

External Supply Chain Management's Impact on Indian Firms' Financial Performance; The Mediating Role of Supply Chain Sustainability

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Abstract-

This study aims to provide empirical results about the external management practices in supply chain on the financial performance of manufacturing firms in India. It also emphasizes the mediating role of sustainable supply chain management and its importance while considering the relation between external practices and performance. Quantitative method in the form of questionnaires is adopted in this paper. Using this survey method, the information is collected from the 346 manufacturing firms of India and is then analyzed by using statistical tools such as SPSS and AMOS. The findings clearly depicts that there rely a positive significant relationship between external supply chain practices and firm financial performance. It also positively signifies the intervening role of sustainable efforts among this relationship. It is an extension to literature related to sustainable supply chain management practices and their impact on performance levels of firms. It also help mangers to focus on their external socially responsible supply chain practices to elevate financial performance. This study focuses on the comprehensive supply chain management practices on the manufacturing firms of India. It also elaborate the significance of sustainability and its impact on performance indicators and growth of firms.

Keywords: External supply chain management, supplier monitor assessment, supplier collaboration, sustainability, financial performance, India

Introduction

With the increase in modern trends, the term sustainability has achieved a significant importance. It has become a major element in the strategic agendas of firms particularly those which are closely related to high supply chain practices [1]. The term sustainable development deals with meeting the needs of today rapidly growing population without compromising on the future needs of upcoming generations. Firm working under such conditions try to focus and create a balance between socio-economic and environmental issues on micro levels as proposed by triple bottom line theory [2]. This theory clearly explains that in order to increase profitability, firms also have to focus on their social and environmental factors too. It focuses on three dimensions collectively including people, planet and profits. As related to performance of a firm, it also focuses on its three dimensions including environmental, social and financial performance [2]. This study developed a strong relation between sustainability and firm performance. With the growing concern of social practices to achieve sustainable development, firms now are paying more attention on social and environmental responsibilities. This can be evident by their sustainability reports generated in terms of corporate social responsibilities [3]. Now firms are indulging more in deep supply chain practices with the adoption of sustainability efforts. Such firms are involved in providing better working conditions among employees as well as provide better support to the society in the form of social practices [4]. Sustainable supply chain management is embedding at both individual and organizational levels because of the emerging awareness of sustainable efforts and

increase in social responsibility and development. Managers in an organization need to focus on these social responsibilities and values and their responsibility towards public at large.

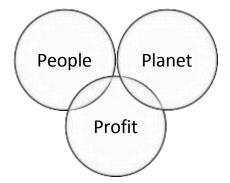


Figure1.Triple bottom line

Supply chain sustainability is considered to have a vital role in development of corporations and their survival and also a key factor in enhancing innovation element in their processes [5]. Supply chain focus on all the positive and negative effects a person has that creates a dynamic impact on whole supply chain practices because of having interrelation association with each other. It also focuses on the all the members in managing a supply chain integration. Any step made by these members are considered to have a huge impact on social attitudes [6]. Organizations have to consider all the performances related to the whole supply chain and must be held accountable for those practices [1]. Usually firms adopt supply chain sustainability efforts in their processes because it not only manage their own operations but also all persons involved in these chains to provide better value. Firms adopting supply chain competencies in their processes have to improve their internal sustainability in the form of socio-economic performance while also focusing on their external sustainability management in order to mitigate the risks associated with practicing such responsibilities [7]. This study therefore, explores the external supply chain practices in India manufacturing firms. Also it explains the effect of those external management supply chain practices on the financial performance of firms. Moreover, it provides significant contribution made by the supply chain sustainability. So, the main purpose of this study is to explain the relationship between external supply chain management and financial performances of firms in India. It also highlights the mediation role of supply chain sustainability in enhancing such practices and their impact on performance.

The remaining paper after this section is structured as follows; second section critically reviews the literature by proposing hypotheses about external supply chain management, supply chain sustainability and financial performance and their relationships. Third section explains the detail research design and tools. Fourth section describes results and analysis and finally the fifth section concludes the results obtained with some limitations and future indications.

