usual degree of random error. In order to improve the dependability of research findings, future studies should aim to include several responders from each participating organisation. Other significant parameters that were not examined in this study should be considered in future research. In this regard, other elements of supply chain responsiveness, such as assembly responsiveness and inbound logistics responsiveness, would be examined. Adding more performance measures for the supply chain responsiveness would further enhance the future outcomes. Also include more detailed conceptualisations of switching costs to gain a deeper knowledge of potential links and improve the diagnostic value of the mechanisms that drive supplier retention. Future research

should also examine the impact of other variables that can mediate the relationship between supplier switching cost and supply chain responsiveness in this model.

11. CONCLUSION

The findings reveal that the direct relationship between supplier switching costs and supply chain responsiveness is not significant. Thus, this relationship might be influenced by a different intervening variable. Furthermore, the impact of procedural, financial, and relational switching costs on the desire to stay with the current supplier will vary based on the specific relationship attaching the focal firm to the supplier. The findings also exposed that supplier switching costs do not play a significant role in the price and product competition in the manufacturing sector in Sri Lanka.

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ANNEXURE

Variable wise statistics

Item Statistics				Item Statistics			
	Mean	Std. Deviation	N		Mean	Std. Deviation	N
PSC1	4.29	1.738	168	flexibility1	4.55	1.670	168
PSC2	4.43	1.756	168	flexibility2	4.96	1.697	168
PSC3	4.65	1.533	168	flexibility3	4.26	1.689	168
PSC4	4.37	1.708	168	flexibility4	4.87	1.302	168
PSC5	4.35	1.748	168	flexibility5	4.80	1.664	168
PSC6	3.95	1.517	168	flexibility6	4.46	1.677	168
PSC7	4.42	1.725	168	flexibility7	4.32	1.749	168
PSC8	4.39	1.758	168	operes1	3.97	0.815	168
PSC9	4.90	1.731	168	operes2	3.96	0.803	168
PSC10	4.88	1.242	168	operes3	3.83	0.933	168
PSC11	4.36	1.745	168	operes4	3.83	0.838	168
PSC12	4.38	1.750	168	operes5	4.02	0.811	168
PSC13	4.48	1.551	168	operes6	3.81	0.966	168
PSC14	4.53	1.555	168	operes7	3.81	0.840	168
PSC15	4.64	1.522	168	logres1	3.26	0.758	168
PSC16	4.15	1.603	168	logres2	3.32	0.898	168
PSC17	4.25	1.519	168	logres3	3.19	0.875	168
PSC18	4.19	1.532	168	logres4	3.43	0.747	168
FSC1	4.60	1.477	168	logres5	3.58	0.696	168
FSC2	4.83	1.588	168	netwres1	3.39	0.675	168
FSC3	4.96	1.675	168	netwres2	3.26	0.728	168
FSC4	4.55	1.413	168	netwres3	3.78	0.746	168
FSC5	4.13	1.707	168	netwres4	3.66	0.733	168
RSC1	4.26	1.583	168	netwres5	3.79	0.874	168
RSC2	4.88	1.164	168	netwres6	3.72	0.804	168
RSC3	4.45	1.555	168				
RSC4	4.88	1.229	168				
RSC5	4.55	1.488	168				
RSC6	4.32	1.583	168				
RSC7	5.36	1.752	168				

Procedural. Switching Costs (PSC)

Financial. Switching Costs (FSC)

Relational Switching Costs (RSC)

Operations System Responsiveness (OSR)

Logistics Process Responsiveness (LPR)

Supplier Network Responsiveness (SNR)