

Effects of Supply Chain Practice, Competence and Concern on Supply Chain Performance: A study of Small and Medium Enterprises in India

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Abstract

Supply chain management (SCM) practices have become a key determinant of competitive advantage of business enterprises. Effectively carried out supply chain management practices provide a strategic improvement to supply chain performance and thereby increases the performance of companies. The present study examines the dimensions of supply chain management components (practices, competences, and concerns) and their relationship to supply chain performance. Data was collected from 250 medium and small enterprises of Madurai District in Tamil Nadu, between December 2016 and July 2017. The enterprises were selected using simple random sampling. The relationship between supply chain management components and supply chain performance was investigated using structural equation modeling. The resulting model indicated that supply chain management practices, competence, and concerns have a direct, positive impact on supply chain performance. Recommendations for improving operational capability are provided accordingly.

Keywords: Supply chain management; supply chain performance; competitive advantage

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1. Introduction

Globalization has transformed the world and affects the competitive environment of companies. This competition is related to cost and price of products and services, speed of production and access to markets as well as adaptation to technology (Wirtz, Tuzovic, & Ehret, 2015; Zainol, Abas & Ariffin, 2016). Even though small and medium enterprises (SMEs) are the back bone of the Indian economy, with a large domestic market for its products and services, many small and medium enterprises (SMEs) in India fail due to their inability to cope with micro and macro challenges. Many are unable to maintain their position in the market and have difficulty to enhance their performances, particularly supply chain performance (Negi & Anand, 2015; Mani et al., 2016). Therefore, there is growing attention by many firms on effective supply chain management (SCM). Indian manufacturing firms, especially SMEs, have to improve quality and service consistently. Also, SMEs have to offer quality and customized services at an affordable cost to their customers using the best manufacturing practices with decreased delivery time and a reliable customer service. The ultimate purpose of an SME is to provide its customers with the greatest service efficiently and effectively (Handfield and Nichols, 1999; Broulakis et al., 2014). Customers may give more importance to variables such as affordability, timely delivery, and delivery date certainty (Simchi-Levi et al., 2003; Avittathur & Jayaram, 2016). Numerous research studies (Mitra, & Datta, 2014; Beske, Land & Seuring, 2014; Govindan et al., 2015) have demonstrated that integration and association in the supply chain practices can provide vital benefits to the organization. According to Chen and Gong (2013) and Sabri and Beamon (2000), supply chain is a set of facilities, suppliers, customers, products and methods of controlling inventory, purchasing and distribution that are involved in manufacturing a product, and or delivering a service to the end users.

Supply chain management was developed to express the need to integrate the key business processes from end user through potential suppliers. The supply chain is a network of interconnected organizational entities with the sole objective of getting the right product or service to the right place at the right time. Supply chains are divided into two categories: supplier-oriented linkages and customer oriented linkages (Kotler and Armstrong, 2010). To extend the firm's competitiveness and performance, SCM is a valuable approach (Ince et al., 2013). Ou, Liu, Hung and Yen (2010) showed that customer-firm-supplier relationship enhances operational performance and customer satisfaction. According to Fraza (2000), supply chain management is directly related to relationship management, which includes suppliers and customers. Despite an increased attention paid to SCM practices by authors and practitioners, failures exist in the effective implementation of SCM.

Therefore, this study attempts to develop a conceptual framework to illustrate the relationships among SCM practices, competence, and concern on supply chain performance. It examines

the relationship between the variables presented within the context of the small and medium enterprises in Madurai district of Tamil Nadu, India. The current research work developed a tool to investigate SCM practices and the development of supply chain performance. The results allow us to identify the major component(s) that have a statistically significant impact on supply chain performance. Identifying these components enables the SMEs managers and supply chain managers to prioritise the supply chain practices which have the most impact.

