Analysing the Impact of Supply Chain Practice and Preceding Cooperative Behaviour on Supply Chain Performance Efficiency: A Study on Pakistan Food Industry

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Abstract: - *The study investigated the impact of Supply Chain practices and preceding cooperative behaviour on the supply chain efficiency of the food sector. The data has been gathered by means of the questionnaire with a five Likert scale from which a total of 350 responses have been collected from the food sector of Pakistan, and were assessed through structural equation modelling. The results showed that there is a significant relation between the SC practices, antecedent cooperative behaviour and supply chain performance. The statistical findings have clearly revealed that SC practices such as the leans thinking approach can essentially help to enhance the revenues and cut the cost of the supply chain of the food retail sector. The findings have the implication that it gives a deeper knowledge about the significant dimensions of retail industry to improve supply chain performance of the food retail firms. Moreover, the study will help the food retail sector to know the important role of CRM and lean thinking in raising cost in the SME's in the food retail supply chain sector.*

Keywords: - *Strategic alliance, customer relationship management, lean thinking, trust, commitment, Efficiency, Supply Chain Management*

Introduction

Background

The most delicate goods in the market are the food products because they are at the risk of getting rotten due to humidity, poor storage, wrong levels of temperature levels, reduced air quality, light and other factors that can influence the quality of the food items. If there is no appropriate storage of food items they can become inconsumable. So, every room that has the storage capacity needs to be properly equipped with control units which can tell the temperature levels at any while. The people that are a response to bring the food/raw food are the Farmers, suppliers, wholesalers, retailers, and transporters in the food supply chain, and therefore they are responsible to give proper temperature conditions that a certain food product requires. In the food industry, the quality of food is a vital indicator which also directly relates to the other food aspects of shelf life, integrity, and safety (Rong et al., 2011). The correct information flow is

important amongst these participants, and also the product management, so that the quality of food in the supply chain will also be maintained. The food retail sector in Pakistan is comprehensively subjugated by number of small shops at the corner that are expected to go through a major change due to the fact that now the customers are getting more concerned towards preferring for better options. The rise in the supermarkets and the wholesale markets including Metro and Macro have given the Pakistani consumers a preference of a customer driven shopping that is predicted to get deeper in the coming future across the whole country by giving ease to the central issue arising in the food sector (Ahmed et al., 2012). It has been reported by the authority of small and medium enterprises that an average of 125,000 outlets in the retail sector are being functioned across the country of Pakistan. Out of these 125,000, there are over 95% of the shops that are corner shops and small retail outlets. Though, there has been no such retail outlet or wholesale outlet having its chain nationwide (State

Bank, 2010). This leads to arise an essential challenge in most of the businesses that are looking forward to enter the food and agri-business sector. Despite the fact that Pakistanis are investing an average of $ 36 billion on a yearly basis on the food and other retail companies, firms are still having complexities to grab the major market of Pakistani customers. This is due to the fact that Pakistan is not a market of single marketplace; instead it is a place with having tens of thousands of small shops.

The food sector of Pakistan is continuously growing and transforming with the shift in the customer lifestyles within the country. This change can be more apparently viewed in the urban areas where there is higher concentration of supermarkets such as the cities like Karachi and Lahore. Pakistan retail industry essentially serves in the entire economy of the country. As per the statistics record in 2011, 2012, the retail industry of food underwrote a total of $ 4.2 billion to the overall economy of Pakistan. This shows that the food sector of the country is embarking an path of growth and is predicted to be a significant hub for the country's growing business. The food retail sector in Pakistan is going through some essential changes. This change has been brought by the competition in the price among the SMEs followed with an increase in the practice of private labels and supply chain integration affecting producers and processors. The change also occurred in the rising demand for innovation and customers' willingness for organic food. These issues are arising because of globalization and competition in the market which needs quick speed in the market. This is as a result enforcing to ensure strict quality measures which must be developed though effective supply chain. Taking the perspective of future outlook of the food retail industry of Pakistan, it is expected that there will intense shelf wars in the coming five years and the trend of private label will grow dramatically in all supermarket sales by 2020. Given to these future trends, there is an urgent need of adequate supply chain practice for the SMEs in food retail sector of Pakistan.

Problem Statement

The food retail sector of Pakistan is facing a dramatic change in the industry. The past literature

has been joining the information of this quickly changing condition to analyse the SC practices of food retailers. Under such kind of business setting, it is noted that supply chain will create a significant impact on the food industry. In the preceding years, turnover of the Pakistani food industry has been raised radically. Employment sector of the food retail represents a third of all jobs in the food sector. Indeed, the Pakistani food value chain generates major share in the Pakistani economy, with food SMEs forming essential percent of all businesses (Mateen et al., 2009).

Retailers are the last stage in the channel of distribution and more near to the consumers. Preceding literature has given the focus to the supply chain by only seeing it from the marketing lens. The papers according to Hardwick (2004) have highlighted that it is important to reach the final customers in the right time along with the right product. According to the present literature, it has also been highlighted that it is necessary for the retailer to keep an eye on the external environment and changes taking place externally as these factors highly influence on the growth and profits of the firms as stated by Durrani (2002). While conferring the segment of food retail in Pakistan, the major issue lies here is the inefficient SC performance of food sector. With the postponement in the SC operations, the food packaging coming to the clients gets close to the expiry which is a risky thing. Pursued with this issue, consumers are today getting worried about the expiry dates and are moving towards fresh food. Given the customer's demand, the role of effective practices of SC plays a vital role. Hence, the study aims to give its core focus on assessing the significant role of SC practices and its effect on the food retail industry of Pakistan.

Gap Analysis

There have been many previous studies where the focus have been given to the impact of supply chain in the manufacturing companies and leaving the exploration of supply chain side of food industry of Pakistan unexplored(Finch, 2006). There are very less researches focusing on the supply chain practices and its impact side particularly on the food industry as noted by Rong et al (2011). Only rare

studies were found and they were also based on smaller case studies and researches such as research done by Aramyan et al (2006). No study has focused on the demand side. Given the gap highlighted above, the following study is looking forward to explore the supply chain side and its effect on the performance of food retail industry of Pakistan.

