ORIGINAL RESEARCH PAPER

Management

Volume - 7 | Issue - 2 | February - 2017 | ISSN - 2249-555X | IF : 3.919 | IC Value : 79.96

Measurement model for Supply chain and Logistics practices in Grocery Retail

measurement model; logistics; supply chain; retail

Meena Madhavan

Doctoral Research Scholar, Alagappa Institute of Management, Alagappa University, Karaikudi, India.

Dr.Chandrasekar.K

Assistant Professor, Alagappa Institute of Management, Alagappa University, Karaikudi, India.

This research attempts to develop and validate the measurement model with special reference to logistics and supply chain practices adopted by retail sector. This study carried out an intensive literature review for developing the constructs with respect to logistics, supply chain, competitive advantage and firm performance. Among the several variables relevant to logistics and supply chain, this study aims to identify the important factors that affect Business Performance. Moreover, among several industries, retail industry has been selected to identify the logistics and supply chain practices. The reason behind developing the measurement scale is to formulate the conceptual framework for studying the causal relationship between logistics, supply chain, and competitive advantage on firm performance. Hence, this phase of the study focused on validating the measurement scale.

1. Introduction

Today retailers are being faced with many challenges. Increased competition is creating greater pressure on retailers to simultaneously control cost and improve customer service, modify the retail images through new technologies and shift to new retail format. The shift in the retail formats with increasing competition and a growing demand for operational efficiencies and customer orientation, retailers are looking beyond their organizational boundaries to develop and leverage the resources and capabilities of their supply chain partners to create superior value and competitive advantages in the marketplace. Integration of supply chain partners and retailers already exist in the pace. But the level of complexity of coproducing competitive advantage has reached its new heights (Ganesan, George, Jap, Palmatier, and Weitz, 2009). Globalization necessitates greater attention to logistics and to other component elements of supply chain management (Storey, Emberson, Godsell, and Harrison, 2006). It is essential for the retailers to derive new strategies and approaches in collaboration with the supply chain partners to achieve profitability through competitive advantage (Ganesan, et al., 2009). Therefore, the retailers are keener to evaluate and integrate the supply chain network to enhance their business performance. Carter and Ferrin (1995) stated that supply chain management integrates logistics in a strategic perspective for making business decisions. However logistics is the heart of retail business, which would have impact on retail business as well as reflect on the manufacturers and other stakeholders of retail business. Hence, the researcher felt it is important to address these issues in the strategic perspectives as retailing is emerging drastically in Tamil Nadu, India. This study attempts to narrate the broad changes in the discipline of logistics and its strategic concerns in grocery retail environment. Further, the measurement scale would be developed and validated; and it could be utilized for measuring the impact of logistics practices on retail firm performance.

2. Literature review

This literature review aims to primarily identify and thoroughly ascertain the body of logistics and supply chain practices and its connected tasks that impact on competitive advantage and affects Firm performance. Initially the study would be conducted in two phase. First, carefully review would be carried out to specify the concept in domain area. Next, the study would develop the constructs based on the literature; then the measurement model would be developed and tested for validity and reliability to suggest whether the model is fit to apply in reality. Hence, this literature review aims to add to the existing knowledge by formulating and empirically investigating the measurement model for the constructs supply chain management, logistics practices competitive advantage and firm performance.

2.1 Relevance of logistics and competitive advantage

Today's competitive environment is demanding the different business industries with high complexities for conducting business successfully. Uncertainty in business organizations creates challenges for attaining competitive advantage. The corporate strategists face difficulties in developing and implementing strategies within short time. Hence it is difficult to attain competitive advantage in the uncertain environment. Porter's Theory about the sources of firms' competitiveness, both views agree that it is generating a 'competitive advantage' that makes a firm outperform another (Porter, 1980; Barney, 1991). Further to probe, the business organizations must find a new way of doing business to attain competitive advantage. It is believed that competitive advantage could be attained through effective logistics and supply chain practices, which would be viewed as strategic supply chain management. Thus it would enhance the firm performance by providing superior value to its stakeholders over competitors. Effective logistics management may leads to increased efficiency and productivity, with decreased costs. With logistics management it is possible to achieve cost advantage and value advantage, which is termed as "Competitive Advantage" through "Service Excellence". Service excellence can be achieved by practicing on the following aspects viz. on-time delivery, JIT, value-added services, etc. Hence logistics management helps to achieve advantage with regard to both cost and value. It can be achieved through an integrative approach, effective capacity utilization, planning and co-coordinating the materials flow, supplier relationship management, reliability, responsiveness, etc. In other words, competitive advantage can be achieved through cost reduction and service enhancement.

2.2 Research Gap

Past studies integrated and found the relevance between logistics and strategic management (Cheng and Grimm, 2006; Ketchen and Giunipero, 2004; Abrahamsson, Aldin, Stahre, 2003); linked logistics practices with competitive advantage (Sandberg and Abrahamsson, 2011; Mentzer, Min, Bobbitt 2004; Hult, Ketchen D. and Arrfelt, 2007; Esper, Fugate, and Davis-Sramek, 2007; Morash, Droge, and Vickery, 1996; Ralston, Grawe S. J., and Daugherty 2013; Bowersox, Closs, Stank, 1999); and with firm performance (Gligor and Holcomb, 2014; Cho, Ozment and Sink, 2008; Lynch, Keller, Ozment, 2000; Ralston , Grawe S. J., and Daugherty 2013; Abrahamsson, Aldin, Stahre 2003). Therefore superior logistics practices and systems are used as a strategic weapon against competitors (Childhouse and Towill, 2003).

2.3 Logistics Practices

In this research logistics practices has been addressed with respect to various dimensions according to the retail setting viz. 1. Logistics efficiency, 2. Efficiency in warehousing, 3. Lean management, 4.

Volume - 7 | Issue - 2 | February - 2017 | ISSN - 2249-555X | IF : 3.919 | IC Value : 79.96

Flexibility in Operations, 5. Providing better service to customers, 6. Speed of delivery, 7. Distance of customer residence from retail store, 8. suppliers provide inbound logistics, 9. Suppliers deliver products on-time to meet the demand, 10. Suppliers effectively respond to our request on emergency orders, 11. Delivery Capacity, 12. Reliability of service, 13. Importance of third-party logistics; which could be together said as logistics capabilities also.

Researchers have addressed about the value creation through logistics management. Langley and Holcomb (1992) mentioned that in the competitive edge many companies are attempting to create different types of customer value through logistics by effective customer service (availability, consistency, timely delivery and other elements associated with customer service. Hence logistics function should be given more importance in any organization along with strategic management concept (Cheng and Grimm, 2006) as it is changing rapidly. Logistics is a strategic notion for improving company's performance through service quality & overall profitability (Ellinger, Daugherty and Keller, 2000). Also it could be viewed as a strategic weapon to achieve competitive advantage. Mentzer et.al. (2004) explored theory for logistics and classified four capabilities (demand management, supply management, information management and co-ordination), later analyzed its linkage with competitive advantage. Past studies have agreed the importance of logistics for achieving competitive advantage (Bowersox et.al., 1999; Zhao, Droge and Stank, 2001; Lynch et.al., 2000) also acknowledged by (Esper et.al, 2007;). Although logistics is an integral part of supply chain management (Morash et.al., 1996; Menzter, Min, Bobbit, 2004), it is crucial to establish logistics capabilities. Lynch et.al. (2000) empirically investigated the impact of logistics practices and strategy on firm performance in grocery retail industry. Further he suggested that firms need to align their strategy along with their logistics capabilities for improved firm performance.

