The Effects of Supply Chain Management Practices (Strategic Suppliers Partnership, Information Sharing, and Postponement) On Organizational Performance in Consumer Goods Manufacturing Industry of Pakistan

Wajahat Hussain, Jabir Hussain, Sajjad Akbar, Numair Ahmad Sulehri, Zahra Maqbool

Abstract
To compete successfully in today’s challenging business environment, companies need to focus on SCM practices that have great impact on enhancing their performances. This research conceptualizes the effects of SCM practices (SSP, IS, and POS) and tests the relationships between SCM practices and OP in consumer goods manufacturing industry at Pakistan. A questionnaire of SCM practices as a multi-dimensional construct that encompasses upstream and downstream sides of supply chain (Li et al, 2006) was used to collect the data of 331 managers and employees from 83 consumer goods manufacturing companies. The supply chain practices at Pakistani environment are not that much practiced as the results depict that SSP is positively impacting OP while level of IS and POS are negatively correlated to SCM practices due to cultural and environmental circumstances and nature of the practices. (Gibson, Mentzer, & Cook, 2005) brightened the fact that SCM is in its initial/early phases of progression. The expertise of, why and how SCM practices touches firms performance, which extents are predominantly/especially important is still incomplete. The above reasons also confirm that the supply chain practices are in its inception stage at Pakistan.

Keywords: Organizational Performance (OP), Strategic Supplier Partnership (SSP), Level of Information Sharing (IS), Postponement (POS).

1. Introduction
The SCM was defined as “The integration of the processes, systems, and organizations that control the movement of goods from the supplier to a satisfied customer without waste.” Ellaram,(1991). Ancestral supply chain arrangements for provision of goods and services to marts and bazaars have been tested at larger fronts, (Rahman., 2003). Elite SCM practices of SSP, IS, and POS can lead to magnificent OP while level of IS and POS are negatively correlated to SCM practices due to cultural and environmental circumstances and nature of the practices. (Gibson, Mentzer, & Cook, 2005) brightened the fact that SCM is in its initial/early phases of progression. The expertise of, why and how SCM practices touches firms performance, which extents are predominantly/especially important is still incomplete. The above reasons also confirm that the supply chain practices are in its inception stage at Pakistan.

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objectives by concentrating their efforts on effective implementation of SCM practices. (Rajendra et al., 2011) found that the present day inclination and flow of adopting SCM practices of information technology, IS, SSP, outsourcing and third party logistics have vast scope and room for further refinement and excellence. Although to infuse trust and mutual cooperation in supply chain through vital information sharing with suppliers for enhanced efficiency is a big practical challenge for organizations. This research intends to answer the questions for Pakistani contextual environment. Therefore the problem statement applied in the Pakistani contextual environment attracts the research question (RQ) that:

**What are the effects of supply chain management practices of (SSP, IS and POS) on OP in consumer goods manufacturing industry of Pakistan?**

2. Literature Review

Supply Chain Management (SCM)

According to Ganeshan and Harrison (1995), a supply chain is “a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers.” The most frequently stated definition of SCM is from Global supply chain forum as “SCM is the integration of key business processes from end user through original supplier that provides products, services, and information that add value for customers and other stakeholders” (Global Supply Chain Forum as reported in Lambert, cooper and pagh., 1998, p. 1).

Organizational Performance (OP)

The Superior SCM practices enhance organization’s market performance and financial performance such as, market share, return on investment, the growth of market share, the growth of sales, growth in return on investment, profit margin on sales and overall competitive position of the organization (Li et al., 2006). The use of accurate and authenticated financial reporting adds reliability to the performance of an organization,(Melnyk ,Stewart & Swink. 2004). The financial performance and profits of an organization improves by upstream and downstream information sharing which also reduce the cost and risks, (Nooteboom, 1992 ;Clemons & Row, 1992; Clemons, Reddi, & Row,1993; Mabert & Venkataramanan, 1998; Stroeken, 2000).

Supply Chain Management (SCM) Practices

The importance of SCM practices attracted the attention of well reputed educational institutions around the globe as a business necessity due to the growing demand of the business world (Ballou, Gilbert & Mukherjee, 2000). Donlon (1996) stated SCM practices as practices that contain supplier partnership, outsourcing, cycle-time compression, process flow and information sharing. Otto and Kotzab (2003) labelled SCM practice as a distinct form of strategic partnership amongst sellers and suppliers.