There have been many types of research done on the food industry of Pakistan and other developing countries. Such as Ali et al (2017) conducted a study on examining the models of online grocery shopping to investigate the online food industry. The study, however, focused on the Pakistan online grocery market only. Similarly, Shaikh (2013) examined the impact of organized food retailing in India. The research only focused on the agricultural sector of the country rather than examining the overall food retail sector. Panda (2013) also investigated the customer patronage towards food retail sector but lacked in highlighting the supply chain side of the food retail sector.

Looking at the supply chain side of this sector, Matten et al (2009) assess the role of ICT by linking it with SCM. The model proposed in the study was helpful in cost reduction, however, the study lacked in offering the role of lean thinking and strategic alliance and the study has also got outdated as the research is 10 years old. Ali (2016) explored the role of IT in the food retail sector, however, the research failed to integrate it with supply chain practices. From these researches, it can be demonstrated that no such previous study either undertaken in Pakistan or any other developing country have been able to address the role of supply chain practices and cooperates' preceding behaviour in improving supply chain efficiency in the food retail sector of Pakistan.

Jie & Gengatharen (2018) conducted the study by examining the role of supply chain practices in the SMEs of the Australian food retail industry. The study served essentially by discovering the role of lean thinking and other supply chain practices to increase revenues in and cut down cost by maintaining supply chain efficiency of the food retail sector. Though the study has some limitations

such as it has a small sample size. The study also lacked offering strategic implications.

Given the gap analyzed, the present study aims to fill the gap by adopting the model in the Pakistan food retail sector by taking a large sample size in this research. This study explored the SC practice effect on the food industry that was not explored yet particularly in the food industry of Pakistan. The study would also remove the gap of not focusing on the SC side and exploring its role in increasing supply chain efficiency.

Research Objectives

Following objectives will be fulfilled in the study

- To examine the role of strategic supplier partnerships on the supply chain performance of the Pakistani food retail industry
- To examine the role of customer relationships on the supply chain performance of the Pakistani food retail industry
- To examine the role of information quality on the supply chain performance of the Pakistani food retail industry
- To examine the role of the lean system on the supply chain performance of the Pakistani food retail industry
- To examine the role of trust and commitment in the trading partners on the supply chain practice and performance in the Pakistani food retail industry

Significance of the Study

The study will essentially enable the food retail sector of Pakistan in inspecting the critical job of proficient production SC practices to improve the export performance of the business. With the feeble structure of the food segment, the study will empower food retailers to realize that it is so vital to enhancing the SC operation and meet customers' requests. The proposed outcomes will offer a pathway that will help them to increase income and enhance the performance of the food retail sector.

Research Questions

- How do strategic supplier partnerships affect the supply chain performance of the Pakistani food retail industry?

- How do customer relationships affect the supply chain performance of the Pakistani food retail industry
- How does information quality affect the supply chain performance of the Pakistani food retail industry
- How does a lean system affect the supply chain performance of the Pakistani food retail industry
- How do trust and commitment in the trading partners affect supply chain practice and performance in the Pakistani food retail industry?

Scope of the Study

The study will cover the important factors of supply chain operations under the context of the food retail sector. Other factors of retail industries will not be covering and will be subject to supply chain context only.

Limitations

Some limitations were also noted such as limited time and the small sample size that can be covered by the researchers in future studies. Therefore, it is recommended to expand the study by taking a larger sample size other factors like reverse logistics for future research.

Operational Definitions

Strategic alliance: (Gunasekaran et al., 2001) explains strategic alliance as a direct, lasting relationship and it also encourages mutual planning and problem resolving struggles.

Lean Thinking: Lean thinking is explained as the movement towards elimination of all kinds of waste to developing an operation that is quicker, more reliable, produces of high quality are produces, services and operations are being done at less cost (Slack et al., 2004, p. 519)

Information sharing: It's explained as; the level to which proprietary and critical information has been communicated to SC partners (Noble, 1997; Tan et al., 1998)

Quality of information: This contains aspects like relevance, information truthfulness, the credibility of

exchanged information and appropriateness (Li et al, 2006)

Customer relation management: It is related to the process where key customers are identified and developed to incorporate the planned agendas with the identified customers. (Wu et al.2004).

Trust: Trust is a readiness to depend on the partner from whom the deal is being exchanged (Moorman et al., 1993)

Commitment: Commitment by Allen & Meyer (1990) has been considered as a continuance and effective. Commitment comprises continuity or long-lasting coordination with both the parties' buyer and seller and they have to cooperate in maintaining the link in the supply chain.

Efficiency: Efficiency is described as adequate usage of resources (Lai et al., 2002).

1. Literature Review

Strategic Alliance

(Muhammad Ziaullah et al., 2017) study carried out in Pakistan on the SC process matters in firms' performance. Data was collected from several Pakistan firms. 164 was the sample size. Results indicated that there was a positive relation among the partners of SC trust and performances as the SC procedures are vital for the company's performance. Strategic alliances are necessary to perform well in a company to generate desirable outcomes. Similarly, (Sambasivan et al., 2010) tested relationship in-between the company cultures and SA in a manufacturing SC that involves partners alliance (suppliers & customer's alliance companies (manufacturers). Finding showed up a major impact on the integration degree and creation of value on culture type of the alliance firm. It also has been found that cultural favouritism has been observed as greater communication with dealers. Organization cultures helps to achieve a greater value creation degree. (Angelo Canzaniello & Evi Hartmann 2017) done a study in Germany demonstrated that on joining of a strategic alliance regarding supplier risk assessment of sustainability, outcomes in the decrease of ambiguity as the increased info processed capabilities. If the information among

supply chain partners are shared regularly, an overall high efficiency can be attained. Also, it's an advantage for members for a greater identification of expectation from varying stakeholder, a simplified capability that builds a broader supplier assessment of risk. Strategic alliances help in estimation procedures of advanced force, which provides a higher quality results. (Canzaniello et al., 2017). In South Korea, a study (Ryu et al., 2009) carried out on collaborative relationships between buyers and suppliers within a SC. Findings indicated that both the operational and strategic variables are supposed as critical factors that affects the partnership of buyer-supplier so, this such relationship applies an effect on the performance of SC.

