Lean Supply Chain Practices and Strategic Partnership with 3PLs for Supply Chain Performance: A local firm perspective

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Abstract

Supply chain performance have been discussed under efficiency and responsiveness measures in which this study argues that these two constructs are interrelated but opposing elements (duality). However, Qrunfleh and Tarafdar (2013) have empirically proven that the relationship between lean supply chain strategy and SC responsiveness is mediated by strategic partnership when the supply chain activities are outsourced. This study argues that the impact of 'Lean' practices are predominantly efficiency focused and hence Qrunfleh and Tarafdar (2013) study has to reconceptualised as supply chain performance rather than responsiveness. Thus, the primary purpose of this research is to uncover how lean supply chain strategies drive supply chain performance when the supply chain activities are managed by outsourced parties. This study analysed 106 usable responses from 300 of population. The unit of analysis is manufacturing organizations in Sri Lanka who have outsourced at least one of their logistic activities to 3PL(s) and respondents were middle level managers. The data were analysed with Smart PLS. The finding indicates that, strategic partnership partially mediates the relationship between lean supply chain practices to SC performance. It further reveals that a stronger strategic partnership results in a higher performance than the direct impact resulting from the lean practices. Thus, strategic partnership has become a requirement for not only responsiveness but also for efficiency. This study suggests that the collaborative planning, and trustworthiness as the most important considerations in a strategic partnership which leads to a beneficial partnership.

Keywords: Lean Supply Chain practices, Supply Chain Performance, Strategic Partnership, 3PLs

Introduction

The Lean Supply chain practice is one of the emerging concepts in Supply Chain (SC) management literature. Lean supply chain practice focuses on to eliminating excess inventory and improving the quality of parts, reducing unnecessary cost and set-up time, adjusting capacity, and responding quickly to the customer (Banomyong & Supatn, 2011). Qrunfleh and Tarafdar (2013) stated that the strategic partnership with outsourced parties mediate the relationship between lean supply chain strategy and SC responsiveness. Though, the concept of responsiveness has been receiving increasing attention in the area as one of the key supply chain performance indicator, it is questionable that to what extent a lean concept is linking to enhance the responsiveness of a supply chain. A responsive supply chain is distinguished by short production lead-times, low set-up time, and small batch sizes that allow the responsive

firm to adapt quickly to market demand, but often at a higher unit cost. An efficient supply chain is distinguished by longer production lead-times, high set-up costs, and larger batch sizes that allow the efficient firm to produce at a low unit cost, but often at the expense of market responsiveness (Randall, Morgan & Morton 2003; Corswant et al. 2004). Thus, efficiency and responsiveness perceived as a duality that are opposing elements which are interrelated. Thus, this paper argues that, the impact of lean SC practice manifests not only in responsiveness but also in SC performance in general. Thus, the purpose of this study is to investigate on how the strategic partnership of outsourcing impact on supply chain performance when lean supply chain practices are being executed.

Gulati (1999) expanded the resource based view to oversee the competitive advantage of interconnected firms and stated that organizations vary considerably in their network resource endowments that influence their competitive advantage. A business collaboration is defined as "a collection of loosely connected or closely knit organizations that share resources," which may help member organizations achieve some strategic objectives (Arya & Lin, 2007). This definition implies not only assets specificity but also relational aspects also plays in achieving strategic objectives as explained by the social network theory. Hence, the theoretical contribution of this study is to explain the strategic importance of relationship in a collaborative business context.

Literature review

According to (Mohommed, Shankar & Banwet, 2008) an important paradigm being experienced in manufacturing organizations worldwide is the concept of manufacturing outsourcing or externalizing of activities to create efficient and effective networks of value chain. Commercial, communications and logistics links in the chain act as a barrier to the smooth flow of demand information in one direction and rapid supply of goods in the other direction as there are lags in the response time (Mohommed et al., 2008). Firms are motivated to outsource their logistics activities to achieve certain objectives such as reduce cost (Jiang et al., 2006; Lau & Zhang, 2006; Aimi, 2007), improve product quality (Bardhan et al., 2006), improve flexibility (Lau and Zhang, 2006), and increase market share (Skjoett-Larsen, 2000). Wiengarten, Pagell, & Fynes, (2013) elaborate that through collaboration and coordination, companies can increase flexibility and on-time delivery and can even become more innovative, whilst a lack of coordination and collaboration activities can have an adverse effect on performance. Thus the impact of collaboration is mixed (i.e. both efficient and effective).