2. Literature Review

2.1 Supply Chain Practices

SCM practices are a set of activities undertaken by an organization to promote efficient management of its supply chain (Karimi & Rafiee, 2014). According to Li et al. (2006), it is a set of practices to handle the functioning of a supply chain effectively. SCM practice may directly impact competitive advantage (Li et al., 2006). SCM practices include supplier partnership, outsourcing, cycle time compression, continuous process flow, and information sharing (Donlon, 1996). Paulraj et al. (2006) state that effective supply chain practices consist of strategic purchasing from a limited number of suppliers, long-term, trustworthy relationships with suppliers; logistics integration, and two-way communication; inter-organizational systems, and supplier involvement in design, procurement and production.

2.2 Supply Chain Concerns

Supply chain concerns have been defined as the issues that prevent an organization from achieving the full potential of their supply chain management (Chow et al., 2008). Enterprises come across complex issues because of over dependence on suppliers which affect their core capabilities (McMullan, 1996). A supplier evaluation system can reduce purchase risk and maximize the overall value for the buyer. It typically involves assessing, at a minimum, supplier quality, cost competitiveness, potential delivery performance and technological capability. On the other hand, organizations which have developed and implemented a supplier evaluation system for effective supplier management can fail to achieve the full potential of their supply chain management because of too much time spent on supplier evaluation (Sachan & Datta, 2005; Prajogo & Olhager, 2012). Stank et al. (2011) identified critical supply chain knowledge issues such as talent, technology, internal collaboration, external collaboration and managing supply chain change as factors that influence the performance of supply chains. Therefore, firms should concentrate on these issues to align organizational goals with SCM goals.

2.3 Supply Chain Competence

Supply chain competence is a portfolio of organisational, managerial, technical and strategic capabilities and skills developed by enterprises over time (Handfield et al., 2015; Chow et al., 2008). Supply chain competence is a fundamental pre-requisite for firms to respond to market and financial risks and to achieve and maintain their supply chain performance and firm performance (Ellinger et al., 2012; Karimi & Rafiee, 2014). Supply chain competencies are the capacity of the firms to be in total power and control of supply chain procedures and performance in spite of issues of environmental determinants (Yusuf et al., 2014). The supply chain agility can be described as a firm's ability to adjust tactics and operational procedures within its supply chain quickly. There exists a strong relationship between agility of supply chain dimensions (alertness, accessibility, decisiveness, swiftness, and flexibility) and business performance (Sangari et al., 2015; Shin et al., 2015; Kumar & Nambirajan, 2014). Supply chain agility has a significant impact on competitiveness and business performance (Yusuf et al., 2014). There is a direct association between supply chain competence and firm performance (Tan, 2002). Supply chain competence comprise of the planning of supply chain, in-order management, service fulfilment and procurement of raw material in an effective manner (Tan, 2002). Chow et al. (2008) found that supply chain competence has a very positive effect on firm performance in both US and Taiwanese manufacturing enterprises. Ellinger et al. (2012) found that higher supply chain competence exerts an impact on customer satisfaction, firm performance and shareholder value.

2.4 Supply Chain Performance

Measurement of supply chain performance should offer the business an outline of how their supply chains (SCs) are economical and sustainable (Gunasekaran, Patel, & Tirtiroglu, 2001; Ganeshkumar, 2016). The performance of the supply chain should be considered at tactical, strategic and operational levels (Deshpande, 2012). Tactical measures include product development cycle time, purchase order cycle time, planned process cycle time, delivery reliability, responsiveness to urgent deliveries, and effectiveness of distribution planning. Strategic performances include customer query time, level of customer perceived value of product, order lead time and flexibility of service systems. Operational level measures include capacity utilization, adherence to schedule, inventory management, and achievement of defect free deliveries along with commercial and non-commercial perspectives (Gunasekaran, Patel, & Tirtiroglu, 2001). Cohen and Lee (1988) identified cost and supply chain flexibility as important measures of supply chain performance. Christy and Grout (1994) suggested that customer responsiveness is an important dimension of SCM performance. In manufacturing firms critical SCM components interact with supply chain performance to influence organizational

performance (Ganesh & Nambirajan, 2013). Sundram et al. (2011) found a direct relationship between supply chain practices and supply chain performance.