Customer Relationship Management

In Lebanon a study (Radwan el Shoghari & Kassem Abdallah 2016) carried out which aims to identify the SC management and its effect on customer service, it also indicates the role of SC management in increasing sales and knowing the views of managers working in supply chain. Findings concluded that company should know their customer need and demands. In all aspects, SCM relationships with the company had profound influence on customer services and the quality of this service can only be attained through the successful management of chain elements in the way that reaches the customer's satisfaction. (Tseng et al., 2014) explored the effect of client information and CRM on quality of service in manufacturing firms of Taiwan. Data was collected from Taiwan manufacturing industries sample size was 117. Findings specified that knowledge of customer had an optimistic effect on quality of service and CRM is partially a dominant construct. Padmavathy et al (2012) carried out a study in India to see the CRM effectiveness in retail banks. Results came out were that after the analysis of factors five dimensions for CRME, i.e. commitment with company, process-driven approach, client experience, trustworthiness and technical oriented. Commitment with company, procedure determined method and trustworthiness were found positive impact on customer contentment where trustworthiness had straight link with loyalty of customer. Özlen et al (2013) did a

study on CRM and information system in Bosnian small and medium companies. The main positive thought revealed was that every firm considered CRM as an essential element.

Lean Thinking

Study carried out by (He & Hayya (2002) aimed to examine the influence of JIT manufacture on quality of food. The findings were that an optimistic effect on quality of food was observed by JIT practice. Moreover, involvement of employee in solving problem, and JIT distribution were founded as the practices mostly used in the nourishment corporations. (Wickramasinghe et al., 2017) carried study in Sri lanka on execution of lean manufacture practice and manufacturing performance. The results showed that practices of lean manufacture improve the performance of manufacture companies. Moreover results discovered the significance of the time of lean production in process in attaining upper levels of manufacture performance. (Rahman et al., 2010) done study on Thai manufacturing industries to study the impact of lean strategy on operative performance. The survey was done in all sizes of firms in Thailand. The findings indicate that three constructs of lean significantly relates to operative enactment. JIT showed higher importance in large enterprise as compared to small enterprise, waste reduction showed greater importance in small companies and management flow showed no importance in small or large firms. Concerning about ownership, JIT is much important to OP for all ownership groups i.e. (Thai, joint venture and foreign). A higher level of significance observed by foreign-owned companies on OP for both flow and waste management than joint venture and Thai companies. In lean and agile SC another study (Qrunfleh et al., 2013) carried out a study to observe the relationship among agile and lean SC tactic and SC responsiveness. The study findings showed essential relations among the two variables and also revealed that responsiveness of SC is linked with greater company performance

Information Sharing

Sharing of information among SC partners is important for smooth operations. A study (Meacham

et al., 2013) carried in USA which objective was to define the influence of a company's ability of sharing info with SC allies through a concentrated green info method. Findings showed that sharing information at required time amongst SC allies coupled with the particular abilities of green info systems improves performance of environment. (Kawai et al., 2013) carried out a study in Japan to define the fluctuations in buyer-supplier relations amongst Japan firms that focused on two critical features; enduring relation and info sharing. Results indicated that Japanese firms tend to have near relations with their allies, though only a minor side of buyers willing to share delicate info with their suppliers or expects to endure long-term relation with them. Moreover, factors that relates to performance of buyers showed that getting benefits from inside the company, sharing information activities (attending meetings of suppliers, transfer engineers to vendors, and proposition of cost saving ideas) could affect the incentives of buyers to sustain long-term relations with their vendors.

(Carr et al., 2017) carried out a study in USA revealed that conventional communication techniques, data sharing inside a company and data share among firms, and supplier progress are major factors for enhancing a buyer performance however they can create an impact on firm through their indirect and direct influence. In China a study (Fu et al., 2017) carried out on the effectiveness of information sharing through which SC visibility on food sector. The results showed that farmer's dependence on company had positive effect on trust and commitment however it has no impact on information sharing.

Quality of Information Sharing

(Li et al., 2006) examined the effect of environmental uncertainty, intra organizational facilitators and inter organizational relationships on quality of information in SCM. The findings revealed that quality of information has positive relation with SC allies and share vision between SC allies but adversely effects supplier ambiguity. Upper management has negative effect on info quality. Quality of information are not impacted by customer vagueness, IT enablers, technology

ambiguity and commitment of SC partners. (Marinagi et al., 2015) examined quality of information shared and its effect on performance of SC in Greece showed that that information sharing has an intermediating impact between information quality and SC performance info shared amongst associates along the SC enables higher overall performance, as a result of enforced SCM practices uplifting information reliability and quality. (Elwan Ibrahim et al., 2012) also showed supplier and customer relations and quality of info sharing has positive relation with both SC performance and export performance.

Antecedents of Cooperative Behaviour

There are two components for enhancing the relationship amongst trading partners that are:

1. Trust

2. Commitment.

Trust

In UK (He et al., 2013) carried out a study on supplier trust and partnership Result showed higher level of trust among partners of SC, higher the contribution to the synergetic relationship between SC partners. Similarly, (Cheng et al., 2008) explore how trust relates with variables that affects inter organizational knowledge sharing in green SC, where collaboration and rivalry exist. Findings obtained were that trust is the fulcrum of the features which influences the inter organizational information sharing. (Ye et al., 2009) showed that there were positive impacts of trust on relationship commitment, information sharing and firm operational performance. Relationship commitment has a significant positive impact on firm's operational performance, where as it does not impact information sharing significantly. In turkey (Sahin et al., 2017) explored the relation among supply management integration, trust in SC, SC agility and firm performance. Findings showed that there are positive, significant associations amongst supply management assimilation and trust in SC members, a positive and significant relations was found amongst trust in SCM members and SC agility, positive and significant relations was found between SC agility and firm performance.