Strategic Supplier Partnership (SSP)

The increased inclination of many manufacturing organizations towards adoption of co-operative relationship with a small number of trusted suppliers proved fruitful in the past eras (Ford, 1990; Anderson, Hakansson, & Johanson, 1994; Wilkinson & Young, 1995; Sheth, 1996; Sheth & Sharma, 1997). Vonderembse and Tracey (1999) piloted an investigational study on the effect of supplier choice and its contribution on manufacturing organizations performance. Their results concluded that improved relationships /partnerships between organization/supplier contain noteworthy impression on supply chain/OP. Gunasekaran, Patel and Tirtiroglu (2001) stressed upon the importance of SSP due to long-term mutual benefits for all tiers of the supply chain.

Level of Information Sharing (IS)

Childhouse and Towill (2003) defined level of IS as “The extent to which critical and proprietary information is communicated to one’s supply chain partner”. The frequent flow/exchange of information
between the value supply chain allies enhances their combined capability as a united single unit. Jointly they can assess the market and consumer needs in a much better way resultantly they respond faster than others to dynamic consumer needs and market situations (Stein & Sweat, 1998). The more essential SCM practices are the quantity of information and quality of information which are the two key components of level of IS and reflect the efficiency with which information is shared within and outside the organization (Monczka, Petersen, Handfield, & Ragatz, 1998). Zhou and Benton (2007) explained in their research that IS is a basic element of effective supply chain practice, sophisticated level of IS is more significant for effective supply chain practice to attain higher level of performance. Li and Lin (2006) revealed in their research that supplier’s uncertainty has a negative effect on IS and information quality whereas trust and shared vision amongst the supply chain partners has a positive effect on IS and information quality, similarly the top management has a positive bearing on IS.

Postponement (POS)

Johnson and Davis (1998) defined/demarcated POS as the practice of moving/shifting forward one or more operations/processes or activities/events (making, sourcing and delivering) to a much later stage in the supply chain of an organization. The exercise of moving forward one or more operations or actions (making, sourcing and delivering) to a considerably later point in the supply chain is known as POS (Beamon, 1998). Pagh and Cooper., (1998) highlighted that POS requires matching the type of goods, market demands of an organization, and arrangements or limitations within the manufacturing and logistics system/structure. Ernst and Kamrad (2000) streamlined the supply chain of an organization into three stages comprising of manufacturing, assembling and packaging, with manufacturing stage related to modularization and packaging stage related to POS. Logistics POS is the delaying of the downstream or forward movement of goods/products in supply chain processes and storing finished goods/products at central hub localities in the delivery network. Logistics POS can be viewed as the combination of time and place POS (Yang et al., 2004a).

3. Research Methodology

Study Population

The total population for this research was managers and employees of consumer goods manufacturing industries of Pakistan, which comprises of following cities (Haripur, Rawalpindi, Gujranwala, Gujrat, Wazirabad, Daska, Sialkot, Lahore, Multan, Bahawalpur, Karachi). The data was collected using 22 items related to the four supply chain management practices mentioned above. The population of this research was the managers and employees of four organizational departments (production, procurement, inventory & management) of consumer goods manufacturing industries of Pakistan.

Research Model

**Fig.3.1, Research Framework (Li et al., 2006)**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic supplier partnership</td>
<td>Organizational performance</td>
</tr>
<tr>
<td>Level of Information sharing</td>
<td></td>
</tr>
<tr>
<td>Postponement</td>
<td></td>
</tr>
</tbody>
</table>
Sample and Sampling Technique

The sampling method used was quota sampling, as 4 questionnaires were given to each industry to get an unbiased opinion from all four organizational departments. In total 500 questionnaires were floated to a sample of 500 managers and employees in 125 consumer goods manufacturing industries of 11 cities of Pakistan, which comprises of following cities (Haripur, Rawalpindi, Gujranwala, Gujrat, Wazirabad, Daska, Sialkot, Lahore, Multan, Bahawalpur, Karachi). From which 331 questionnaires were returned from 83 companies.