Literature Review

Supply chain sustainability

Sustainability refers to the responsibilities a firm has towards its society in terms of environmental, social and economic practices. This term is closely related to supply chain management (SCM) practices and managing environmental factors by integrating people, profit and planet together under one shade. This concept is closely associated to the triple bottom line theory that allow organizations to maintain a balance between its internal and external practices. It focuses on providing opportunities to the people without making any compromises on the future resources [8]. Sustainable supply chain management practices allow firms to boost up their performance by providing a

set of skills that enable firms to maintain its structures and business processes. Sustainable supply chain management has a significant relation with the strategic plans and activities that enable firms to make implementation of social and environmental factors in their core values in order to improve performance in terms of socio-environmental performance [4]. With the increase in performance levels, it also provides well-being to its suppliers and customers without making economic compromises [9]. Sustainability allow firms to focus on their internal as well as external processes. These internal processes include production processes going on in their production plants whereas external processes focuses on their customers and suppliers and to improve their relation with internal processes [10].

In the end on 1980s, the term sustainability and its applications particularly in supply chains gained a significant importance [11]. Mostly, sustainable supply chain practices not only address social or environmental policies and responsibilities but it also considers the interrelated connections between them [12]. The emergence of sustainability approach started with the development of issue related to environment. It was defined as green supply chain management first and was related with the integration of environmental practices into the supply chains [13]. Few consider it as a process that must be accompanied by all the phases of a product development until the product reaches to its end consumers. Moreover, it also emphasizes organization to adopt such policies after the end of the life cycle of such products [14]. It also enhances the performance level of firms and maximize their profitability. Numerous studies divert their attentions to this emerging concept and adoption of CSR and other environmental policies. A study related to this can be seen in different regions over the world including China [15], Brazil [16,17] and India [18,19].

External supply chain management

Social sustainability has attained a significance importance in today emerging economy by providing awareness and by diverting the attention of firms to adopt more social practices related to health, equity, labor safety, education ethical practices [20]. Supply chain sustainability has focused more on health and legislative issues as compared to ethical or cultural issues in firms [21-23]. Supply chain sustainability also links manufacturers and suppliers together with the firms which help organizations to achieve high profitability. Without such practices, firms may backlash because of the absence of social management practices [20,24]. Because of the integration between different levels or units in a supply chain, any impact created by any member can affect the whole supply chain members both internally and externally. Suppliers are considered to be the most influential external factors that are directly or indirectly involved in the changes infirm performance levels [25]. Studies indicate that suppliers are the key members whose social or environmental crisis have deep impact on overall performance of firms. These crisis are also associated with the reputation and core values of any firm. Therefore, firms have to focus and shift their internal management practices to the external factors such as vendor, suppliers or partners. In such case, supplier monitor and assessment system is considered to be the most significant.

Supplier monitoring and assessment

Now firms are paying more attention and shifting their traditional of management ways towards the adoption of supply chain practices and focus more on developing alliances with the suppliers and external partners [26]. Environmental monitoring strategies by suppliers plays an imperative role in enhancing the financial conditions of firms. It has provided away for the firms to develop such Strategies and policies that are strongly accepted by the market [27]. Association with suppliers is considered to be the main source of providing monitoring and assessment values by the suppliers to the respective firm. In manufacturing firms, increase in performance levels rely mostly on the close relations with the suppliers [28]. Firms have to make close links with the suppliers to assessing and maintaining sustainability practices and to monitor such practices in supply chains according to the market conditions. While adopting such practices, documentation of policies and processes are required and that are closely linked with monitoring and assessment mechanisms [29].