According to Mellat-Parast and Spillan (2014), Elliott (2006) indicates that for most organizations the objective is to achieve 20 per cent cost reduction (in direct labour and variable cost) and, within the last decade, 3PL has experienced significant growth (Knemeyer & Murphy, 2005; Lieb, 2008). Several operational and strategic variables motivate firms to use third-party capabilities and competencies and, such decisions enable organizations to develop expertise and necessary capabilities that are critical to their success in the marketplace (Halldorsson & Skjott-Larsen, 2004; as cited in Mellat-Parast & Spillan, 2014).

The coordination of processes and achievement of synergies can be further supported by outsourcing processes at the interfaces to third parties, such as logistics service providers (Spencer et al., 1994; as cited in Reichhart & Holweg, 2007)

Other than cost reduction, Wiengarten, Pagell, & Lynes, (2011) elaborate that through collaboration and coordination companies can increase flexibility and on time delivery and can even become more innovative, whilst a lack of coordination and collaboration activities can have an adverse effect on performance (Lee & Billington, 1992).

By considering several benefits of logistics outsourcing, there have also been reported in literature, such as increased market coverage (Skjoett-Larsen, 2002), improved customer service (Richardson, 1995), reduction in capital investments (Richardson, 1995). Also cost savings (Lau and Zhang, 2006; Richardson, 1995) and reduction in the complexity of logistics operations reported (Bradley et al., 1995), and increased flexibility towards the changing requirements of customers also reported by through several articles. (Hilmola, 2010 as cited in Lau & Zhang, 2006)

Hence, the relationship between lean supply chain strategy and supply chain performance mediate by strategic supplier partnership with 3PLs. In Qrunfleh & Tarafdar's (2013) research, they find that there is a significant mediation effect of strategic supplier partnership on the relationship between lean supply chain strategy and supply chain responsiveness. Mohommed et al. (2008) elaborates that the decision to externalize a business process is strategic in nature and is driven primarily based on competitiveness consideration.

Measures

Lean SC strategy:

Lean supply chain strategy is aimed at creating cost efficiencies in the supply chain by effectively managing inventory and focusing on improving the quality in the supply chain, thus eliminating waste (Qrunfleh & Tarafdar, 2013). This study uses the indicators developed by Qrunfleh & Tarafdar (2013)which consist of 7 items which measured with five point Likert scale (1=Strongly Agree, 5= Strongly Disagree).

Supply chain performance:

Supply chain Performance: Performance measurement is the process of quantifying the effectiveness and efficiency of action where measurement is the process of quantification and action leads to performance (Shepherd & Gu¨nter, 2006). Effectiveness is the extent to which a customer's requirements are met and efficiency is a measure of how economically a firm's resources are utilised when providing a pre-specified level of customer satisfaction. Zaman & Ahsan (2014); Answers have to be given in a 1-5Likert scale. (1=Worse than before outsourcing, 5=Better than before outsourcing)

Strategic Partnership

Strategic Partnership with 3PLs: Long term and collaborative relationships are usually termed as "strategic alliances/partnerships". 3PL providers develop innovative services to satisfy the specific demands of the customers which are eyeing for long-term and collaborative

relationships. Sharma & Choudhury (2014). Three questions will be asked to test strategic partnership. Measured using 5 point Likert scale (1=Strongly Agree, 5= Strongly Disagree)

Methodology and Data Analysis

Data was collected through a questionnaire responded by middle management level staff of the identified focal firms who handled the 3PLs. There was a preliminary investigation on the 3PLs in Sri Lanka and their clientele, in order to obtain contact details of the suitable sample. Accordingly, this study collected 110 usable responses from 300 of population. Specifically, the unit of analysis is manufacturing organizations in Sri Lanka that have outsourced at least one of their logistic activities to 3PL(s). The collected data were preliminary scanned for accuracy and precision prior to analysis. Tests for outliers and missing values cause to exclude two cases also and hence only 106 cases were forwarded for the final data analysis. The study Model depicts in Figure 1.