2.4 Supply Chain Management Practices

Supply chain management practices involve set of activities carried out by a firm for managing the entire supply chain network effectively (Li, Rao, Ragu-nathan, and Ragu-nathan, 2005; Li, Ragu-nathan, Ragu-nathan and Rao, 2006; Koh, Demirbag, Bayraktar, Tatoglu and Zaim, 2007). And in other words, Supply chain management practices are concerned with effectively integrating with suppliers, manufactures, distributors, and customers to improve the long-term business performance and as well as supply chain performance. The goal of a supply chain should be to maximize overall supply chain profitability. The supply chain surplus argument implies that as retailing in India begins to consolidate, the role of distributors will diminish (Chopra and Meindl, 2007). The supply chain management practices has been addressed with respect to various dimensions viz. Supplier long term relationship/partnership, plan jointly and solve problems, maintaining good relationship with customers, measure customer satisfaction to set standards for reliability/responsiveness, inform distributors about changing needs of the customers, information sharing between suppliers/distributors, quality of information exchanged between distributors (accuracy, timeliness, adequacy), quality of information exchanged is complete and reliable, level of usage of ICT in firm (Bar coding and scanning, RFID), ICT for effective flow of information for co-ordination (JIT, inventory planning), reverse logistics of suppliers. And it is also supported by available literature, which is mentioned below. Further, the study develops assumptions that SCM practices are linked with competitive advantage and firm performance. Also, it is linked with logistics, as logistics plays a crucial role in overall success of the supply chain (Mentzer, et al., 2004).

2.5 Competitive Advantage and Firm Performance

Competitive advantage is unique characteristics of a firm and performs superior over their competitors (Porter, 1985; La londe, 1998). The competitive advantage is addressed in terms of 1. Offering at competitive prices, 2. Offering at lower price compared to competitors (offers and discounts), 3. timely delivery, 4. dependable delivery, 5. Quality aspects, 6. Reliability, 7. Customized products to meet demand, 8. responding to changing needs of the customers, 9. Branded groceries over private labels, 10. Geographical Proximity of the outlet, 11. Value added Services (membership, discounts), 12. Promotions (Coupons, prizes, free bies).

Porter (1985) stated that competitive advantage is a firm's ability to attain cost leadership and differentiate itself from competitors; also corroborated by (Tracey, Vonderembse and Lim, 1999). Competitive advantage is a set of distinctive competencies of a firm over their competitors. The competitive capabilities were explained in five dimensions viz. competitive pricing, value-to-customer quality, premium pricing, dependable delivery, & product innovation (Koufteros, Vonderembse and Doll, 1997) and also differentiation (Porter, 1985). Linkages often create trade-offs in performing different activities that should be optimized. This optimization may require trade-offs. Proper trade-off and co-ordination of linkages in the value chain allows delivering products on-time, which is a powerful source for attaining competitive advantage (Porter and Miller, 1985). Important competitive capabilities such as price/cost, quality, delivery dependability and time to market (Holweg, 2005) were identified by researchers (Diana Bratic, 2011; Vokurka, Zank and Lund III, 2002; Fawcett and Smith, 1995; Tracey et al., 1999; Roth and Miller, 1990) as sources of competitive advantage.

Firm performance could be classified as financial and non-financial measures (Demirbag, Koh, Tatoglu & Zaim, 2006). And the variables considered in this research for measuring firm performance are 1. Return on investment, 2. Return on assets, 3. Return on sales, 4. Overall quality of the service, 5. Overall growth and competitive position of the firm, 6. Customer satisfaction, 7. Delivery Performance, 8. Ability of the firm to adopt to new situations, 9. Employee satisfaction, 10. Market Share. Many researchers have classified the dimensions of firm performance in terms of Sales, PBIT, Market share and productivity (Cho, Lee, Ahn, Hwang, 2012). Other measures such as quality, customer service, and competitive position were indicated by (Lin, Chow, Madu, Kuei & Yu, 2005). Organizational performance is including both financial performance and market performance (Li et.al, 2005 and Koh et.al, 2007). The study by Venkatraman & Ramanujam (1986) mentioned that financial performance measures viz. profit, ROI, sales growth, business performance, and organization effectiveness.

Studies by (Porter 1980; Prahalad and Hamel 1990; March 1991) explained the relationship between competitive advantage and firm performance. Barney (1991) described the relationship between firm performance & competitive advantage. Li et.al (2006) revealed that there is a direct and positive impact of competitive advantage (cost, quality, reliability, flexibility, delivery) and firm performance. Nedra Bahri-Ammari (2013) study revealed that competitive advantage directly affects company's performance. Mansidao, Coelho (2014) developed a conceptual framework for logistics practices and its impact on competitive advantage and organizational performance. The study by Salam (2005) revealed that, the most critical set of the supply chain enablers contributing to firm performance is a combination of IT capabilities and integration via competitive advantage.

3. Research Design

3.1 Definition of target population and sampling frame

Target population of the research was determined based on the following parameters. 1. Logistics and Supply chain professionals/Store owners/managers working in grocery retail outlets across Tamil Nadu from 12 city corporations viz. Chennai, Coimbatore, Madurai, Tiruchirappalli, Salem, Tirunelveli, Dindigul, Tanjore, Tiruppur, Erode, Vellore, and Tuticorin, which includes major Tier I, II and III cities. Hence the sampling frame of the study is city corporations (including tier 1, 2, and 3 cities) in Tamil Nadu. 2. The Logistics and Supply chain professionals/Store owners/managers in organized grocery retail outlets based on the size (Over 1500, 1000

Volume - 7 | Issue - 2 | February - 2017 | ISSN - 2249-555X | IF : 3.919 | IC Value : 79.96

and 750 square feet based on the development of cities, which are super markets, departmental stores, convenience store formats and also include grocery retail outlets located in shopping malls. The population frame of the study was generated through following sources like Retailers Association of India (RAI), Federation of Indian Chambers of Commerce, personal & professional contacts and also through personal visit to the store with the prerequisite that such retailers/store managers/SCM/Logistics professionals agreed to cooperate for the study, easy to access, able to provide reliable information and the cognitive ability of the respondents to understand the theme of the research are duly considered.