Research Instrument

The research instrument was adopted from (Li et al., 2006). The items/ questionnaires are given at Appendix-A. The questionnaire was developed to collect answers from the respondents using 5 point likert scale. Appendix-A comprised of section-1 which included 6 demographic items & section-2 reflected the 22 research questionnaires adopted from (Li et al., 2006). The survey questionnaire in this study was distributed to respondents from 21st September 2013 to 30th November 2013. As the research instrument developed by (Li et al., 2006) was not for Pakistani environment so a pilot reliability test was carried out on the initial 60 questionnaires. Which was satisfactory and later on they were merged in the overall response obtained in due course of time.

Reliability Analysis

The Alpha reliability was applied on all variables. POS with Cronbach’s Alpha reliability of .876 is the highest, while OP with .724 is the lowest amongst variables, indicating a good and overall acceptable internal reliability of instrument used for research. SSP and IS has cronbach’s values of .791 and .841 respectively. Also the accumulative Cronbach’s Alpha Reliability is .7815 which again proved to be a good reliability of the measuring instrument.

4. Analysis

The Inferential Statistics Analysis

The correlation (see table.1) between OP and SSP is (.220**) which indicates that a week positive correlation is significant at the .01% level of significance between the two variables, also the positive correlation reveals only the relationship that if the units of one variable is increased so the value of other variable will also increase. SSP is also significantly correlated at 0.01% level of significance with IS, with a positively very strong value of (.825**). Also SSP has a weak positive relationship with POS with a value of (.449**) at .01% level of significance. The above results show that SSP is significantly and positively related with the rest of the two independent variables and also along with the dependent variable OP. Thus SSP is a more favourable element or factor of Pakistani consumer goods manufacturing industry. The IS has very week positive and an insignificant correlation with organizational performance with a value of (.023) at .01% level of significance. The OP is negatively correlated with POS and the indication is also significant at .01% level of significance. While POS has positive but weak correlation with SSP and IS with the values of (.449**) and (.479**) at .01% level of significance.
Table 1: Correlations

<table>
<thead>
<tr>
<th></th>
<th>OP</th>
<th>SSP</th>
<th>IS</th>
<th>POS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP</td>
<td>Pearson Correlation</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSP</td>
<td>Pearson Correlation</td>
<td>.220*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>IS</td>
<td>Pearson Correlation</td>
<td>.023</td>
<td>.825*</td>
<td>1</td>
</tr>
<tr>
<td>POS</td>
<td>Pearson Correlation</td>
<td>-.226*</td>
<td>.449*</td>
<td>.479*</td>
</tr>
</tbody>
</table>

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Model Summary

The model summary reflects the value of R as (.473*), R square as (.223), Adjusted R Square as (.216) and standard error of the estimate is (.199). The model R square explains that the change in dependent variable OP due to the collective effects of independent variables (SSP, IS & POS) is 22.3%. Whereas rest of the (77.7%) effects on OP is due to other variables not included in this research. Similarly the R squared is the fraction/amount of change in the dependent variable OP which can be explained by the independent variables (SSP, IS & POS). The Adjusted R squared is the fine-tuning of the R squared that disciplines the calculation of superfluous predictors to the model.

Table 2: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.473*</td>
<td>.223</td>
<td>.216</td>
<td>.199</td>
</tr>
</tbody>
</table>

Note. a. Predictors: (Constant), SSP, Level of IS, and POS.

The Coefficients Model

The model in (table 3) presents the constant value of 4.189 with the standard error of .068, also the B values of SSP is shown as (.196) with standard error of .025, IS was denoted by (-.105) with a standard error of .025, and POS as (-.130) along with a standard error of .020 associated with the coefficients. The t-value for SSP is (7.938), IS as (-4.242), and POS as (-6.369). The t-values are greater than 2 for all the three independent variables with all the p-values for the three independent variables are statistically significant showing the p-values as (.000). The beta value shows the individual impact of independent variable on the dependent variable.