Supplier collaboration

Environmental collaboration of suppliers has also played a fundamental role in affecting the performance and its implications on the value of firms. It has recently gained a significant focus in research related to supply chains [30,31]. Collaboration with suppliers in the form of forecasting, planning and adaptation in the systems helps organizations to pay more attention towards the successful development of sustainability efforts in their supply chain practices which not only enhance their overall financial performance but also reduces hurdles related to financial performance [32]. Since sustainability has become a major part of practices by the firms, it not only allow firms to refocus on their goals and mission but it also emphasize firms to elicit more towards collaboration with suppliers [33]. Studies indicate that lack of information sharing process and collaborations with suppliers create hurdles towards adoption of sustainable strategies [34]. Such collaborations efforts with suppliers can enhance the firm processes related to its products and services. It can also help firms to identify sub optimization problems in the supply chain at the beginning of the manufacturing stage [35].

Financial performance and supply chain sustainability

With the development of SCM practices, it is not only allow firms to focus on their social or environmental behaviors but also allow them to evaluate their performance. Sustainability in supply chain practices of firms emphasize on the implementation of social and environmental practices in their supply chain [1,36,37]. Studies on supply chain practices found various types of performance indicators for the management. These performances include social, financial and environmental performance [38]. Apart from these, economic performance also gained a significant importance in supply chain. Such performance is considered to have more association with the evaluation of economic status of firms in industry [39,40]. Numerous studies have been conducted to evaluate the significance of sustainability and supply chain practices on performance indicators of the firms. These studies consider social, economic, and environmental performances to identify the impact a supply chain has on firm overall performance [41]. However, a sustainability practice in supply chain has also played a significant impact on financial performance of businesses as well. Financial performance describes the overall health of a firm by considering all the angles. It usually explains that how businesses run their operations from their primary business and also how they grow by increasing in revenues and profitability [38,41,42].Most of the studies concerning the influence of supply chain management adopted various other performance indicators such as environmental performance, social performance etc. [41]. Therefore, this study focuses to evaluate financial performance of firms because of the development and implementation of strong external supply chain practices having direct or indirect impact on performance level of firms. Therefore, the hypotheses of this study include

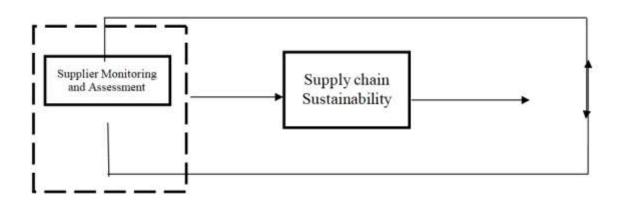


Figure 2. Theoretical framework

H1: Supplier monitoring and assessment has significant and positive impact on financial performance of firms.

H2: Supplier collaboration has significant and positive impact on financial performance of firms.

H3:Supply chain sustainability positively mediates between external supply chain management and financial performance of firms.

Methodology

Measures

Survey method has been adopted for this study. A questionnaire has been developed for this purpose. Scales adopted for this questionnaire are developed from the previous literature. These adopted scales are slightly modified according to the needs of the variables adopted in this study. To measure external supply chain management, two variables have been adopted including supplier monitor assessment and supplier collaboration. Nine constructs have been adopted to measure supplier monitor assessment from the studies of [43,44] whereas eight constructs have been used to measure supplier collaboration from the studies of [7,44,45]. However, to measure financial performance of firm, scales have been adopted from studies of [41,46]. In order to measure supply chain sustainability constructs have been taken from the study of Mani, et al. [47]. These constructs have been passed through rigorous testing and review process in order to avoid any errors.

Data collection method

Data is collected from the manufacturing firms of India and the key respondents selected are the mangers related to supply chain practices. The information related to the list of manufacturing firms in including their contact numbers and address details is obtained from online India databases. First, prior approval have been made from those firms through telephonic contacts and mails. After their response from representatives of firms, the well-structured questionnaires were sent to them through mail along with the time limit. Continuous follow ups were also conducted with these representatives through telephones to collect the data as early as possible. After that, the questionnaires are returned back. Out of 400 questionnaires, 370 were returned back with in time. These questionnaires are then passed through review process again to eliminate any blank or wrongly filled questionnaires. This process leave the sample size for this study to about 346. The collected data is then scrutinized by using various statistical tools including SPSS and AMOS.