3.2 Sampling Design and Method

A multi-stage sampling method has been adopted for the study. The study area is Tamil Nadu State. Initially, as per the requirement of the study, the samples were chosen using purposive sampling (city corporations, which have good number of organized grocery retail). Next, stratification is done based on the size of the retail outlets, in order to achieve the precision. Hence the grocery retail outlets have been classified into 3 stratums based on their size (information from Retailers Association of India) using stratified random sampling. Next, simple random sampling method is adopted to draw the respondents from each stratum by using random digit number table (Random number generator, n.d.). The population size was around 486; hence the sample size was estimated at 95 percent confidence interval i.e. 336.

3.3 Scale Development Process

This section explains all about the development and validation of survey instrument.

3.3.1 Initial Items Generation

The instruments for survey were based on the past literature that deals with the common theory related to the present themes of research. They are **(1) 'Logistics Practices' (LP),** initially 29 items were pooled from the literature related to logistics practices. They are (1) segmental focus, (2) relevancy, (3) responsibility, (4) flexibility, (5) information sharing, (6) information technology, (7) connectivity, (8) EDI, (9) on-time delivery, (10) strategic partnerships, (11) logistics integration, (12) reverse logistics, (13) efficiency, (14) low logistics cost, (15) better customer service, (16) logistics service differentiation, (17) accommodating special customer requests, (18) lean management, (19) warehouse management, (20) Inventory management, (21) demand & forecasting, (22) transportation, (23) purchasing and procurement, (24) order processing, (25) packaging, (26) reverse logistics, (27) cross docking, (28) 3PL, (29) distribution coverage (Langley and Holcomb, 1992; Mentzer et.al., 2004; Lynch et.al., 2000; Zhao et.al, 2001; Green, Whitten and Inman, 2008; Sutton, 1997; Ellram, Lisa, Londe and Weber, 1989; St.Onge 1996; Caputo and Mininno, 1996; Vollman, Berry and Whybark, 1997; Langley and Holocomb, 1992, Stock, Greis and Kasarda, 2000; Koh et.al., 2007, Morash et.al. 1996). **(2) 'Supply Chain Management Practices' (SCMP),** initially 34 items were pooled from the literature. They are (1) Supplier base reduction, (2) long term relationship, (3) communication, (4) supplier involvement, (5) cross-functional teams, (6) supply management, (7) external service quality, (8) TQM, (9) supplier participation and involvement, (10) customer satisfaction, (11) cooperative relationship, (12) use of technology or IT, (13) change in supplier market, (14) information sharing, (15) supply chain integration, (16) customer service management, (17) geographical proximity, (18) JIT capability, (19)supply chain collaboration, (20) information systems support, (21) logistics operations, (22) level of Information sharing, (23) quality of information sharing, (24) lean practices, (25), strategic planning, (26) outsourcing, (27) 3PL, (28) close partnership with customers, (29) e-procurement, (30) sub-contracting, (31) holding safety stock, (32) agreed vision and goals, (33) risk and reward sharing, (34) process integration. These items are originally available in the following literature (Koh, Demirbag, Bayraktar, Tatoglu, & Zaim, 2007; Ou, Liu, Hung and Yen, 2009; Carter and Narasimhan, 1994; Brookshow & Terziovski, 1997; Carr & Smelzer, 1999; Stanley & Wisner, 2001, 2002; Trent & Monczka, 1994; Carr and Pearson, 2002; Narasimhan, Jayaram and Carter, 2001; Ragatz, Handfield and Peterson, 2002; Ellram, Zsidisin, Siferd and Stanly, 2002; Zsidisin & Ellram, 2001; Chen & Paulraj, 2004; Radstaack Ketelaar, 1998; Cooper & Ellram, 1993; Hahn, Pinto, Brag, 1983; Clark & Fujimoto, 1991; Helper, 1991; Lamming 1993; Shin, Collier and Wilson 2000; Tan, Lyman and Wisner, 2002; Li et.al., 2005; Li.et.al., 2006; Balsmeir and Voisin, 1996; Moberg et.al., 2002; Li, suhong & Lin 2006; Lalonde 1998; Min & Mintzer, 2004; Stuart 1993). **(3) 'Competitive advantage'** major 18 items i.e. drivers were pooled from the literature. They are, (1) invest in cost-saving technology, (2) emphasize efficiency, (3) redesign products/services to reduce costs, (4) lower prices, (5) develop new products/services, (6) offer high quality products/services than competitors, (7) highly differentiated products/services, (7) offer products/services with distinct features, (8) time to market, (9) quality, (10) cost, (11) efficiency, (12) customer satisfaction, (13) profitability, (14) price, (15) sales growth, (16) inventory management, (17) identification of customer base, (18) value-added activities (Lynch et.al., 2000; Bagchi, P.K.,1996; Ferry, Kevin, Rodney, 2007; Udomleartprasert and Jungthirapanich,, 2003; Chen, Leu and Chiou, 2006; Stewart 1995; Zhao et.al., 2001; Singh, Sandhu, Metri, Kaur,2010, Li, Ragu-nathan, Ragu-nathan and Subba Rao, 2006; Sukati, Hamid, Baharun, Alifiah, Anuar, 2012). **(4) 'Firm Performance'** major 18 items were pulled from the literature. They are: (1) ROA, (2) low logistics costs, (3) customer satisfaction, (4) net profit margin, (5) ROI, (6) overall competitive position, (7) general profitability, (8) overall customer service, (9) sales growth, (10) market share, (11) overall product quality, (12) profit margin on sales, (13) market performance, (14) innovation & learning, (15) stakeholder satisfaction, (16) employee satisfaction, (17) overall quality, (18) delivery performance (Zhao et.al., 2001; Wisner, 2003; Wheelright 1984; Li, Ragu-nathan, Ragu-nathan and Subba Rao, 2006; Chow, Christin, Chu-Hua and Min, 2008; Fynes and Voss, 2002; Chen, Leu, Chiou, 2006; Zhang, Tian and Sun, 2006; Stewart, 1995; Tracey and Tan, 2001; Kannan & Tan, 2005; Kannan & Tan 2006; Tan 2002; Tracey, Vonderembse and Lim, 1999).

3.3.2 Qualitative Inquiry

The subject matter experts were conscripted for in-depth interview based on their expertise in the logistics and supply chain domain as well as in retailing domain. An in-depth was conducted with 7 managers from operations function, 7 managers from procurement function, 7 managers from inventory, maintenance, finance, warehousing, 5 Logistics and SCM specialist managers, 3 Business consultants, and few academicians from reputed business schools and engineering disciplines in India to uncover the reasons behind the influencing factors of various logistics and supply chain issues on firm performance.