Sukati et al. (2012) studied the relationship between supply chain strategy, supply chain practices, and supply chain performance. The study revealed that supply chain practice has a significant effect on supply chain performance while supply chain strategy has a weak influence on supply chain performance. Qrunfleh and Tarafdar (2017) tested a conceptual model to find out the impact of supply chain information strategy on supply chain performance and organisational performance of 205 manufacturing firms. The results indicated that there is a significant and positive association between supply chain responsiveness and organisational performance. Furthermore, supply chain performance has a mediation effect on supply chain information strategy and corporate performance (Wolf, 2014; Alfalla-Luque et al., 2015). To construct an effective measure of supply chain performance, all the different dimensions of SCM performance need to be considered simultaneously.

2.5 SMEs and Supply Chain Management Adoption

To be successful in supply chain management, enterprises should share their stock, production and promotion estimations and plans with customers and suppliers (Katunzi & Zheng, 2010). For Arend and Wisner (2005), SMEs generally are not able to execute SCM to its maximum capacity as they are indirectly managed by customers and have to comply with standards specified by the buyer. Çalıpınar (2007) opined that SMEs do not always include buyers in strategic planning, do not make long-term contracts, do not integrate with bearer enterprise and are not willing to operate in SCM in the long term. According to Chen et al. (2004) SMEs in the supply chain have limited resources, and they want to protect themselves from competitive advantage of big enterprises (Katunzi & Zheng, 2010; Karimi & Rafiee, 2014). Supply chain inefficiency is one of the most prevalent issues facing the SMEs (Lewis, 2005).

3. Research Framework

The following is the conceptual model used in this study:

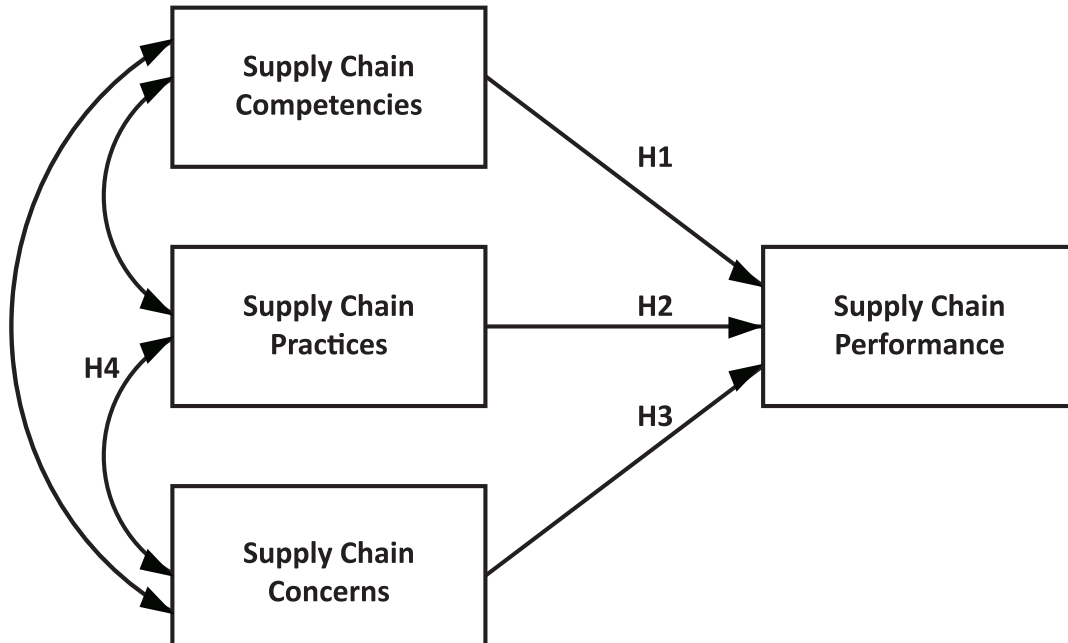


Figure 1: Conceptual model used for this study

This conceptual model and the constructs were adopted from a study done by Kumar & Nambirajan (2013b) to investigate how supply chain management components and supply chain performance affect organisational performance by measuring moderating effects of supply chain practices clusters of manufacturing firms in the Union Territory of Puducherry, in Tamil Nadu, India.