Data Results and Interpretation

There are400questionnaires are distributed among the India manufacturing sector, out of which 346 questionnaires are used for major analysis for current research. first of all, the frequency test was used in order to check the demographical profile of the respondents, which based on their age, gender and experience. The findings show that there are 136 female and 155 males who are participating in this study. Mostly respondents i.e., 136 (39.3%) of the sum 346 respondents, fall between the range of 31 to 40 years, from 21 to 30 years or less pursued withafrequencyof114(32.9%).Range of respondents age from 41 to 50 years and 50 above have shown the frequencies of 81 and 15 with 23.4% and 4.3% shareofatotalof346 respondents correspondingly.

Reliability

To check the internal consistency of construct items a well-known test Cronbach Alpha was used in this research, the threshold range for Cronbach Alpha value is .70 above means that if a construct has value equal .70 or above then the

construct is reliable following table 1 shows the Cronbach Alpha value for each construct:

Table1. Psychometric Properties (N=346)

Latent Variables	No of items	Cronbach Alpha		
SM	8	0.966		
SC	8	0.928		
SCS	6	0.928		
FP	6	0.921		

Table1 shows that first variable which is SM has 8 items and the overall value of Cronbach alpha is 0.966whichisgood. Similarly, the second variable SC has 8 items and the value of Cronbach alpha is 0.928whichisgoodtomeasurethe whole contract. The Cronbach alpha value for SCS is 0.928 and it has 6 items. Correspondingly, the next variable of the study which is FP has 6 items and the overall value of Cronbach alpha is 0.921 for this construct. Consequently, the measurement for the entire model is a good fit and results based on can be realized.

Confirmatory Factor Analysis

In confirmatory factor analysis (CFA), "the researcher is able to identify the figure of aspects needed in the data and which studied construct is linked to which latent construct." The standard values for χ^2 / df are lesser than 3; for GFI, IFI, and CFI is $\leq .90$; and for RMSEA is $\geq .08$ [48]. The results of study are showing below.

χ^2/df	GFI	IFI	CFI	RMSEA
3.0	831	929	929	.077

These fit indices demonstrate that this model is a good one and that the studied variables show a significant relationship with one another. The Diagram below shows the confirmatory factor analysis (CFA) of all the constructs.

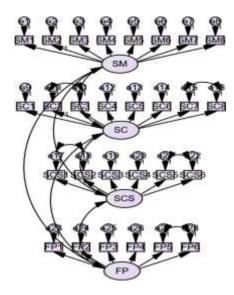


Fig3. Confirmatory factor analysis (CFA) of all the constructs

Structural Equation Modeling

SEM is "a multivariate statistical analysis tool which is utilized in order to examine the structural associations between the variables [49]. This tool Is basically the mixture of <u>factor analysis</u> and <u>multiple regression analysis</u>, and it is employed to examine the structural association between measured constructs and latent variables."

Effects	Hypothesized Path	В	S.E	P value	Conclusion
Hypothesis1(+)	SM→FP	.220	.049	.000	Accepted
Hypothesis2(+)	SC→FP	.290	.054	.000	Accepted
Hypothesis3(+)	SM→SCS→FP	.151	.036	.010	Accepted
Hypothesis4(+)	$SC \rightarrow SCS \rightarrow FP$.064	.022	.010	Accepted

Table 4.7. Structural Model Results (N=34	16)
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The result of above-mentioned table shows that supplier monitor, and assessment has positive and significant impact on financial performance which mean that if one unit of SM increased it will bring 22% positive and significant impact on financial performance. The results of the table also show that supplier collaboration, also have significant and Positive effect on financial performance. Moreover, SM has 15.1 percent indirect effect on financial performance via supply chain sustainability and the indirect effect of SC via supply chain sustainability is 6.3 percent. Following picture showing the screenshot of SEM, in Amos.