3.3.2.1 Face Validity and Content Validity

The researcher briefed about the purpose of the research to subject matter experts on the domain of the study. The objective is to investigate the construct that have adequate and purport to measure the theme of the research concept. The experts were asked to evaluate the 99 research constructs and choose the constructs with respect to 1. Domain of the study, 2. Theme of the research, 3. Importance of the construct to measure the concept/theme, 4. Suitability of the construct to research phenomena, and 5. Compatibility of the construct that match with the purpose of the research. The research construct that doesn't match the criteria are rejected from the study. Moreover, few research constructs relevant to the research were recommended by the subject matter experts. The subject matter experts evaluated the instrument based on the insight of the meaning of the questions, question pattern, ease of understanding, time taken to answer the questions were also duly considered for refining the scale. The disagreements were solved by the discussion, until the consensus achieved. The researcher included the necessary suggestions provided by the experts. The refined research construct items for SCM, Logistics Practices (LP),

Volume - 7 | Issue - 2 | February - 2017 | ISSN - 2249-555X | IF : 3.919 | IC Value : 79.96

Competitive Advantage (CA), and Firm Performance (FP) were reduced to 10, 12, 12, and 7 respectively. In total, the research constructs were modified and reduced to 41 from 99 constructs.

3.3.3 Pilot Test and Sample Size Estimation

A pilot study was conducted among 30 respondents to measure the relationship among the scale constructs. The correlation among the items was measured. The coefficient of correlation score less than 0.4 was eliminated from the instrument and finally 20 items were selected and 26 items were deleted from the measurement scale, which also resulted same while performing first order CFA. Finally the scale consisted of 4 items on SCM, 5 items on Logistics Practices, 6 items on Competitive Advantage, and 5 items on Firm Performance. Finally, questionnaire containing 20 items on Logistics, SCM, Competitive Advantage and Firm Performance (5-Very Important, 4-Important, 3-Moderately Important, 2-Slightly Important, 1-Not Important) was developed.

The sample size is estimated based on the multi-stage sampling and analytical tool used in the study. Several studies in past literature suggested for estimating sample size based on exploratory factor analysis and confirmatory factor analysis (CFA). Rule of Thumb for minimum sample size- recommended as minimum 100 sample size (Gorsuch, 1983; Kline, 1979; MacCallum, Widaman, Zhang & Hong, 1999). Also, Hutcheson and Sofroniou (1999) recommended at least 150 - 300 cases; Cattell (1978) stated the minimum *N* to be 250, cited by (Nathan Zhao, 2009). MacCallum, Widaman, Zhang, & Hong (1999) has suggested that higher the sample size, less the occurrence of sampling error and misclassification of items into the different factors. They further argued that as proportionate increase in sample size, the sampling error gets reduced, and thereby the solution of factor analysis stabilizes and yields good factorial structure of the entire population. A profound understanding of the previous study on estimating sample size for factor analysis recommends that the minimum size of the sample around 170 is sufficient and more than 170 samples may yield better results.

3.3.4 Data Collection and Scale Calibration

Researcher has taken due care to ensure a varied sample of store managers/store owners with regard to level of management, functional area, role in making important decisions with regard to inventory, size of the outlet, knowledge of domain and geographical location. Priori permission was obtained from respective authorities, store owners, to collect the data. A clear instruction about the purpose of the research is informed to the respondents. Moreover, the meaning of the research constructs was explained to the respondents. And the questionnaire was developed both in English and Tamil to make the respondents to understand easily for some SCM/Logistics/Business terminologies. The respondents of the questionnaire are managers at middle managers and executive in the functions related to procurement, business analytics, finance and other operation decision in the retail setting. The interviews conducted with prior appointments from the respondents which has yielded higher response rate. The researcher has collected the data through interview scheduling/survey method and it was collected during the period of June, July, August, September 2015, February and March 2016, in order to cover the entire sampling unit/frame. The researcher has distributed around 450 questionnaires, and 386 valid responses were received. The subjects are more than estimated sample size of 170/meet the criteria of CFA, also higher than the estimated sample size in multi-stage sampling i.e. 336. The subjects almost meet both the sampling as well as analytical criteria to further proceed with the analysis.

3.3.5 Measurement Model

The Confirmatory Factor Analysis (CFA) was performed to ensure the convergent and discriminant validity. The results of the factors were used to analyze the scale dependability. The CFA was done using AMOS 21V, and the results of the measurement model is shown in (Figure.1 and Table.No.2).

3.3.5.1 Reliability and Convergent Validity

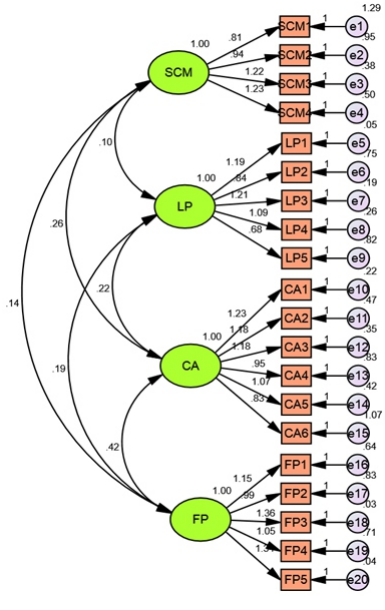
Nunnally and Bernstein (1994) suggested that Cronbach's alpha estimates ranging from 0.84 to 0.94 are acceptable, which means the scale holds good reliability and internal consistency. To assess the reliability and convergent validity, the measurement (CFA) model was developed. The reliability of each construct >0.7 is considered and that the scale is a reliable one and good indicator of convergent validity, where it satisfies the threshold levels AVE>0.5 and Composite Reliability > Average Variance Extracted (Hair, Black, Babin and Anderson, 2010). All confirmatory factor loadings are >0.5 are significant with t-values ranging from 11.87 to 26.71 (All t-values are found to be greater than 1.96 and significant at p-value 0.05 level). Hence the evidence of convergent validity is found in the measurement model (Table.No.1).

Table.No.1 Measurement Model Results

Variable	Results of Measurement Model (Confirmatory Factor Analysis)				
	Standard Solutions	Factor Estimates	t-value	Error Variance	R^2
Supply Chain Management					
Establishing long term relationship/ partnership (SCM1)	0.58	0.81	11.870	1.29	0.337
We frequently measure customer satisfaction to set standards for reliability/responsiveness and to maintain good customer loyalty (SCM2)	0.69	0.94	14.883	0.95	0.481
Information sharing between suppliers/ distributors in advance about events/ changes in the market, which helps to plan each other's business (SCM3)	0.89	1.22	21.036	0.38	0.797
Quality of information exchanged between distributors, suppliers using ICT (Bar Coding and Scanning, RFID) is effective, reliable and complete. (SCM4)	0.87	1.23	20.152	0.50	0.752
Logistics Practices					
Achieving logistics efficiency in transportation and warehousing (LP1)	0.98	1.19	26.705	0.05	0.968
Flexibility, Reliability and Timely delivery in operations (LP2)	0.70	0.84	15.569	0.75	0.485
Major Suppliers provide inbound Logistics (LP3)	0.94	1.22	24.578	0.19	0.885

Volume - 7 | Issue - 2 | February - 2017 | ISSN - 2249-555X | IF : 3.919 | IC Value : 79.96