Commitment

(Wu et al., 2012) explored how high tech firms in Taiwan has the level of commitment in between SC partners and their relationship. Results showed that for two parties of an exchanged relations, greater levels of trust can leads to an improved connections and trust is a vital factor that affects the SC partnerships. (Chen et al., 2011) explored the role of sharing of info, availability of info and quality of information in development of trust and commitment in SC relationships in Canada. Results that were generated were that quality of information, and availability of info played a positive role in building of trust, and succeeding commitment, while sharing of info affects commitment in SC allies. In agriculture industry (Fischer & C 2013).explored how well-functioning trust based supplier-buyer relations enabled a secure, safe food supplies. Findings showed that trust in SC allies can be enhanced by effective communication and by positive partnership. The bond amongst SC partners has no direct effect in the retailer-processor relations but is significant when dealing with farmers. (Zhao et al., 2008) explored the relations between power, relationship commitment and the integration between manufactures and their customers. Results obtained were that referent power, expert power, and reward power are significant in boosting manufactures normative relationship commitment, whereas reward power and coercive power increase instrumental relationship commitment.

Efficiency

(Bigliardi et al. 2014) explored the necessity for evaluating and observing the performance of SC. Results shows that the level of adaption of performance measurement metrics is pretty up amongst firm's surveyed also a set of 39 metrics was identified that relates to dissimilar SC processes. On Italy (Danese et al., 2011) studied the influence of customer assimilation on SC efficacy. Findings revealed that supplier assimilation positively intermediates the relationship between customer assimilation and efficacy. It also revealed that, when supplier integration is at a low level, customer integration can even produce a decline in SC efficacy (Ferdoush et al., 2018) explored how SC performance measurement effective through analytic hierarchy process (AHP), proved that applying this technique can enhance the SC effectiveness of an organization. (Sundarakani et al., 2012) examined Supply Chain Management (SCM) performance upon successful execution of Information Technology applications. Results indicated that that survey respondents are attentive that the adoption of IT does not essentially means instant benefits but will teach their senior managers on usage of IT systems to streamline their operation of SC, lessen cycle time and to increase SC visibility.

Conceptual Framework

Research Framework
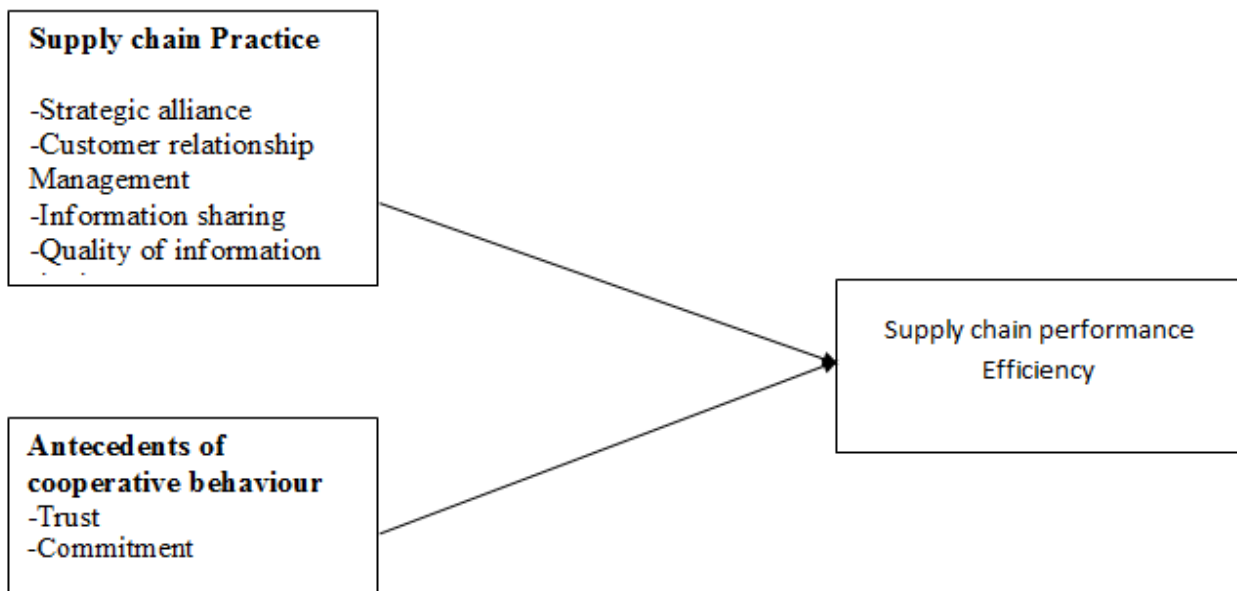
The following are the explanation of constructs taken in this study under supply chain practice.

Strategic Alliance

As there is an increase in competition across the globe, it is necessary for companies to develop a strategic relationship with other partners. In order to survive in the competitive world, it is necessary for the company to rely on more than one resource. The two types of partnership are viewed in the business that may be either vertical (upstream or downstream) or horizontal in nature. To lower the cost and to improve supply chain efficiencies manufacturers joins with manufacturers and retailers join with retailers. One of the major motives of strategic alliances is the power of buyers and sellers which has been observed. As the retailers have the foremost benefit of being the closest to the final consumer. In case if the strategic alliances are being changed in order to identify them the development of electronic point-of-sale (EPoS) technology has provided ease in identifying.

Customer Relationship Management

Customer relation management is mainly concerned with creating an enduring relationship with customers. It is referred as a tactical approach which is mainly related to develop better value by establishing preferred relations with the potential customers and their segments. The three pillars of CRM are i.e. people, technology and process (Chen & Popovich, 2003).

Lean Thinking

The notion of lean thinking has gone beyond its foundation in the automotive sector. From the nineteenth century, it has been referred as the technique to eliminate the waste of cost by raising value for its clients. It is the customer who has to decide that what creates waste and what does not; therefore, value can be developed if the activities linked with waste and cost could be eradicated. As per Hines et al (2004), value can be increased if the customers are provided with some additional features or services.

Information Sharing

In SCM the major indicator to be used between buyer and supplier is the Information Sharing. When information flows flawlessly in both the ways, the effected created is a virtual SC. To assimilate the entire value chain into a single long chain the transference of information is used. To improve the effectiveness of SC the increased level of integration and sharing of information amongst the members of an SC has become a need. If such supportive actions of companies provide speedy access to the information required, more sensitivity to the requirements of the customers, and response time will be quicker than, from the rivals.