Table 3: Regression

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant) a</td>
<td>4.189</td>
<td>.068</td>
<td>61.544</td>
<td>.000</td>
</tr>
<tr>
<td>Strategic Supplier Partnership</td>
<td>.196</td>
<td>.025</td>
<td>7.938</td>
<td>.000</td>
</tr>
<tr>
<td>Level of information sharing</td>
<td>-.105</td>
<td>.025</td>
<td>-4.242</td>
<td>.000</td>
</tr>
<tr>
<td>Postponement</td>
<td>-.130</td>
<td>.020</td>
<td>-6.369</td>
<td>.000</td>
</tr>
</tbody>
</table>

5. Discussion

The prior researchers mentioned in their researches that “SCM Practices such as SSP; IS, and POS are positively interconnected and linked to OP (Li et al., 2006)”. In the light of the previous researches following hypotheses were proposed to be tested in Pakistani environment.

First Hypothesis

**H1:** SSP practice in consumer goods manufacturing industry of Pakistan is positively related to OP.

The correlation between OP and SSP is (.220**) which indicates that a weak positive correlation is significant at the .01% level of significance between the two variables. The SSP practice in consumer goods manufacturing industry of Pakistan is positively related to OP and is supported by the research findings at Pakistani contextual environment. Which was also in relation/harmony with prior research studies of (Chen & Paulraj, 2004; Li et al., 2006; Thatte, 2007). Therefore alternative hypothesis one was selected while the null hypothesis was rejected due to following reasons: (1) The resulting Pearson correlation coefficient p-value for SSP was significant, with t-values greater than 2 as (7.938) supported the hypothesis one that the impact of SSP is positive on OP in Pakistani contextual environment.

Second Hypothesis

**H2:** The IS practice in consumer goods manufacturing industry of Pakistan is positively related to OP.

The level of IS practice was weak but positively correlated with OP with a value of (.023) with an insignificance result of (.677) at .01% of significance. This shows an insignificant result. The resulting Pearson correlation coefficient p-value for IS was (.000), with t-value greater than 2 as (-4.242) and B value of (-.105) warrants the rejection of alternative hypothesis and the null hypothesis was selected.

**H0:** The IS practice in consumer goods manufacturing industry of Pakistan is not positively related to OP.

This was not in conformance/harmony with the prior research studies due to following reasons:

(1) Li and Lin (2006) exposed in their research that supplier’s uncertainty has a negative effect on IS and information quality whereas trust and shared vision amongst the supply chain partners has a positive effect on IS and information quality, similarly the top management has a positive bearing on IS. The above statement suggested the possibility of negative association due to uncertainty in the market place also lack of trust and shared vision may affect the desired out comes in an uncertain business environment.

(2) Fiala (2004) highlighted that information disproportionateness can lead to inadequacy in supply. The same can be the cause that reduces the trend of IS because it is not proved to be reliable in business environment.

(3) Li and Lin (2006) suggested that managers can play a major role to reduce the unwillingness/hesitancy in sharing information, by building an organizational culture favorable to share clear and flawless information with close business allies and partners. The above research findings contribute to the conclusion that information sharing needs favorable business environment where uncertainty is less and IS organizational culture prevails.

(4) Li and Lin (2006) highlighted the fact that IS is subjective to contextual dynamics or factors, which include type of manufacturing industry, its size and place in the supply chain, supply chain extent, and kind of supply chain, which are not included in this study. For instance the bigger industry may have advanced levels of IS since they usually have more multifarious supply chain nets requiring added every day current information interchange with its allies. so one of the reason for not sharing information in consumer goods manufacturing industry is that most of the companies were small and would not share their business information that frequently with business partners.

(5) (Gibson, Mentzer, & Cook, 2005) illuminated in their work that SCM is a branch of knowledge or a field of study in its initial/ early stages of evolution. The understanding of, why and how SCM
practices affect firms' performance, which areas are particularly especially important is still incomplete.

(6) (Muhammad, Qayyum, Ali & Shazad., 2013) explained in their research at Pakistan that the SCM practices are not in harmony with OP. They also mentioned that Supply Chain Procedures possibly affected by contextual components, like the business type, industrial aspects, the company’s location inside the supply chain.

(7) The above reasons confirm that the supply chain practices are in its inception stage at Pakistani business environment and a lot of study and deliberation is required to implement them in our manufacturing industry.

Third Hypothesis

H3: The POS practice in consumer goods manufacturing industry of Pakistan is positively related to OP.

