The Supply Chain Improvement Planning and Supply Chain Performance: Does the Global Configuration of Supply Chain Matters in Thai Based International Firms?

Khomsan Laosillapacharoen[#1], Natnaporn Aeknarajindawat[#2], Norawat Charoen-Rajapark[#3], Teepakorn Boonaram*[4]

[#1] *Graduate School, Suan Sunandha Rajabhat University, Thailand*
[*4] *Social Research Institute, Chulalongkorn University, Thailand*
[1]Khomsan.la@ssru.ac.th
[2]natnaporn.ae@ssru.ac.th
[3]Norawat.ch@ssru.ac.th
Corresponding author: E-mail: teepakorn.boon@gmail.com

***Abstract*-The study, which is carried out on the Thai international firms, is investigating the impact of supply chain improvement planning on the supply chain performance. In addition to that, the study has examined the mediating role of the global configuration of the supply chain. The sample size in this study has been selected of 375, which is considered suitable and acceptable. The stratified random sampling design was used in the research. The population is divided into subgroups or strata from where random samples are drawn from each of the created strata in proportion to the entire population. The SEM-PLS has used to analyze the data. The findings of the study have shown agreement with the proposed hypothesis. The findings of the study have revealed the fact that there is a need for the companies to focus on the investment areas and deal with the global SC configuration adopted by them. Along with the findings has broached that there is a variation of results from one group to another. Locals can achieve higher performance improvements through supplier development (i.e. quality and flexibility) and distribution strategy (i.e. lead-time, quality, and delivery). The study will b helpful for policymakers, researchers, and practitioners in understanding the issues related to supply chain improvement planning, global configuration of supply chain and supply chain performance.**

Keywords: *Supply Chain, Global configuration, internationalization, Thailand*

1. Introduction

The manufacturing companies experience several opportunities as well as issues because of the globalization of supply chains (SC) [1, 2]. Companies are forced to expand their operations to internal regions for sourcing new component and materials for manufacturing and selling products. This becomes possible through a reduction in trade restrictions and improvements in communication technologies. It is difficult to deal with errors in management and control them, which can significantly improve the performance of a company. The focus of the literature is on global supply chain (GSC) management because of all these reasons. Relative advantages are obtained by companies, which expand their operations across the world. The potential advantages include access to broader markers and lower costs of sourcing [3]. Moreover, new challenges are faced by them along with long lead times, higher risks, and complexity of networks [4, 5, 36-38].

In academic literature, several approaches have been used to analyze the management of the supply chain across the globe. It has been proposed by [6] that global value chain analysis is a method of analyzing the structure of entire supply chain and configuration from sourcing of raw materials to distribution to the end customers. The concept of network enterprises was adapted to the global case through a focus on firms' network, which results in the manufacturing of products. Some management-oriented contributions were provided by several researchers, which adopt the perspectives of individual firms that require management and product distributions across the globe [4, 5].

The Thai firms are internationalizing rapidly; during recent decades, the overseas share of Thai based firms has increased from the 600 millions USD to 18000 USD. (see figure 1). Thus the current study has focused on Thai intenrnationised firms. The focus of literature regarding SC management is on the identification of best practices for the supply chain management. Several researchers have worked on analyzing how companies in their supply chain make an investment for improving operational performance [6]. This is done by examining the important factors including quality, delivery, cost and flexibility [7, 8]. The emphasis has been made on improving specific programs such as redesigning distribution strategy,

redesigning Supply strategy (SS), and coordination with customers and suppliers. However, some challenges may hamper the benefits of these improvement programs in the GSCs context. It can become more difficult to coordinate with the suppliers and customers because of cultural and physical distance or the existence of intermediaries. These are required for carrying operations on a global scale. However, it is not clear about the program, which results in real improvements when supply chains are globalized. This paper aims at addressing the specific issue, which is to analyze the relationship between operational performance and SC improvement program in various contexts. Notably, a configuration approach has been adopted to analyze the influence of the global configuration of SC as a mediator on the association above