Quality of Information Sharing

When we talk about information sharing whether it's within the company or in any industry whether it's an automobile, manufacturing, food, beverage, textile or other in parallel it's also important to have the quality information. Or we can say, in both ways either the content of information or the quality of the information that is shared must be considered. When we talk about the quality of information sharing, it comprises of aspects like timelines, the accurateness, adequacy, and credibility of the information exchanged explained by (Moberg et al., 2002).

Antecedents of Cooperative Behaviour

There are two components for enhancing the relationship amongst trading partners that our commitment and trust.

Trust

Trust is a willingness to depend on the exchange partner (Moorman et al., 1993). In supply chain partners to work collectively, there is a need to gain major importance and it has become one of the topmost priorities in keeping the relationship amongst SC members (Yeung et al., 2009).

Commitment

Commitment by Allen & Meyer (1990) has been considered as a continuance and effective. When discussing the affective commitment it's based on emotional or an effective connection with the company like as those individuals that are strongly

committed to the company or with the job they are involved in and adores to be in membership of the business (De Ruyter et al, 2001). The continuance commitment is based on the exchange of relationship that is made on the side bets, switching of cost and alternative scarcity.

Efficiency

To decrease cost and improves the efficiency, big retailers have increased their secluded labels and apply forced power of bargaining in order to negotiate the prices with processors and producers, said (Round, 2006). Performance is defined as the accomplishment of a task against predefined criteria that has been set before. Some indicators of criteria include accuracy standard, cost, speed and completeness of task. Performance is said to fulfilling an obligation in a way that that performer is released from all kind of liabilities. Organizational performance is related to the fulfilment of the certain targets that the company has set for the current time period and it is related to the efficiency and effectiveness of the business. The ideal stream of food and drinks products to purchasers is important for brand security. To guarantee the efficiency and execution of food SC, the whole start to finish process, from sourcing to assembling to the conveyance, must be deliberately arranged and thoroughly accomplished. Luckily, new innovation is helping individuals of food industries has enhanced the management and performance of their supply chains.

Hypothesis

Ha1: There is a significant relationship between Supply Chain Practices and supply chain performance in Pakistan food industry

Ha2: There is a significant relationship between Antecedents of cooperative behaviour and supply chain performance in Pakistan food industry

Research Methodology

Type and nature of the study

The type of study is quantitative in nature. The scholar uses different tactics and procedures like experiments, data collection and surveys are being done to generate data statistics through programmed instruments (Creswell 2003). In our research descriptive type, we are undertaking. This is the approach in which the raw data is summarized in the simplest and useful way and then data is generated for the audience. Our research is based on statically collected and analyzed data.

Sampling design

In this study research, our targeted audience is those people who are working in food industries restaurants owner, staff, wholesaler, producer, and distributor of Pakistan food industry. Collection of data was one of the vital parts of any research and that was important for us also for our research the total population is the entire food industry. The process of selecting the exact subset from the population is called the sampling (Sekaran, 2003). The technique of sampling which we used in this study is convenient sampling As all collection of responses were easy because based on the willingness of participant the respondents filled the questionnaire. The sample size is 250 employees working in different restaurants, superstores, grocery store, and big marts.

Instrumentation

This research applied the quantitative research methodology. The research instrument which is being used commonly for quantitative research is the questionnaire so in this study we also used the well-defined questionnaire to collect data from the respondents. The overview of this study is that the measurement items used in our study are based on an adapted instrument. All items were adapted from Al-Ghwayeen et al (2018) that established scales and measured on a 5-point Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). The instrument i.e. the questionnaire has been adapted from the study of Al-Ghwayeen et al., (2018). In the survey questionnaire, the distribution of questions was, for a strategic alliance, there were 5 questions, Customer Relation Management has 5 questions, information sharing has 3 questions, quality of information has 5 questions, lean thinking has 3 questions, trust has 3 question commitment has 4 questions and efficiency has 6 questions. The scale

that has been used called Likert to measure the effect of GSCM on EP and export performance in textile companies was a five-point scale.

Data Collection

The questionnaire was circulated to be filled by the targeted audience and also a web-based survey was done in the filling of questionnaire via mail.

Statistical Techniques

The measurable strategy which is utilized in this examination was Structural Equation Modelling. It is an augmentation of the general direct model and it follows the auxiliary connection in a lot of information (Chin et al 2003). This instrument demonstrates the connection between a few factors.

The instrument well joints the estimation display (affirmative factor) and auxiliary model (regression path analysis) into a single statistical synchronic test. The two strategies have been utilized to perform SEM: (I) Covariance Method (ii) Partial Least Square.

Validity

The instrument in order to be valid must include a set of items to ensure that it is relevant to the concept (Sekaran, 2003). The ability of a questionnaire to measure what it is intended to measure is defined as validity. We perform a peer review of the questionnaire to access its validity

Descriptive Statistics

Descriptive Statistics

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Our firm treats quality as the number one criterion when selecting suppliers	4.01	.058	1.079
Our firm regularly works together with our suppliers to solve problems	3.93	.060	1.123
Our firm and key suppliers have a continuous improvement program	3.95	.061	1.136
Our firm assists our suppliers to improve their product quality	3.89	.062	1.152
Our key suppliers are involved in our planning and goal-setting activities	3.94	.061	1.142
Our firm frequently measures and evaluates customer satisfaction	3.90	.062	1.151
Our firm frequently interacts with customers to set reliability, responsiveness and other standards for the firm	3.95	.061	1.133
Our firm frequently works to determine future customer expectations	3.95	.058	1.089
Our firm regularly evaluates the importance of our relationship with our customers	3.98	.059	1.112
Our firm facilitates customers' ability to seek assistance from us	3.93	.059	1.105
Our trading partners share business knowledge of core business processes with us	4.01	.057	1.077
Our firm informs trading partners in advance of our changing needs Our trading partners share proprietary information with us	3.93	.060	1.122
Information exchange between our trading partners and us is accurate	3.95	.059	1.107
Information exchange between our trading partners and us is timely	3.96	.060	1.129
Information exchange between our trading partners and us is complete	3.89	.062	1.152
Information exchange between our trading partners and us is reliable	3.94	.061	1.142
Information exchange between our trading partners and us is adequate	3.90	.062	1.151
Our firm has a continuous quality improvement system	3.95	.061	1.133
Our firm drives suppliers for shorter lead-times	3.95	.058	1.089
Our firm continuously streamlines ordering, receiving and other paperwork from suppliers	3.96	.060	1.127
Our trading partners respect the confidentiality of all the information they receive from us	3.95	.058	1.091