Suppliers deliver products on-time to meet the demand (LP4)	0.90	1.09	22.971	0.26	0.819
Importance of third-party logistics (LP5)	0.60	1.68	12.853	0.82	0.359
Competitive Advantage					
We offer all our products at competitive prices (CA1)	0.94	1.23	24.135	0.22	0.874
Adhering to dependable delivery (CA2)	0.87	1.18	21.170	0.47	0.749
We give priority on quality aspect of the brands/products (CA3)	0.89	1.18	22.359	0.35	0.800
We provide customized products to meet the needs of the customers (private labels) (CA4)	0.72	0.95	16.145	0.83	0.520
We respond to changing needs of the customers for 'new' varieties (CA5)	0.86	1.07	20.755	0.42	0.731
Promotions (Coupons, Free Bies) (CA6)	0.63	0.83	13.432	1.07	0.393
Firm Performance					
Financial Performance (FP1)	0.82	1.15	19.759	0.64	0.675
Overall quality of the service (FP2)	0.74	0.99	16.907	0.83	0.544
Overall growth and competitive position of the firm (FP3)	0.99	1.36	27.264	0.03	0.984
Customer Satisfaction (FP4)	0.78	1.05	18.288	0.71	0.608
Employee Satisfaction (FP5)	0.99	1.34	27.050	0.04	0.976



Chi-square=438.145, df=164, RMSEA=0.066

Figure 1 Measurement Model

3.3.5.2 Discriminant Validity

The novel idea of discriminant validity is triggered by (Campbell & Fiske, 1959) and other experts in the field. It has been emphasized that validating a scale using convergent and discriminant validation techniques is very important for survey. Discriminant validity refers to the extent factors are distinct and uncorrelated. The rule is the variables must relate more strongly to their own factor than to another factor. The assessment of discriminant validity demonstrates that conceptual testing will not coincident or related to any such test that are developed for different concepts. In this research, the discriminant validity of the scale is assessed based on the approaches of (Fornell and Larcker, 1981). Moreover, it confirmed the existence of discriminant validity by satisfying the threshold levels i.e. MSV < AVE, ASV<AVE and Square root of AVE greater than inter-construct correlations (Hair, et.al., 2010).

Table. No.2

Column1	SCM	LP	CA	FP	Average Variance
SCM	**0.768115**	0.156	0.226	0.175	0.59
LP	0.156	**0.83666**	0.216	0.227	0.7
CA	0.226	0.216	**0.824621**	0.418	0.68
FP	0.175	0.227	0.418	**0.87178**	0.76

From the above table, it is confirmed that the AVE is greater than the inter-construct correlations and the correlation within the construct is greater than the inter-constructs. Hence, the measurement scale meets the criteria of discriminant validity (Table.No.2).

3.3.5.3 Overall Fitness of the Model

The overall model fit is at $\chi^2_{(164)}$=438.145, P=0.00(<0.05), RMSEA = 0.066 The four latent scales construct yielded better results. The measurement model meets the threshold levels indicated by Hu and Bentler (1999), which the CMIN/DF value of 2.672<3 indicates a good fit; whereas the P-Value is significant at 0.05 level. The Goodness of Fit Index (GFI) value of 0.904 is equivalent or greater than 0.90 indicates a good fit (Ahire, Golhar, & Waller, 1996). The Adjusted GFI (AGFI) value of >0.90 indicates a better fit. The Root Mean Square Error of Approximation (RMSEA) is 0.066, which is moderate level and this indicates sufficient unidimensionality <0.08 as stated by (Garver & Mentzer, 1999). Also he indicated that the value of comparative fit index (CFI) is 0.961, which is greater than 0.90 points out that the model is normed. The value of Normed-fit index (NFI) is 0.939>0.90, further it confirms and proves the existence of convergent validity (Ahire, Golhar & Waller, 1996). Further Tabachnick & Fidell (2007) pointed out that small Root mean square residual (RMR) of 0.08 indicates that the model is good (Table 3). The result of fit indices confirms that the model is good fit (Table.No.3).

Table. No.3 Threshold levels and Model Fitness

Fit Index	Obtained Value	Threshold Level	Fit Indices
RMR	0.087	<0.09	Good Fit (Hu and Bentler, 1999)
SRMR	0.05	<0.08	Good Fit (Hu and Bentler, 1999)
GFI	0.904	>0.90	Good Fit (Hooper, Couglan and Mullen, 2008; Joreskog and Sorbom 1984)
AGFI	0.877	>0.80	Good Fit (Joreskog and Sorbom 1984)
PGFI	0.706	Values close to 1	Good Fit
NFI	0.939	>0.95	Strong Fit (Bentler and Bonnet, 1980; Hu and Bentler, 1999)
RFI	0.929	Values close to 1	Good Fit (Hu and Bentler,1999)
IFI	0.961	Values close to 1	Very Good Fit

TLI/NNFI	0.954	>0.95	Good Fit (Hu and Bentler, 1999)
CFI	0.961	>0.95	Good fit (Hu and Bentler, 1999)
PNFI	0.810	Values close to 1	Good Fit
PCFI	0.829	Values close to 1	Good Fit
RMSEA	0.066	<0.05-0.10	Good Fit (Hu & Bentler, 1999; MacCallum, Browne & Sugawara,1996)

4. Discussion

The idea behind this research on supply chain, logistics, competitive advantage, and firm performance were empirically significant in the field of supply chain management and logistics study. The constructs were developed from literature and the variables used for survey are highly reliable. Many studies reported the supply chain on firm performance and logistics on competitive advantage and firm performance. This research is novel in its idea that developed constructs with an intention to develop a unified comprehensive model. Initially the developed scale items were tested for validity and reliability through measurement model. The measurement model results confirmed that the scale is highly reliable and valid. Next, the study would be taken to the next step for investigating the mediation effects and causation pattern of the constructs supply chain and logistics practices on competitive advantage and firm performance. The developed scale could be used by academic scholars, business consultants, and supply professionals for specific application in retail sector.

5. Conclusion

This research initially developed appropriate concepts in the domain area. Later the researcher formulated a measurement model to validate the constructs supply chain, logistics, competitive advantage, and firm performance. However, this research succeeded in probing the model fit of the measurement model with special reference to grocery retail. Besides, this research is not without limitations; the limitations could be considered as scope for further research in this domain area. The scale constructs developed in this research is applicable only for grocery retail with respect to the state Tamil Nadu, India. In other type of retail stores logistics may not play an important role. Thus, the generalization of the scale to other industry or region should be considered carefully. Then, the sample of this study is adequate, still a country based findings would provide a better outcome. Further researches could be conducted in this domain, as retailing and logistics is emerging together interdependently with the sophistication of technology.