Kumar and Nambirajan's (2013b) model was slightly modified based on the current research context (SMEs) for this study. Supply chain concerns, supply chain practices and supply chain competence have been taken as independent variables while supply chain performance has been considered as the dependent variable in the supply chain management components studied in this research. The hypotheses that were tested are presented below;

H1: Supply chain competences and supply chain performance are positively linked.

H2: Supply chain practices and supply chain performance are positively linked.

H3: Supply chain concerns and supply chain performance are positively linked.

H4: Supply chain concerns, Supply chain practices and Supply chain competences are positively related.

4. Research Method

Empirical data was collected through a survey questionnaire. The questionnaire was developed with validated measurement scales from previous studies that examined constructs similar to the present study (Ganeshkumar & Nambirajan, 2013; Kumar & Nambirajan, 2013b). The structured questionnaire had four sections. The first section consisted of 9 statements related to supply chain concerns. The second section consisted of 14 statements related to supply chain competences. The third section had 12 statements related to supply chain practices. The fourth section had 8 statements related to supply chain performance. All of the items were scored on a 5 point Likert- type rating scale ranging from 1 (very low) to 5 (very high) except for section three where the items were scored on a 5 point Likert- type rating scale ranging from 1 (Not at all implemented) to 5 (Fully implemented).

The target population of the study was small and medium enterprises in Madurai district, Tamil Nadu, India. Information about the SMEs was collected from the micro, small and medium enterprises (MSME) department of Tamil Nadu state government website. 29,485 SME units of Madurai District are registered with the MSME department. The targeted respondents for the questionnaire were primarily chief executive officers, managing directors, owners of firms or senior officers/executives in charge of supply chain practices in companies who would have adequate knowledge of how their firms carry out their supply chain functions and how effective is their performance.

Sample size was calculated using the Cochran's sample size formula, $n_0 = \frac{z^2 pq}{e^2}$, where e is the desired level of precision, p is the proportion of the population which has the required attributes, and q is 1-p and z value is found using a z table (Saunders, Lewis & Thornhill, 2016; p. 705). For this study, 90% confidence was selected (Z= 1.645), the 'estimate' needed to be accurate to within plus or minus 5 % of the exact percentage (the margin of error that can be tolerated). The estimate proportion is 50% with the understanding that 50% (p=0.5; q=0.5) SMEs have some level of knowledge about supply chain practices and performance. Based on this, the minimum sample size needed for the research is 271. Since interviewer-administered questionnaires were used to collect the data and the response rate for interviewer-administered questionnaires is 90%, 300 SMEs were randomly selected for the research. After the data collection, 50 questionnaires were removed from the research due to incomplete, biased and outlier issues. Only 250 completed cleaned data were used for calculation. Data was collected from December 2016 to July 2017.

As per the Indian MSME development act of 2016 (Ghatak, 2010), the classification of small and medium enterprises is done by the number of employees. If the number of employees is

between 10 and 49, that enterprise is considered as a small-scale enterprise (investment in plant and machinery is more than ten lakh rupees but does not exceed two crore rupees). If the number of employees is between 50 and 249, it is considered as a medium scale enterprise (investment is more than two crore rupees but does not exceed five crore rupees). In the present research, 168 firms were small-scale enterprises and the remaining 82 firms were medium sized enterprises.