Our trading partners have been open and honest in dealing with us	3.97	.060	1.121
Our transactions with trading partners do not have to be closely supervised	3.88	.062	1.165
Our firms have invested a lot of effort in our relationship with trading partners	3.97	.059	1.099
Our trading partners have made sacrifices for us in the past	3.95	.059	1.106
Our firm and trading partners always try to keep our promises to each other	4.01	.058	1.079
Our trading partners abide by agreements very well	3.93	.060	1.123
Our firm has had a low inventory cost	3.95	.061	1.136
Our firm has had high labour costs	3.89	.062	1.152
Our firm has had low transportation Costs	3.97	.059	1.099
Our firm has had low operations costs	3.95	.059	1.106
Our firm has had minimal waste cost	3.97	.060	1.121
Our firm has made high profits	3.88	.062	1.165

The descriptive stats showed that there is a higher variation among the data. To the questions related to a strategic alliance, the majority of the respondents favoured the fact that food retail firms ensure quality, continuous improvement, and practices problem-solving skills. Moreover, the respondents agreed that their suppliers are involved in goal setting activities and improving product quality. The questions related to other constructs of supply chain practices including CRM, information sharing, trust, lean thinking and commitment, the respondents are favouring that they value evaluation, responsiveness and works on customers' expectations. Moreover, the respondents also agree that the quality of information is shared among the trading partners and they have constant quality improvement system. For the dependent variable, most of the respondents agreed that they have a lower cost related to transportation, operating and minimal waste cost. Moreover, most of the respondents agreed that they have high profits due to these supply chain practices.

1. Inferential Statistics

5.1 Reliability Analysis

Reliability Scores

Variables	No of Items	Number of respondents	Cronbach's Alpha
Antecedents of cooperative behaviour	34	350	0.857
SC Performance	34	350	0.827
SC Practice	34	350	0.930

Table 3. Reliability Statistic

Cronbach's Alpha	N of Items
.934	34

The reliability analysis showed .934 value of Cronbach alpha. This demonstrates that the scale has produced highly consistent results and the scale has yielded consistent results with being reliable at the same time. Among the three variables, the supply chain practices have the highest value of Cronbach alpha which shows that the scale of this variable is consistent and reliable enough to be used in the present study and the result drawn by this scale is highly generalizable.

5.2 Structural Equation Modelling

To test the study hypothesis we have used the structural equation model (SEM) whereas the testing has been gone through Smart PLS software. Moreover, to evaluate the indirect and direct effects of all the constructs the testing was done. The use of (SEM) structural equation model has been observed to be a foremost procedure that has been used below different regression models and methods (Barron & Kenny, 1986). Moreover, the equation of regression in study targets at explaining each construct to assess the cause and effect relationship while all of the factors in the causal model could demonstrate their cause and effect at the exact time. Likewise, the idea of using this model ensures to apply the technique of bootstrapping which has been viewed as reasonable for both small and large sample size and does not require any kind of indirect effect (Hayes, 2013).

Additionally, the concept of utilizing the structural equation model makes sure to apply the bootstrapping technique that has been preferred to be accurate for the sample sizes either large or small. It also does not need any such kind of indirect effects. If the AVE is more than 0.5 than the result is drawn that the loadings are good but less than 0.5 are termed as less effective for the study. In order to check the all direct and indirect effects, a technique has been implemented which is known as bootstrapping (Shrout & Bolger, 2002). The method was indicted by Baron & Kenny (1986) and is criticized by a number of researchers but is used widely in the rage of studies (MacKinnon, 2009).

Structural equation modeling used to evaluate the structural relationship between exogenous and endogenous variables. The structural equation modeling includes factor analysis and multivariate analysis of the model. Firstly we evaluate the model fitness and measure whether the paths showing the relationship between measured and latent variables are significant or not. The path diagram showed below::
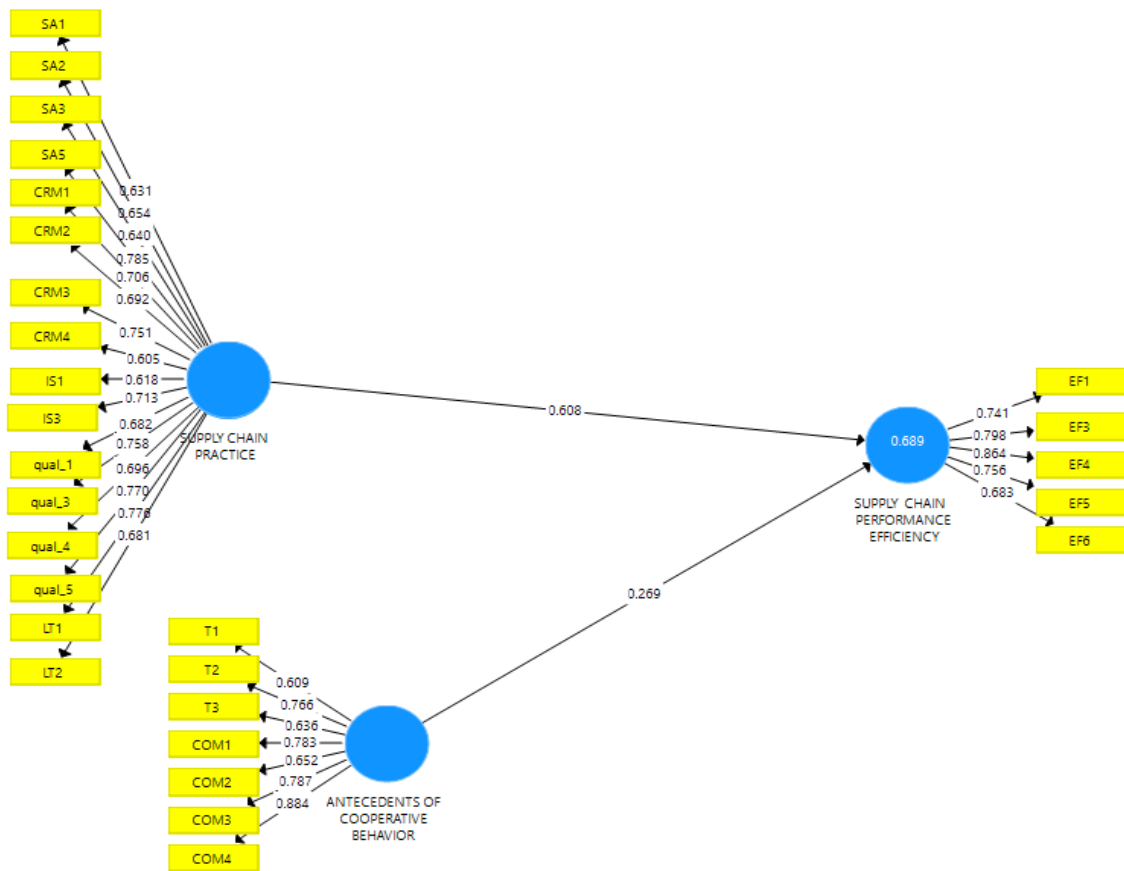
5.3 Composite Reliability