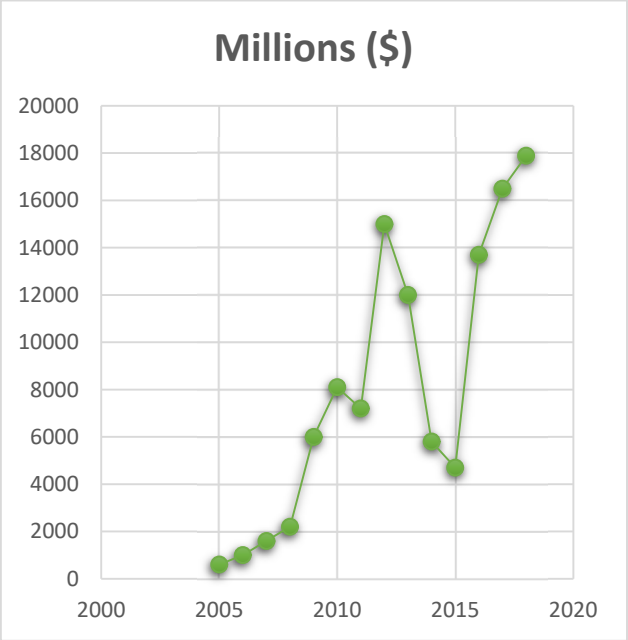

Figure 1. The overseas investment from Thailand
Source: The Bank of Thailand

As the focus is on the issue of globalization, improvement programs for risk management have been added [7, 8]. The research has been summarized in the framework depicted in Figure 2. The role of GSC configuration (GSCC) has been taken as a mediator [9] in the relation of performance improvement and SC improvement programs. Several groups of companies such as local vs global can have different influences from the improvement program of the supply chain on a specific performance. The influence can be positive, negative, or neutral. The research aims at addressing the following research questions.

Research Question:

- Is there any role of global SC configurations as a mediator on the relation of improvement of performance and SC improvement programs?
- What types of effects are created by the role of GSCC as a mediator?

2. Literature Review

GSC management has been defined as a mixture of three important operational processes, including global sourcing, global manufacturing, and global distribution. Global sourcing refers to the management of supplier relations from an international perspective. Global production refers to the management of activities in manufacturing distributed across the globe [10]. Global distribution is how companies manage the channels of distribution across the globe. These two processes are interrelated to support global distribution, even if analyzed individually. There is a need for companies to invest in new ventures and manage relations with suppliers around the world [9]. Similarly, companies decide about making foreign investments in manufacturing for effectively controlling the supply chain during purchase on a global scale. Evidence is provided by literature that there is a significant relationship between manufacturing, global sourcing, and distribution. For instance, four stages were highlighted by [9] for global sourcing maturity. The development of networks for global sourcing distinguishes the last phase with several production facilities. Evidence has been provided about the patterns of internationalization in the process of distribution and manufacturing by several researchers [11-13]. All these concepts are interrelated and come under the concept of GSC management.

Irrespective of the interrelation between manufacturing, distribution, and sourcing across the globe, all the companies show distinct behavior. Configurations have been investigated by literature in the execution of supply chain management across the globe [10]. The focus was on the process of sourcing and distribution. The researchers for companies have recognized four groups according to the number of sites for every organization and a total number of organizations in the network. Similarly, four clusters of companies were found as per local or global sourcing and distribution. Companies, which are still working locally, were identified along with the companies that have started global sourcing and distribution. Companies working locally and globally were identified, as well. This grouping reveals that it is decided by the companies to manage work locally to expand supply chains globally. At last, boundaries are extending by some companies across the world, and GSCs are managed, including the distribution and purchasing internationally.

Activities are extended over the boundaries by some companies across the world, and GSCs are management, including sourcing and distribution. The component of manufacturing is not incorporated in work. The focus of

few researchers are on the influence of GSCs on the performance of the company when there is no conclusive evidence. The benefits of globalization have been highlighted by several authors. However, some have claimed that there is a negative influence of globalization on performance.

The definition of GSCs cannot be seamless and fast as compared with local supply chains [4, 14]. Short distances are required by lean supply chains for enabling lower inventories and frequent deliveries. Use of intermediaries is required by longer distances, which can improve the number of value chain members. Therefore, it makes the network integration complicated by enhancing the bullwhip effect. Agreements can delineate and become difficult because of a lack of trust and cultural distances, which can influence the return on supply chain investments.

Lead times increase when supply chains are extended globally, resulting in an increase in inventory levels [7, 15]. For improving operational performance, different actions can be taken by companies [16, 17]. The definition of purchasing organization and SS can be leveraged [5]. Some researchers have reflected a positive influence of supplier development program, and vendor rating systems through a key focus on the significance of controlling the overall process [4, 7, 16]. The emphasis has been made to the use of complicated distribution systems and relation with suppliers and customers. There are several risks or challenges linked with the GSCs, including fluctuating exchange rate, disruptions n supply and variability of lead-time and different channels of distribution [14].