5. Findings

5.1 The Measurement Model

It is necessary to test that the measurement model has a satisfactory level of validity and reliability before testing for a significant relationship in the structural model (Fornell & Larcker, 1981). Psychometric properties of the measurement model were evaluated with composite reliability (CR) and convergent validity. All constructs exhibited CR with the minimum acceptable level of 0.60, indicating good reliability. Fornell and Locker's average variance extracted (AVE) criterion is followed for the estimation of scales' convergent validity. AVE value of a latent variable should be higher than 0.50, to explain more than half of the variance of its indicators on average. As depicted in Table 1, all the latent constructs met this criterion.

Table 1: Validity and Reliability of the research scale

Factors	CR	AVE	MSV	MaxR(H)	1	2	3	4
SC Competence	0.966	0.671	0.621	0.968	0.819			
SC Practice	0.939	0.564	0.598	0.943	0.722**	0.751		
SC Concerns	0.955	0.704	0.659	0.958	0.539**	0.509**	0.839	
SC Performance	0.932	0.636	0.659	0.959	0.788**	0.773**	0.812**	0.797

Note: ** $p < 0.01$

The square root of the AVE for SC Practice is less than its correlation with SC Performance and the square root of the AVE for SC Performance is less than its correlation with SC Concerns. Other constructs like SC Competences and SC Concerns are satisfying the discriminant validity. By removing the items or variables in SC practice and performance will help to overcome the discriminant validity. Due to the importance of the constructs and its nature no variable was removed from the instrument.

5.2 Structural Model and Hypothesis results

The model possessed adequate goodness of fit with values for, GFI = .929, AGFI = .900, NFI = .931, CFI = .946, RMSEA = .078, and CMIN/df = 4.47. These values suggest an adequate fit to the model. Given the satisfactory fit of the model, the estimated path coefficients of the structural model were then examined to evaluate the hypotheses. Figure 2 depicts the standardized path coefficients, t-values, and coefficients of determination (R^2) of the latent variables. The results provide empirical support for the hypotheses that all the three dimensions of SCM (competence, practices, and concern) exert a significant impact on supply chain performance which is displayed in Table 2.

Table 2: Hypothesis testing using SEM

Dependent Variables	Independent Variables	Standardized Beta Value	Standard Error	T-value	p value
Performance	Practice	.303	.038	8.524	0.000**
Performance	Competence	.303	.033	8.508	0.000**
Performance	Concern	.494	.031	14.306	0.000**

Note: ** $p < 0.01$

Among the three components of SCM, supply chain concern (beta = .49) emerged as the most significant dimension directly influencing supply chain performance followed by practice (beta = .30) and competence (beta = .30). All the path relations are significant at 0.01 level. From the above relationship, it can be concluded that the hypotheses; H1, H2 and H3 are supported. The correlation coefficient between SCM (competence, practices and concerns) reveals that SCM competence and practices have 72% positive and significant relationship. SCM competence and concern have 54% positive and significant relationship. Finally, SCM practices and concern have 51% positive and significant relationship and, it can be concluded that the hypothesis H4 is supported.