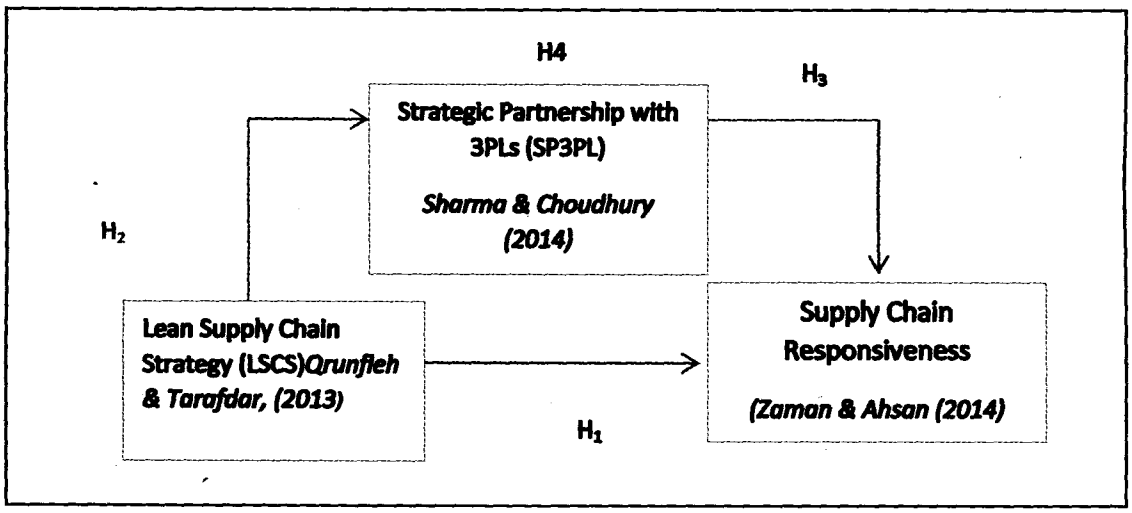

Figure1: Conceptual Framework

Nearly 50% of the companies that have outsourced their logistic with one 3PL partner whilst the rest of the sample have partnered with more than one 3PL. Among them 32% of companies have two 3PLs, 12.3% have three 3PLs and nearly 7% have more than three 3PLs. A measurement model is developed to validate the questionnaire. Since the data was non-normal and also sample size is considerably small SmartPLS is applied to test hypothetical relationships (Chengalur-Smith et al.,2012; Hair et al., 2011). Figure 2 depicts the empirical model of this study.