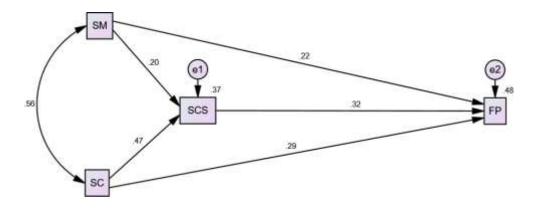


Fig.4SEMin Amos

Discussion and Conclusion

Discussion

Supply chain practices have played a fundamental role in developing and sustaining performance of firms in recent years. With the process of adopting sustainable practices in the form social, environmental and economic factors, sustainability has also emphasize firms to focus on their whole supply chain integration levels. These not only include managing internal practices but also include having strong collaborations with the external key partners, vendors and suppliers. Such collaborations significantly improve the profitability of firms in the form of increasing performance conditions. These collaborations allow firms to focus on their external practices that are changing with the emerging market trends as well. By sharing information, ideas, opinions and giving value to the suppliers allow more chances for firms to move with the market trends with rapid growth.

The impact of supplier collaborations with firms also open doors for the monitoring of its policies and procedures by the supplier in the supply chains. Monitoring and assessment allow suppliers to share external information in order to maintain sustainable programs. Therefore, this study focuses on the role of supplier's monitoring and collaboration and its impact on the financial performance of manufacturing firms in India. It also focuses on the supply chain sustainability practices a firm performs to improve its financial conditions in the industry.

Conclusion

The results of this study clearly depicts that with the presence of strong external supply chain management in firms, there is also an increase in the performance levels of firms. Both supplier's monitoring and collaboration efforts with a firm plays a vital role in improving value of those firms. The findings state that supplier assessment and Monitoring has as significant impact on the financial performance of manufacturing firms. Such monitoring can be performed by suppliers in the form of regular assessment, by visiting operation sites and providing feedback by keeping check and balance. It not only allow suppliers to become apart of that firm by sharing information but also reduces the chances of risks that are associated with supplier decisions alone that directly affect the performance of the whole supply chain members. This result is in accordance with the previous research of Luthra, et al. [50] who proposed that firms involving supplier monitoring not only enhances supplier performance but also improves firm performance.

This study also illustrates that collaboration offirms with suppliers also increases the firm financial performance by providing significant relation. Having supplier collaborations not only reduces transaction costs but also allow firms to

make use of advance, technical and valuable resources that are considered necessary for the improved performance and to attain competitive edge in the market. Such collaborations help firms to easily identify elements in supply chain that are producing barriers or deviating firms from their required plans or outcomes. It is essential that these collaborations are also associated with the monitoring processes by the suppliers as well because both theses mechanisms goes hand to hand. It allow suppliers to pay more attention towards the profitability levels of the firms. These results are in accordance with the previous studies which also explained that collaboration of firms with suppliers is considered fundamental and most imperative driver for the implementation and success of sustainable supply chain practices [25].

Implications

With the rapidly growing researches in the field of sustainability and its significance in the supply chain management practices of firms, this study is also considered to have a major contribution in literature related to the manufacturing sector in India. It also provide support to the theoretical literature by generating substantial results. This study is considered to have some managerial implications too. It allow supply chain managers to focus on their sustainability practices in order to improve financial performance. Moreover, it also help them to evaluate and strengthen their responsibilities towards society and be proactive while adopting such responsibilities. This study assist managers to focus on their external supply chain practices as well while maintaining focus on internal practices. It also help organizations to maintain strong bonds and collaborations with external members particularly suppliers in order to bring benefits in the organization.

Future recommendations

In order to cover limitations, this study also provides some future recommendations. This study focuses on the external management and sustainability practices of supply chain and its impact on the financial performance. It does not focus on other dimensions of supply chains and performance indicators there, future study can be conducted with the use of other dimensions or in the presence of some control variables. It only considers the manufacturing firms of India so other sectors or regions can also take into account. As this study adopted questionnaires to collect financial performance. Finally, it uses cross sectional data therefore, future studies can adopt longitudinal analysis or time series data to further explore sustainable supply chain practices.

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