Figure 2: Structural model

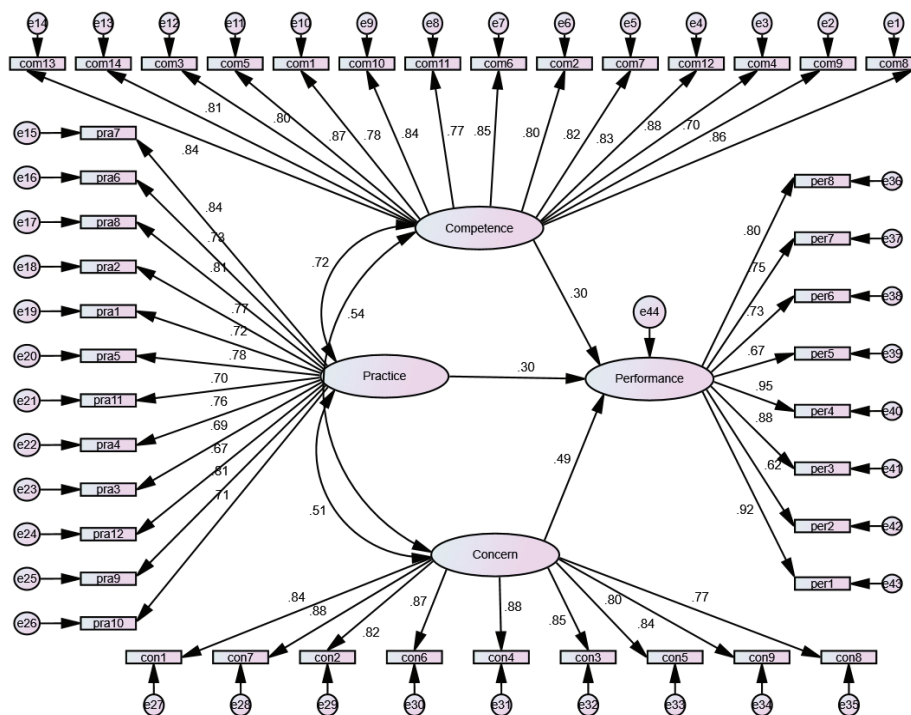


Table 3: Result of Supply Chain Competencies

Code	Statements	Beta Value	Standard Error	T-value	p value
com1	The ability to fill orders with improved accuracy	0.78	0.04	19.56	0.000**
com2	The ability to forecasting sales with greater accuracy	0.80	0.03	20.18	0.000**
com3	The ability to issue notice on shipping delays in advance	0.80	0.03	20.42	0.000**
com4	The ability to respond to a request in a timely manner	0.88	0.03	23.47	0.000**
com5	The ability to make high quality products	0.87	0.03	23.22	0.000**
com6	The ability to deliver high-quality services	0.86	0.03	22.48	0.000**
com7	The ability to respond to the needs of key customers	0.82	0.03	21.03	0.000**
com8	The ability to work with key suppliers	0.86	0.03	22.56	0.000**
com9	The ability to manage supply chain inventory	0.70	0.04	16.91	0.000**
com10	The ability to meet a delivery on promised date	0.84	0.03	21.95	0.000**
com11	The ability to enhance supply chain's position in terms of integrity	0.77	0.03	19.04	0.000**
com12	The ability to enhance supply chain's position in terms of social responsibility	0.83	0.03	21.33	0.000**
com13	The ability to design low-pollution production process	0.84	0.03	22.02	0.000**
com14	The ability to design low-pollution delivering process	0.81	0.03	20.70	0.000**

**p<0.01

From the above table, it can be concluded that all 14 competence items are significantly and positively influencing the supply chain competencies with lowest standard error and more than 0.5 beta value. Timely response to customer needs, delivery on the promised date, producing high-quality products and delivering high-quality services, and ability to work with suppliers are the most significant supply chain competencies rated by SMEs in this study. Design of low-pollution production process and low-pollution delivering process are also significant supply chain competencies rated highly by SMEs in the district of Madurai. This indicates concerns of SMEs in this region for environmental and social responsibility in rating supply chain performance. Due to strong legal procedures and high level of quality expectations from the customers, the SMEs in Tamil Nadu try to improve their competencies through the supply chain to respond to the changing context. These results are consistent with findings from other studies (Handfield et al., 2015; Derwik et al., 2016) and enhancing above stated competencies will help SMEs to create competitive advantage in the market which will reflect on their supply chain performance.