References

1. Abrahamsson M, Aldin N, and Stahre F. (2003). Logistics platforms for improved strategic flexibility. International Journal of Logistics: Research and Applications, 6 (3), 85-106.
2. Ahire, S. L., Golhar, D. Y., & Waller, M. A. (1996). Development and validation of TQM implementation constructs. Decision sciences, 27(1), 23-56.
3. Barney, J. (1991). Firm resources and Sustainable competitive advantage. Journal of Management , 17 (1), 90-120.
4. Bagchi, P.K., (1996). Role of Benchmarking as a Competitive Strategy: The Logistics Experience. International Journal of Physical Distribution Logistics. 26, 4-22.
5. Bahri-Ammari, Nedra, & Carthage, I. O. The Role of Supply Chain Management Practices (SCMP), Technology and Information Sharing Quality in the Firm's Performance: Comparative Structural Models. International Journal of Engineering Science and Innovative Technology, 2(6), 607-617.
6. Balsmeier.P.W., Voisin.W. (1996). Supply chain management: a time based strategy. Industrial Management, 38(5), 24–7.
7. Bentler, P.M. and Bonnet, D.C. (1980). Significance Tests and Goodness of Fit in the Analysis of Covariance Structures. Psychological Bulletin, 88 (3), 588-606.
8. Bowersox D. J., Closs D. J., and Stank T. P. (1999). 21st Century Logistics: Making Supply Chain Integration A Reality. Council of Logistics Management, Oak Brook, IL.
9. Bratic.D. (2011). Achieving a Competitive Advantage by SCM. IBIMA Business Review, DOI: 10.5171/2011.957583
10. Brookshaw, T., Terziovski, M. (1997). The relationship between strategic purchasing and customer satisfaction within a total quality management environment. Benchmarking for Quality Management & Technology, 4(4), 244-258.
11. Campell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin , 56, 81-105.
12. Caputo, M., & Mininno, V. (1996). Internal, vertical and horizontal logistics integration in Italian grocery distribution. International Journal of Physical Distribution & Logistics Management, 26(9), 64-90.
13. Carr, A.S., Pearson, J.N. (2002). The impact of purchasing and supplier involvement on strategic purchasing and its impact on firm's performance. International Journal of Operations & Production Management, 22(9/10), 1032-1053.
14. Carr, A.S., Smeltzer, L.R. (1999). The relationship of strategic purchasing to supply chain Management. European Journal of Purchasing & Supply Management, 5, 43-51.
15. Carter, J.R. and Ferrin, B.G., 1995. The impact of transportation costs on supply chain management, Journal of Business Logistics, Vol.16, No.1, pp. 189-212.
16. Carter, J.R., Narasimhan, R. (1994). The role of purchasing and materials management in total quality management and customer satisfaction. International Journal of Purchasing and Supply Management, 30 (3), 3-13.
17. Cattell, R. B. (1978). The Scientific Use of Factor Analysis. New York: Plenum
18. Chen, C.Y., Leu, J.D., and Chiou, C.H., (2006). The Impact of e-supply Chain Capability on Competitive Advantage and Organizational Performance," International Journal of Electronic Business Management, 4(5), 419-427.
19. Cheng, L.-C. and Grimm, C. M. (2006). The Application of Empirical Strategic Management Research to Supply Chain Management. Journal of Business Logistics, 27: 1–55. doi: 10.1002/j.2158-1592.2006.tb00240.x
20. Chen.I.J., Paulraj. A. (2004). Towards a theory of supply chain management: the constructs and measurements. Journal of Operations Management, 22(2), 119–50.
21. Childhouse P, Towill DR. (2003). Simplified material flow holds the key to supply chain integration. OMEGA, 31(1), 17–27.
22. Cho, D. W., Lee, Y. H., Ahn, S. H., & Hwang, M. K. (2012). A framework for measuring the performance of service supply chain management. Computers & Industrial Engineering, 62(3), 801-818.
23. Cho J. K., Ozment J., and Sink H. (2008). Logistics Capability, Logistics Outsourcing and Firm Performance in an E-Commerce Market, International Journal of Physical Distribution & Logistics Management, 38(5), 336-359.
24. Chopra, S., & Meindl, P. (2007). Supply Chain Management: Strategy, Planning, & Operation. (3th ed) NJ: Prentice-Hall. Inc.
25. Chow, W.S., Christin, N.M., Chu-Hua, K., Min, H.L., Chinho, L., and Hojung, T., (2008). Supply Chain Management in the US and Taiwan: An Empirical Study. Omega, 36, 665-679.
26. Clark, K.B., Fujimoto, T. (1991). Product Development Performance. Harvard University Press, Boston, MA
27. Cooper, M.C., Ellram, L.M. (1993). Characteristics of supply chain management and the implications for purchasing and logistics strategy. International Journal of Logistics Management, 4 (2), 13–24.
28. Demirbag, M., Koh, S. C. L., Tatoglu, E., & Zaim, S. (2006). TQM and market orientation's impact on SMEs' performance. Industrial Management & Data Systems, 106(8), 1206-1228.
29. Ellinger, A.E., Daugherty, P.E. and Keller, S.B. (2000). The Relationship between Marketing/Logistics Interdepartmental Integration and Performance in U.S. Manufacturing Firms: An Empirical Study. Journal of Business Logistics, 21, 1-22.
30. Ellram, Lisa, Bernard La Londe, and Mary Weber (1989). Retail Logistics. International Journal of Physical Distribution and Logistics Management, 19(12), 29-39.
31. Ellram, L.M., Zsidisin, G.A., Siferd, S.P., Stanly, M.J. (2002). The impact of purchasing and supply management activities on corporate success. The Journal of Supply Chain Management, 38 (1), 4-17.
32. Esper, T., Fugate B., and Davis-Sramek B. (2007). Logistics Learning Capability: Sustaining the Competitive Advantage through Logistics Leverage. Journal of Business Logistics, 28 (2), 57-81.
33. Fawcett, S. E. and Smith, S. R. (1995).Logistics Measurement and Performance for United States-Mexican Operations under NAFTA. Transportation Journal, 34(3), pp. 25-34.
34. Ferry, J., Kevin, P., and Rodney, C., (2007, February, 13-14.). Supply Chain Practices, Supply Chain Performance Indicators and Competitive Advantage of Australian Beef Enterprises: A Conceptual Framework. Australian Agriculture and Resource Economic Society, AARES 51st Annual Conference.
35. Fornell C, Larcker DF. (1981). Evaluating structural model with unobserved variables and measurement errors. Journal of Marketing Research, 18 (1): 39-50. http://dx.doi.org/10.2307/3151312
36. Fynes, B. & Voss, C. (2002). The moderating effect of buyer-supplier relationships on quality practices and performance. International Journal of Operations and Production Management, 22 (6), 589 - 613.
37. Ganesan, S., George, M., Jap, S., Palmatier, R. W., & Weitz, B. (2009). Supply chain management and retailer performance: emerging trends, issues, and implications for research and practice. Journal of Retailing, 85(1), 84-94. doi:10.1016/ j.jretai. 2008.12.001
38. Garver, M. S., & Mentzer, J. T. (1999). Logistics research methods: employing structural equation modeling to test for construct validity. Journal of business logistics, 20(1), 33.
39. Gligor, D. M.; Holcomb, M. C. (2014). Antecedents and consequences of integrating logistics capabilities across the supply chain, Transportation Journal 53(2): 211–234. http://dx.doi.org/10.5325/transportationj.53.2.0211
40. Gorsuch, R. L. (1983). Factor analysis (2nd ed.). Hillsdale, NJ: Erlbaum.
41. Green Jr, K. W., Whitten, D., & Inman, R. A. (2008). The impact of aligning marketing strategies throughout the supply chain. Sam Houston State University, Huntsville, TX.
42. Hahn, C.K., Pinto, P.A., Brag, D.J. (1983). Just-in-time purchasing and the partnership strategy. European Journal of Purchasing and Supply Management (Fall) 2–10.
43. Hair, J., Black, W., Babin, B., and Anderson, R. (2010). Multivariate data analysis (7th ed.): Prentice-Hall, Inc. Upper Saddle River, NJ, USA.
44. Helper, S.R. (1991). How much has really changed between US automakers and their suppliers. Sloan Management Review (Summer), 15–28.
45. Hodson, N., Blischok, T., and Egol, M., (2012). Four forces of shaping competition in grocery Retailing. White Paper from Booz & Company. Retrieved from: http://www.strategyand.pwc.com/media/uploads/Strategyand_Four-Forces-Shaping-Competition-in-Grocery-Retailing.pdf
46. Holweg, M. (2005). An Investigation into Supplier Responsiveness. International Journal of Logistics Management, 16(1), pp. 96-119.
47. Hooper, D., Coughlan, J., Mullen, M. (2008). Structural Equation Modelling: Guidelines for Determining Model Fit. Electronic Journal of Business Research Methods, 6(1), 53-60.
48. Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation modeling:

a multidisciplinary journal, 6(1), 1-55.
49. Hult, G, Ketchen D. and Arrfelt M. (2007). Strategic supply chain management: Improving performance through a culture of competitiveness and knowledge development. Strategic Management Journal, 28, 1035-1052.
50. Hutcheson, G., & Sofroniou, N. (1999). The multivariate social scientist: Introductory statistics using generalized linear models. Thousand Oaks, CA: Sage Publications.
51. Joreskog, K. G., & Sorbom, D. (1984). LISREL VI: Analysis of linear structural relationships by the method of maximum likelihood. Mooresville, IN: Scientific Software.
52. Kannan, V. R., & Tan, K. C. (2005). Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance. Omega, 33(2), 153-162.
53. Kannan, V. R., & Tan, K.C. (2006). Buyer-supplier relationships: The impact of supplier selection and buyer-supplier engagement on relationship and firm performance. International Journal of Physical Distribution & Logistics Management, 36(10), 755-775.
54. Ketchen, D.J., and Giunipero L.C., (2004). The intersection of strategic management and supply chain management. Industrial Marketing Management, 33, 51-56.
55. Kline, P. (1979). Psychometrics and psychology. London: Academic Press, p.40.
56. Koh, S. C. L., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. Industrial Management & Data Systems, 107(1), 103-124.
57. Koufteros, X. A., Vonderembse, M. A., and Doll, W. J., (1997). Competitive Capabilities: Measurement and Relationships, Proceedings Decision Science Institute 3, pp.1067-1068.
58. Lalonde.B.J.(1998). Building a supply chain relationship. Supply Chain Management Review, 2(2), 7–8.
59. Lamming, R.C. (1993). Beyond Partnership: Strategies for Innovation and Lean Supply. Prentice Hall, Hemel, Hempstead.
60. Langley Jr.C.J., Holcomb, M.C., 1992. Creating logistics customer value. Journal of Business Logistics 13 (2), 1–27.
61. Li, Suhong, and Binshan Lin. (2006). Accessing information sharing and information quality in supply chain management. Decision support systems, 42(3), 1641-1656.
62. Lin, C., Chow, W. S., Madu, C. N., Kuei, C. H., & Yu, P. P. (2005). A structural equation model of supply chain quality management and organizational performance. International journal of production economics,96(3), 355-365.
63. Li, S., Ragu-Nathan, B., Ragu-Nathan, T.S. & Rao, S. S. (2006).The impact of supply chain management practices on competitive advantage and organizational performance. Omega, 34 (2), pp.107-124.
64. Li, S., Rao, S. S., Ragu-Nathan, T.S., & Ragu-Nathan, B. (2005). Development and validation of a measurement instrument for studying supply chain management practices. Journal of Operations Management, 23 (6), pp.618-641.
65. Lynch D. F., Keller S. B., and Ozment J. (2000). The Effects of Logistics Capability and Strategy on Firm Performance. Journal of Business Logistics, 21(2), 47-67.
66. MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong S. (1999). Sample size in factor analysis. Psychological Methods, 4, 84-99.
67. Mansidao, R., & Coelho, L. A. (2014). Logistics Performance: a Theoretical Conceptual Model for Small and Medium Enterprises. No. 2014_12), University of Evora, CEFAGE-UE (Portugal).
68. Mentzer, J.T, Min S. and Bobbitt. L. (2004). Toward a unified theory of logistics. International Journal of Physical Distribution & Logistics Management, 34 (8), 606-627.
69. Min, S., & Mintzer, J. T. (2004). Developing and measuring supply chain concepts. Journal of Business Logistics, 25(1), 63-99.
70. Moberg, C. R., Cutler, B. D., Gross, A., & Speh, T.W. (2002). Identifying antecedents of information exchange within supply chains. International Journal of Physical Distribution and Logistics Management, 32 (9), pp.755-770.
71. Models of tier II cities discussed. (2006, September 10). The Hindu Business Line. Retrieved from http://www.thehindubusinessline.com/todays-paper/tp-info-tech/models-for-tier-ii-cities-discussed/article1745640.ece
72. Morash E. A., Droge C. L. M., and Vickery S. K. (1996). Strategic Logistics Capabilities for Competitive Advantage and Firm Success, Journal of Business Logistics, 17(1), 1-22.
73. Narasimhan, R., Jayaram, J., Carter, J.R. (2001). An empirical examination of the underlying dimensions of purchasing competence", Production and Operations Management, 10(1), 1-15.
74. Nunnally, J., & Bernstein, I. (1994). Psychometric Theory. New York: McGraw-Hill.
75. Ou, C. S., Liu, F. C., Hung, Y. C., & Yen, D. C. (2010). A structural model of supply chain management on firm performance. International Journal of Operations & Production Management, 30(5), 526-545.
76. Porter, M. (1980). Competitive Strategy: Techniques for Analysing Industries and Competitors. New York: The Free Press.
77. Porter ME. (1985). Competitive Advantage: Creating and Sustaining Superior Performance. New York: The Free Press.
78. Porter, M. E., & Millar, V. E. (1985). How information gives you competitive advantage. Harvard Business Review
79. Prahalad, C., & Hamel, G. (1990). The Core Competency of the corporation. Harvard Business Review , 68 (3), 79-91.
80. Radstaak, B., & Ketelaar, H. (1998). Worldwide Logistics: The Future of the Supply Chain Holland International Distribution Council: The Hague.
81. Ragatz, G.L., Handfield, R.B., Petersen, K.J. (2002). Benefits associated with supplier integration into new product development under conditions of technology uncertainty. Journal of Business Research, 55, 389-400.
82. Ralston P. M., Grawe S. J., and Daugherty P. J. (2013). Logistics Salience Impact on Logistics Capabilities and Performance. The International Journal of Logistics Management, 24(2), 136-152.
83. Random Number Generator. (n.d.). Retrieved from: http://stattrek.com/statistics/random-number-generator.aspx
84. Random Sample Calculator. (n.d.). Retrieved from: http://www.custominsight.com/articles/random-sample-calculator.asp