The above hypothesis was not established as the Correlation with the POS indicated a negative correlation of \((-0.226^{**})\) which is significant at .01\% level of significance. Similarly the coefficients model value of POS affected/impacted the OP by the amount of \((-0.130)\) if one unit of POS is increased, which is also statistically significant at .05\% level of significance. The result do not support the alternative hypothesis so the null hypothesis was selected.

H0: The POS practice in consumer goods manufacturing industry of Pakistan is not positively related to OP.

This was not in conformance with prior studies due to following reasons:

(1) Yang and Burns (2003) pointed out the fact that Irrespective of the type of industry, the practice of POS as a supply chain strategy is not easy or stress free. They also recommended that firms have to comprehend the expenses/costs involved and paybacks of POS, similarly the manufacturing organizations should also learn to challenge impediments in the way to an effective adoption and assumption of POS strategy.

(2) Harrison and Van Hoek (2005) were certain of the fact that practice of POS varies depending on the operating settings that differ by the type of manufacturing industry. Their comparison/findings of the practice of POS in diverse industries highlighted the fact that automotive industry is leading ahead of electronic industry but food and other industries are far behind in the practice of POS.

(3) Adebayo and Toyin, (2012) found the impact of POS is at relatively low significance in Nigerian manufacturing industry.

(4) (Gibson, Mentzer, & Cook, 2005) highlighted that supply chain is in its preliminary/early stages of progress. The understanding of, why and how SCM practices affects firms performance, is still not fully understood or the present knowledge is still inadequate for perfect implementation. This reasoning endorses that the supply chain practices are in its inception stage or beginning stage at Pakistani business environment and a lot of training and consideration is required to implement them in our manufacturing industry.

(7) The above reasons highlight the advance nature of POS strategy which may not be desired by the manufacturers at Pakistan due to added costs and long term paybacks, who are at their early/initial stages of understanding the implementation process of supply chain in relation to Pakistani contextual environment. Thus POS requires calculated and determined approach by the manufacturers in collaboration with their suppliers to make POS successful at Pakistani contextual environment. We are still in learning stage of understanding SCM practices at Pakistani environment and more time and effort is required for their practical implementation.
Limitations

This study has been done to see the impact of supply chain management practices on the organizational performance, covering the whole consumer goods manufacturing industries of Pakistan. The scope of this research was enormous, collection of data was extremely difficult due to fewer resources and time bondages, only 83 manufacturing companies, responses were included. It was the initial effort to study the consumer goods industry at Pakistan; the researchers explored it in a holistic entity. Future research should divide the consumer goods manufacturing industry in small, medium and large size organizations to see more prominent effects in those sectors. Due to the massiveness of the subject all elements and factors could not be incorporated in one research. Additional practices of supply chain could have brought better results but time constraints restricted the progress. Future researchers should also augment their research with more SCM practices like, product development and commercialization, manufacturing flow management, logistic management and JIT to cover the whole spectrum of supply chain.

6. Conclusion

The consumer goods manufacturing industry of Pakistan has a huge potential for growth and prosperity in the coming future. It is the responsibility of the managers and senior authorities to tap the full potentials of this sector. Success factors like supplier strategic partnership in the Pakistani environment should be enhanced under government sponsorship to strengthen the consumer goods manufacturing industry of Pakistan. The interest and cooperation of industry is very much necessary for success of future researches. The will of senior managers is prerequisite to bring a positive change in IS practices and implementation of POS strategy to enhance their OP.

7. Recommendations

The recommendations for betterment of consumer goods industry and research process are mentioned as under:

(1) The consumer goods industry should be affiliated to academia/universities for industry specific research and solution finding projects. The advantage of this strategy would be harvested by the industry in the shape of better skilled manpower and refinement in their practices through organization specific research.

(2) Universities should remain in communication with their affiliated organizations, to work in collaboration with their R & D department. This will provide students with the opportunity to research on practical problems of their affiliated industries. This will also prevent the wastage of research findings and a practical implementation will refine our SCM knowledge and practices according to the Pakistani environment.

(3) Information Technology basic courses and SCM short courses for managers of consumer goods manufacturing industry should be made mandatory by the organizations.

(4) Local manufacturers should learn the practices of their foreign competitors and local adoption should be measured through bench marking.

(5) To acquire the desired level of efficiency in the practices of supply chain for better growth and financial performance of the organizations, a combined approach and a unpretentious will by the consumer goods manufacturing industry is required.

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