Table 4: Results of Supply Chain Concerns

Code	Statements	Beta value	Standard Error	T-value	p value
con1	Lack of sophisticated information system	0.84	0.04	21.62	0.000**
con2	Lack of ability in managing Supply chain inventories	0.82	0.03	21.12	0.000**
con3	Lack of cooperation among supply chain members	0.85	0.04	22.02	0.000**
con4	Lack of trust among supply chain members	0.88	0.04	23.44	0.000**
con5	Lack of interest among suppliers or customers	0.80	0.04	20.35	0.000**
con6	Competition from other supply chains	0.87	0.03	23.20	0.000**
con7	Firm's lack of leverage within supply chain	0.88	0.03	23.61	0.000**
con8	Suppliers' geographical distance	0.77	0.04	19.03	0.000**
con9	Customers' geographical distance	0.84	0.04	21.82	0.000**

**p<0.01

Table 4 results conclude that all nine statements related to supply chain concerns are significant and influences the overall supply chain concerns. Lack of trust among supply chain members, firm's lack of leverage within the supply chain, competition from other supply chains, lack of cooperation among supply chain members are primary factors affecting supply chain concerns. Followed by customers' and supplier geographical distance, lack of availability of a sophisticated IT system, lack of ability in managing supply chain inventories and lack of interest among suppliers or customers were supply chain concerns rated the lowest. Since supply chain management is a new and emerging concept, many SMEs in Tamil Nadu do not have a clear idea about the SCM procedure, and that makes SMEs face above stated SCM concerns (Ganeshkumar, 2016).

Table 5: Result of Supply Chain Practices

Code	Statements	Beta value	Standard Error	T-value	p value
pra1	Close partnership with suppliers	0.72	0.03	17.21	0.000**
pra2	Close partnership with customers	0.77	0.03	19.09	0.000**
pra3	Just in time (JIT) supply	0.69	0.04	16.27	0.000**
pra4	Strategic planning	0.76	0.03	18.63	0.000**
pra5	Supply chain benchmarking	0.78	0.03	19.57	0.000**
pra6	Managing multiple suppliers	0.74	0.03	17.82	0.000**
pra7	Holding safety stock	0.84	0.03	21.61	0.000**
pra8	Subcontracting	0.81	0.03	20.41	0.000**
pra9	E-procurement	0.81	0.03	20.49	0.000**
pra10	Outsourcing	0.71	0.04	17.09	0.000**
pra11	Third Party Logistics	0.70	0.03	16.71	0.000**
pra12	Few suppliers	0.67	0.03	15.68	0.000**

**p<0.01

Table 5 explains that all 12 potential supply chain practices identified from the literature have significant impact on overall supply chain performance. Holding safety stock, E-procurement, subcontracting, supply chain benchmarking, close partnership with customers and strategic planning are most significant practices, followed by managing multiple suppliers, close partnership with suppliers, outsourcing and third party logistics. Just in time (JIT) supply and managing very few suppliers are the least significant supply chain practices, rated by the participants in the current study. However, all 12 items do influence the overall supply chain performance (Carter & Rogers, 2008; Seuring & Müller, 2008; Wu et al., 2015).

Table 6: Result of Supply Chain Performance

Code	Statements	Beta value	Standard Error	T-value	p value
per1	Improvement in lead time	0.92	0.03	25.40	0.000**
per2	Improvement in inventory turns	0.62	0.04	14.47	0.000**
per3	Improvement in level of inventory write off	0.88	0.03	23.51	0.000**
per4	Improvement in time to market (product development cycle)	0.95	0.03	26.84	0.000**
per5	Improvement of defect rate	0.67	0.04	15.75	0.000**
per6	Improvement in order item fill rate	0.74	0.03	17.96	0.000**
per7	Improvement in stock out situation	0.75	0.03	18.43	0.000**
per8	Improvement in set-up times	0.80	0.03	20.24	0.000**

**p<0.01

Table 6 explains the overall supply chain performance. In this research, eight items were used to measure firms' supply chain performance. Beta values and p-values conclude that all of the eight performance related items were significant. The primary supply chain performance indicators are improvement in time to market, and improvement in the level of inventory write off, followed by improvement in set-up times, stock out situation and order item fill rate. In SMEs viewpoint, improvement of defect rate and improvement in inventory turns are not considered to be a reliable performance indicator, as indicated by the lower beta values for these measures. Many SMEs in Tamil Nadu have started to adopt quality management techniques to improve their performance (Kannan & Tan, 2005; Prajogo et al., 2016; Narula et al., 2018).