Reliability of the measurement instruments was evaluated using composite reliability. All the values were above the normally used threshold value i.e. 0.70. This is the accepted reliability value range. Estimation of reliability can be done by a degree of constancy that lies amongst various variables (Hair, 2010). Below is the table of composite reliability.

Variables	Composite Reliability
antecedents of cooperative behaviour	0.891
supply chain performance efficiency	0.879
supply chain practice	0.938

5.4 Confirmatory Factor Analysis

Below is the mentioned table of (CFA) confirmatory factor analysis with the loadings. Construct with the loading of 0.5 are considered as strong loading variables whereas the constructs with the loading of below 0.5 or less were removed from the table. Total of 31 items was in the table out of which 28 items were left rest were removed as the loadings were less than 0.5

Factor loadings Table

	Items	Loadings	T-value	P-Value
Antecedents of cooperative behaviour	communication1	0.783	30.915	0.000
	communication2	0.652	17.484	0.000
	communication3	0.787	34.299	0.000
	communication4	0.884	69.901	0.000
	trust1	0.609	16.455	0.000
	trust2	0.766	29.823	0.000
	trust3	0.636	17.182	0.000
Efficiency	efficiency1	0.741	18.921	0.000
	efficiency3	0.798	31.705	0.000
	efficiency4	0.864	49.913	0.000
	efficiency 5	0.756	28.109	0.000
	efficiency6	0.683	21.234	0.000
SC Practice	Customer relationship management1	0.706	23.729	0.000
	Customer relationship management2	0.692	21.239	0.000
	Customer relationship management3	0.751	28.515	0.000
	Customer relationship management4	0.605	16.277	0.000
	Information sharing1	0.618	14.763	0.000
	Information sharing3	0.713	24.873	0.000
	Lean 1	0.776	29.028	0.000
	lean2	0.861	22.022	0.000
	Strategic alliance1	0.631	16.384	0.000
	Strategic alliance2	0.654	16.972	0.000
	Strategic alliance3	0.640	15.834	0.000
	Strategic alliance5	0.785	26.927	0.000
	Quality of information1	0.862	31.184	0.000
	Quality of information 3	0.758	20.264	0.000
	Quality of information 4	0.966	31.351	0.000
	Quality of information 5	0.770	32.340	0.000

5.5 Discriminant validity

It shows the difference among the constructs in the model as defined by Carmines & Zeller (1979). If the constructs have the AVE greater than 0.5, the validity is said to be under the satisfactory line and this according to Chin (1998) shows that an average of 50% variance is taken by construct. The following table is showing the formation of discriminant validity as the factors in diagonal are greater than the off-diagonal elements situated at the parallel rows and columns.

	Antecedents of cooperative behaviour	SC Performance	SC Practice
Antecedents of cooperative behaviour	0.737		
SC Performance	0.728	0.771	
SC Practice	0.755	0.811	0.7

5.6 Convergent Validity

The table above also indicates the reliability and validity of the interrelated variables. The notion of reliability assists to demonstrate the consistency among the multiple variables and has been measured with the help of the PLS software. The study has been doing the reliability test by linking it with the Cronbach's alpha with the objective to measure the reliability of the scale. The present study has also followed the Cronbach approach to see the reliability of the scale which should always be higher than the value of 0.7 to ensure higher internal consistency. Thus, it has been noted that the Cronbach value for cooperative behaviour 0.73 which depicts the higher consistency. On the other hand, SC performance and SC practice also show

strong internal consistency by having the Cronbach value of 0.728 and 0.75. This implies that the variables have been closely linked with each other. Among all the three variables, SC practice showed

the higher and stronger consistency and makes adequate reliability of the data related to SC practice variable.

Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Antecedents of cooperative behaviour	0.857	0.891	0.543
SC Performance	0.827	0.879	0.594
SC Practice	0.930	0.938	0.489

CV was tested by inspecting the variation for every element. If variance extracted is greater than the standard value (0.5), CV is established (Fornell &

Larcker, 1981). The extracted variance was higher than 0.5 which showed that CV has been developed as shown in the table below

	Antecedents of cooperative behaviour	SC Performance	SC Practice
Antecedents of cooperative behaviour	**0.737**		
SC Performance	**0.728**	**0.771**	
SC Practice	**0.755**	**0.811**	**0.7**

5.7 Hypothesis Testing

Hypothesis	Standard Deviation	T – values	P -values	Decision
Antecedents of cooperative behaviour -> SC Performance	0.041	2.413	0.016	Supported
SC Practice -> SC Performance	0.093	5.538	0.000	Supported

Above is the table which displays the results of hypothesis, the variables having a relationship is positive as the p values of all variables are less than 0.05 which confirms that the variables taken for the study will have a positive impact on the supply chain performance in the food industry. The T value shows there is a significant difference between the variables and the P values depict the decision no relation has been rejected and the alternative hypothesis has been supported on the basis of p values.