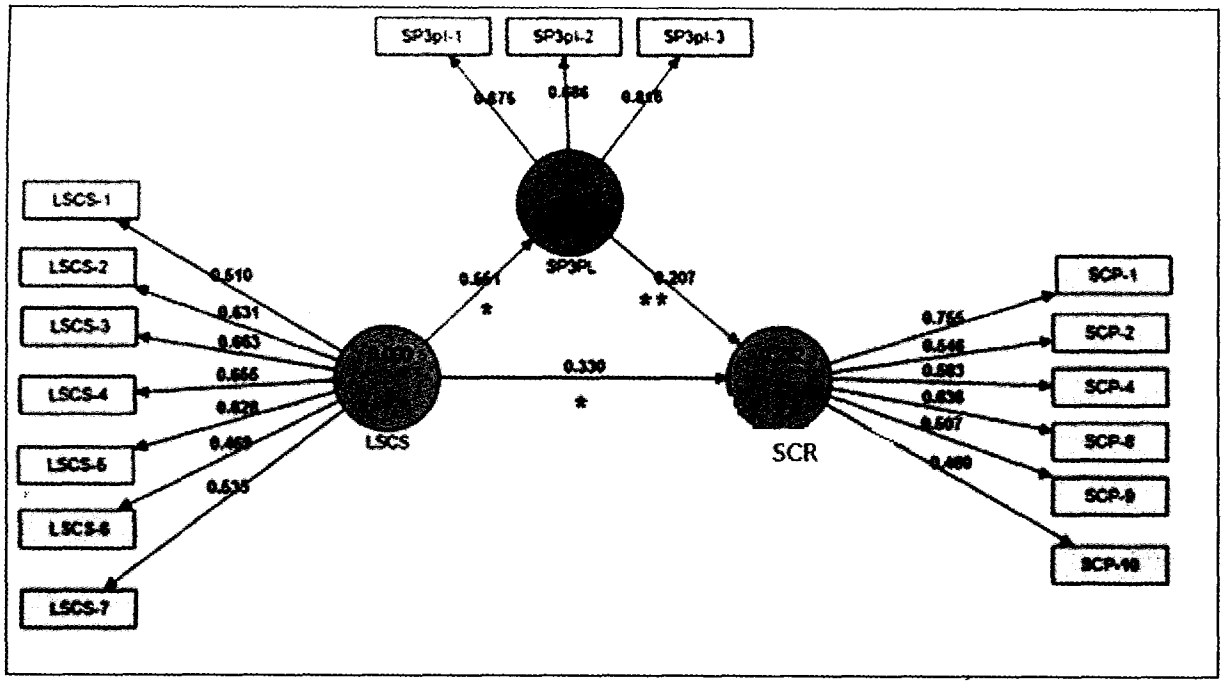

Figure 2: Empirical Model

*Significant at 1% level, ** Significant at 5% level

The direct effect of a lean supply chain strategy to SC performance is significant (β=0.330; P < .01) and it implies that the presence of a lean supply chain strategy in a focal firm directly affects in supply chain performance. H2 reports a standardized β= 0.551, P <.01 and hence it is also accepted. Therefore, it is evident that the presence of a lean supply chain strategy triggers the practice of strategic partnership with 3PLs. H3 tests the direct effect of a strategic partnership with 3PLs to SC responsiveness and reported a is significant (β= 0.207; P<.05). This indicates that a strategic partnership with the 3PL leads to increase in supply chain performance.

H4 tests the mediation effects of strategic partnership to the relationship between lean supply chain practices to SC responsiveness. Both indirect path (i.e. LSCS→SP3PL→SCP) and direct path (i.e. LSCS →SCP) are significant at 5 percent level and hence reported a significant total effect at 5 percent level (β=0.744). This finding indicates that, strategic partnership partially mediate the relationship between the lean supply chain practices to SC responsiveness.

The main theoretical contribution of this study is the empirical justification of mediating effect (partial) of strategic partnership with 3PLs on the relationship between lean supply chain strategy and supply chain performance. Comparing the path values, it was also revealed that the indirect relationship is strong than the direct relationship. Thus strategic partnership has become a requirement for not only responsiveness but also for efficiency. As the study highlighted the responsiveness and efficiency are not taken as two independent constructs (i.e: dualism) but opposing elements which are interrelated (i.e: duality). Accordingly, this research concludes that, the impact of lean Sc and strategic partnership enhances the SC performance as a whole. However in future researchers can further investigate the impact of

lean SC is more to efficiency or for responsiveness and does the intensity of strategic partnership matters in resulting different outcomes. This study further suggests that the collaborative planning, and trustworthiness as the most important considerations in a strategic partnership which leads to a beneficial partnership. The contextual contribution of this study is that the phenomena captured by this study have not been empirically investigated in Sri Lanka. As a result, Sri Lankan, multinational and large companies practicing lean SC practices can apply 3PL outsourcing to enhance their SC performance to a greater extent.

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