6. Conclusion and Implications

The main purpose of this research was to investigate the relationship between three SCM components and the supply chain performance. The results displayed that all three SCM components such as SCM practices, concerns and competences have a positive relationship to supply chain performance. It was also found that supply chain concerns have a higher influence on supply chain performance followed by supply chain practices and competences.

Supply chain concerns can be minimized by giving adequate training to supply chain managers, by utilizing third party logistic concepts to concentrate entirely on core business activities and outsourcing the non-core business activities.

Supply chain competence of SMEs can be enhanced if the quality of products manufactured is high. Hence, SMEs need to enhance their capacity to manufacture the highest quality products. The SMEs can implement total quality management techniques such as 5S, Lean Six Sigma, Just in Time, Poke-yoke, and ISO standards. By improving quality control, firms can enhance their overall performance. The SMEs in Tamil Nadu must rationally use their limited available resources to improve the performance and productivity of the firm and provide better value to customers to sustain a competitive edge.

Supply chain practices of SMEs can be enhanced through effective interaction and collaboration with customers (Chen et al., 2004; Chow et al., 2008). SMEs should maintain an intimate relationship with their customers, both industrial and end-user customers. SMEs can enhance their supply chain performance through effective inventory control (Deshpande, 2012; Nambirajan et al., 2013). Scientific techniques such as Economic Order Quantity and ABC Analysis etc. can be implemented effectively to control inventory levels and minimise wastage. Efficient and effective inventory management will improve the whole supply chain process for

flawless performance (Çalıpınar, 2007; Beske et al., 2014; Kumar & Nambirajan, 2013). Supply chain practices can be improved by monitoring the quality of products and adopting changes taking place in the environment to the product line by having an innovative outlook to practice (Ganeshkumar, 2016).

Many SMEs in the present study considered supply chain management as synonymous with integrated logistics management or supplier management. However, supply chain management is entirely distinct from these two disciplines. Some SMEs have started to realise the importance of SCM but they lack adequate knowledge about the various concepts, ideas and elements of SCM and to identify the critical SCM aspects. The research presented in this paper highlighted vital issues to be focused upon by the SMEs to enhance their supply chain competence, which will directly improve their supply chain performance. The current study found that supply chain concerns strongly influence the supply chain performance. Even though supply chain concerns are the most significant predictors of supply chain performance, as rated by participants in this study, it is necessary to check the significant relationship between the supply chain concerns, supply chain competencies and supply chain practices (table 1 and figure 2, Correlations). Hence, managers need to concentrate on improving the supply chain competence and supply chain practice, together with supply chain concerns to enhance the efficiency of their firms.

7. Limitations

The main limitations of the current study are sampling and methods. This study sample was collected from SMEs located in Madurai District and generalising the results to SMEs in other districts, and other industries will not be possible. The present study utilized a survey method, and the instruments were adopted from Kumar & Nambirajan (2013b) who had done the study in a different context. Interviewing respondents who showed good understanding of SCM could have added rich detail to how SMEs can utilize SCM effectively and this could have enabled to check if there were any elements that were not included in the survey which ought to have been included for specifically studying SCM in Madurai district. While this survey investigated managers' perceptions of supply chain management, the actual practice of supply chain management may be different. Hence using a multi-methods research method would have enabled for stronger interpretation of the data.

In this study, supply chain performance was considered as the dependent variable; in future studies, organisational performance could be included further as a dependent variable. Furthermore, this study examined only three key SCM variables to analyse supply chain performance. Future research could examine other relevant variables such as supply chain innovation and integrated supply chain and their impact on supply chain management components.

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