85. Roth, A. and Miller, J. (1990). Manufacturing Strategy, Manufacturing Strength, Managerial Success, and Economic Outcomes, In: Ettlie, J., Burstein, M., Fiegehaum, A., Manufacturing Strategy, Kluwer Academic Publishers, Norwell, MA, pp. 97-108.
86. Salam, M. A. (2005, October). Achieving competitive advantage through managing supply chain excellence: The case of Thai garment industry. InProceedings of the International Conference on Computer and Industrial Management, October (pp. 29-80).
87. Sandberg.E. and Abrahamsson.M. (2011). Logistics capabilities for sustainable competitive advantage. International Journal of Logistics, 14(1), 61-75. http://dx.doi.org/10.1080/13675567.2010.551110
88. Shin, H., Collier, D. A., & Wilson, D. D. (2000). Supply management orientation and supplier/buyer performance. Journal of operations management, 18(3), 317-333.
89. Singh, R., Sandhu, H. S., Metri, B. A., & Kaur, R. (2010). Relating organized retail supply chain management practices, competitive advantage and organizational performance. Vision, 14(3), 173-190.
90. St.Onge.A. (1996). New Concepts in Supply Chain Management. Modern Materials Handling, 51(3), 33
91. Stanley, L.L., Wisner, J.J. (2001). Service quality along the supply chain: implications for purchasing. Journal of Operations Management, 19, 287-306.
92. Stanley, L.L., Wisner, J.D. (2002). The determinants of service quality: issues for purchasing", European Journal of Purchasing & Supply Management.8, 97-109.
93. Stewart, G., (1995). Supply Chain Performance Benchmarking Study Reveals Keys to Supply Chain Excellence, Logistics Information Management, 8, 38-44.
94. Stock, G. N., Greis, N. P., & Kasarda, J. D. (2000). Enterprise logistics and supply chain structure: the role of fit. Journal of operations management, 18(5), 531-547.
95. Storey, J., Emberson, C., Godsell, J., & Harrison, A. (2006). Supply chain management: theory, practice and future challenges. International Journal of Operations & Production Management, 26(7),754-774
96. Stuart, F.I. (1991). Purchasing in an R&D environment: effective teamwork in business", International Journal of Purchasing and Supply Management, 27(4), pp.29-33.
97. Sukati.I., Hamid.A.B., Baharun.R., and Yusoff.R.M. (2012). The Study of Supply Chain Management Strategy and Practices on Supply Chain Performance. The International Conference on Asia Pacific Business Innovation & Technology Management, Procedia - Social and Behavioral Sciences, 40, 225 – 233.
98. Sutton, Mathias J. (1997). The Role of Electronic Data Interchange in the Transportation Industry: Part. Defense Transportation Journal, 53(4), 10-12.
99. Tabachnick, B. G., & Fidell, L. S. (2007). Using Multivariate Statistics, 5th Edn Boston: Pearson Education.
100. Tamil Nadu spruces up Tier II cities. (2007, January 11). Retrieved from https://egovindia.wordpress.com/2007/01/13/tamil-nadu-spruces-up-tier-ii-cities%EF%BF%BD%EF%BF%BD/
101. Tan, K.C., (2002), Supply Chain Management: Practices, Concerns, and Performance Issues, Journal of Supply Chain Management, 38(1), 42-53.
102. Tan, K.C., Lyman, S.B., Wisner, J.D. (2002). Supply chain management: a strategic perspective. International Journal of Operations and Production Management, 22 (6), 614–631.
103. Thomas E.. Vollmann, William L.. Berry, & Whybark, D. C. (1997).Manufacturing planning and control systems. Irwin/McGraw-Hill.
104. Tier I and Tier II cities of India. (2015 July 20). Retrieved from: http://www.mapsofindia.com/maps/india/tier-1-and-2-cities.html
105. Tracey, M., & Leng Tan, C. (2001). Empirical analysis of supplier selection and involvement, customer satisfaction, and firm performance. Supply Chain Management: An International Journal, 6(4), 174-188.
106. Tracey, M., Vonderembse, M. A., and Lim, J. S. (1999). Manufacturing Technology and Strategy Formulation: Keys to Enhancing Competitiveness and Improving Performance. Journal of Operations Management, 17(4), 411-428.
107. Trent, R.J., Monczka, R.M. (1994). Effective cross-functional sourcing teams: critical success factors. International Journal of Purchasing and Supply Management, 30(4), 3-11.
108. Udomleartprasert, P., and Jungthirapanich, C., (2003). Aligning the Infrastructures to Supply Chain Practices. IEEE, 5.3, 335-339.
109. Venkatraman, N., and Ramanujam, V. (1986), Measurement of Business Performance in Strategy Research: A Comparison of Approaches, Academy of Management Review, 11, pp. 801-814.
110. Vokurka, R. J., Zank, G. M., and Lund III, C. M. (2002). Improving Competitiveness through Supply Chain Management: A Cumulative Improvement Approach. Competitiveness Review, 12(1), pp. 14-25.
111. Wheelright, S. C. (1984). Manufacturing strategy: Defining the missing link.Strategic Management Journal, 5(1), 77-91.
112. Wisner, J.D. (2003). A structural equation model of supply chain management strategies and firm performance. Journal of Business Logistics, 24(1), 1-26.
113. Zhao.N. (2009). The minimum sample size in factor analysis. Retrieved from: https://www.encorewiki.org/display/~nzhao/The+Minimum+Sample+Size+in+Factor+Analysis
114. Zhao.M., Droge.C., and Stank.T. P. (2001). The effects of logistics capabilities on firm performance: customer-focused versus information focused capabilities, Journal of Business Logistics, 22(2), 91–107. http://dx.doi.org/10.1002/j.2158-1592.2001.tb00005.x
115. Zhang, F. J. Tian, Y. Z. & Sun, X. L. (2006). Empirical analysis of the effects of supplier selection and integration on customer satisfaction and business performance. Singapore, IEEE, 931-935.
116. Zsidisin, G.A., Ellram,L.M. (2001). Activities related to purchasing and supply management involvement in supplier alliances. International Journal of Physical Distribution & Logistics Management, 31(9) 629-646.