Discussions

The study prompts to investigate the impact of supply chain performance and prior cooperative behaviour on the supply chain efficiency of the food retail sector. In order to answer the critical research question, the study looked followed the empirical observation and statistical validation of the data. The findings showed that there is a significant and positive relationship between the variables and prior cooperative behaviour and supply chain practice highly impacts the supply chain efficiency. As per the statistical findings, the null hypotheses of the proposed study have been rejected by accepting the

alternative one and showing that an essential relation exists between the dependent and independent variables. The findings are consistent with the qualitative analysis which implies that antecedent cooperative and SC practice plays an essential role in enhancing the Supply chain performance of the food sector of Pakistan.

As per the results, two main elements have been identified as statistically significant with the dependent variable. The two elements are lean thinking and information quality. Lean thinking showed the highest coefficient that reflected that a major focus should be given to the idea of lean thinking by the food retail industry of Pakistan. It is indeed the fact that lean thinking greatly influences food retailers and information sharing if not managed properly can lead to waste of food and cost by giving loss to all the stakeholders. The findings are consistent with the philosophy of lean approach that demonstrates that extra cost can be driven out by means of effective supply chain and result in to higher efficiency (Coote and Gould, 2006).

With respect to quality of information, the findings have been integrated with the previous studies (Li

and Lin, 2006) reflecting that appropriate sharing of information helps to make sure that there is a proper place for the partners of supply chain to indulge and collaborate fruitfully in the supply chain operations and related activities. The information sharing can be further enhanced through sharing the data related to point of sale and keeping the steady cut-off times by making use of ICTs (Li & Lin, 2006). ICT usage is also verified by other scholars such as (Ali, 2013). Food retailers are enforced to eliminate their inventory levels, this can be done by adapting effective supply chain practices to enhance information sharing as well.

The finding related to Supply Chain practice as a whole is aligned with the study of Rong et al. (2011) that explored that the incorporation of SC practices will allow raising the competitiveness of the food market by raising their integrity among the consumers. The results are somehow different from the study of Australian study as the Australian study is focusing on the factors that are subjected to the Australian context for which the variables are different than that of Pakistani industry which is the focus of the present research.

The results have showed that there is a direct and positive effect on SC practice and cooperative behaviour which indicates that by implementing the effective SC practices, the food sector of Pakistan will be able to improve its supply chain efficiency by meeting the higher standards that would serve to increase the efficiency and productivity of the food retail sectors of Pakistan. The study makes several contributions by proposing a framework to define the Pakistan food retail supply chain and its practices. The SC practices, its pointers and previous corporate attitude food retail industry of Pakistan are difficult and diverse, hence, knowing the important aspects' of supply chain, businesses could be able to locate major vicissitudes and improve the industry which will directly influence the revenues of the food retail firms and will also serve to eliminate the cost of the SMEs in the food retail industry.

The following study offers the theoretical contributions by serving to the existing literature in examining that in what way SC practice and previous cooperative behaviour affect the supply chain performance of the food sector of Pakistan. The present study is showing the essential role of the SC practices and the previous cooperative by measuring it on the basis of trust and commitment to illustrate that how trust and commitment play the major role in improving the efficiency of the supply chain department of food retail sectors of Pakistan. Moreover, the study has also served to the present literature by generating research that sees to attempt the systematic understanding of SC and preceding cooperative behaviour by showing its effect on the supply chain performance of food sector. The findings of the study have the important implication for the future researchers in knowing the dimensions that can help to position the primary changes which will further assist to raise the revenue and eliminate the cost of the food retail supply chain.

Conclusion

The food retail sector in Pakistan is going through some essential changes. This change has been brought by the competition in the price among the SMEs followed with an increase in the practice of private labels and supply chain integration affecting producers and processors. The past literature has been joining the information of this quickly changing condition to analyse the SC practices of food retailers. In this kind of business environment, supply chain management has been observed to have a dramatic impact on the industry. With this in mind, the present study looks forward to investigating the impact of SC practices and the previous corporate behaviour on supply chain efficiency of food sector of Pakistan. The independent factors of the study are SC practice and antecedents of corporate behaviour and the dependent variable is Supply chain efficiency. Pakistan food industry has been chosen as the central focus of the study. This investigation will help to know the essential role of SC practices and ways it can increase the supply chain efficiency of the food sector. In order to fulfil the research objectives, the present study has taken the sample size of 350 respondents. The data has been collected through a questionnaire. The questionnaire composed of five Likert Scale from which the data has been gathered from the food sector of Pakistan. The data has been analysed by means of Structural

Equation Modelling. The results showed that there is a significant relationship between SC practices, antecedent cooperative behaviour and supply chain performance. The theoretical literature showed that The descriptive findings showed that there is a higher variation among the data. The statistical findings have clearly revealed that SC practices such as the leans thinking approach can essentially help to enhance the revenues and cut the cost of the supply chain of the food retail sector. The study has essentially covered the gap by statistically and theoretically signifying the role of supply chain practices to enhance supply chain efficiency in the food industry.

The gap discovered is backed up by the previous theoretical argument such as Earlier studies (Finch, 2006) have spoken about the effect of supply, manufacturing/processes, transportation and demand uncertainty on SC performance in retail businesses. But, there are rare studies who investigated how SC practices influence on food industry (Rong et al., 2011). By these prior researches, the study has been able to recognize the gap and covered it by means of exploring the SC practices and its role to improve supply chain efficiency mainly in the food industry.

Future Recommendation

The study has the limitation of the time constraint as due to the limited time, the researcher is unable to do the in-depth study due to which it is suggested to do a longitudinal study in future researches. Moreover, the present study has the limitation of small sample size which recommends the future scholars to prefer a detailed study in the same industry by taking a larger sample size. Lastly, the study is limited to focus on the single sector only which suggest the future scholars to expand the study by considering another sector such as, manufacturing and food sector of Pakistan and also expanding the study by taking other factors like reverse logistics.

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