In order to mitigate the risks in GSCs, it is required to ensure communication in crisis and formation of joint continuity plans with suppliers and customers [4, 14]. It was shown that structures, processes, business capabilities, the commitment of top management and international language capabilities are important for managing the GSC effectively. These findings are consistent with several researchers such as [18],

The association between operational performance, SC investment, and globalization are complicated because of all these reasons. Very few researchers have analyzed the relationships among these variables in the existing literature. The focus of [7] was on the upstream elements of the supply chain. It was found by researchers that there is a mediating influence of SC management investments on the relation of materials inventory level and global sourcing.

Global sourcing has been increased by companies with time, along with investments in establishing a relationship with suppliers. Inventory performances can be compared with the companies, which have managed to stay local only. The downstream component of the supply chain includes inventory performance. [7] found the similar results that the companies investing in global distribution experience increase in performance, customer coordination for lead-time management. The focus is on a limited performance data set; different supply chain parts have been recognized differently.

The previous researcher has certain limitations; this study aims to give a clear understanding of the association between performance, globalization, and supply chain improvement programs. The purpose of this study is to extend the previous research studies [4, 7] through the incorporation the n of certain performance indicators and different GSCCs. By analyzing the globalization level of a firm in sourcing inputs, manufacturing and distributing products, GSCC can be defined [4, 7]. This type of configuration is likely to influence the association between improvement of performance and SC improvement programs. For instance, firm sourcing, manufacturing and distributing at the local level can have different influences from supply chain investments as compared with a firm operating globally.

Operation performance has been incorporated as the dependent variable. The focus of previous research studies has been on a limited number of indicators. However, this research has considered improvements in delivery, cost, lead-time, flexibility, and quality performance of a firm. The influence of globalization and decisions of the supply chain on these indicators of performance have been recognized by the literature [3, 4, 14]. Improvement in supply chain programs has been considered as independent variables. In line with the literature, upstream and downstream programs are included in these programs. Upstream programs include supplier development, redesign of SS, supplier integration, and coordination [16, 19]. The downstream programs include integration, customer coordination and redesign of distribution strategy. The conceptual framework of the study I shown in figure 2

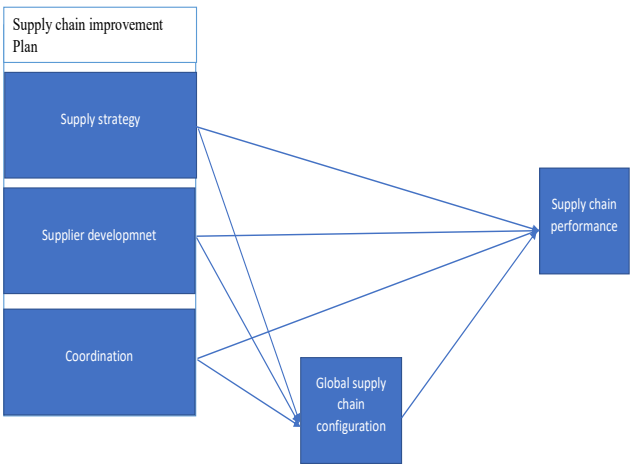

Figure 2. A conceptual model

Basing on the literature review, we have drawn the following hypothesizes.

H1: SS has a significant impact on the SCPR.

H2: Supplier development has a significant impact on SCPR.

H3: Supply coordination has a significant impact on SCPR.

H4: SS has a significant impact on the GSCC.

H5: Supplier development has a significant impact on the GSCC.

H6: Supply coordination has a significant impact on the GSCC.

H7: GSCC has a significant impact on SCPR.

H8: GSCC mediates the relationship between SS and the SCPR.

H9: GSCC mediates the relationship between supplier development and SCPR.

H10: GSCC mediates the relationship between supply coordination and SCPR.

The next section highlights the processes and procedures used to achieve the test the above hypothesis

3. Methodology

The study has used the survey-based methods to accomplish the research objectives. The questionnaire has the following basic structure:

For the collection of general information, the first part includes the questionnaire regarding business such as industry, size of company, competitive strategy, manufacturing network configuration, and performance of the business. Respondents are asked about the context of manufacturing. The other sections are related to the principal activity of plants with a key focus on the manufacturing practices, strategies, and performance. The predominant activity is regarded as a crucial activity representing the plant. In order to eliminate the risk of issues regarding business units having different operating plans distinctly, the plant is selected as an analysis unit.

Moreover, to ensure the alignment with recent research objectives, the questionnaire has been designed partially. With this respect, the specific section in the last publication is related to the manufacturing globalization. Information or data has been collected in the native language for the respective country. The translation of the questionnaire has been done through the back-translation process in order to ensure consistency [20]. Random selection of the companies is done from economic datasets. After this, managers working in operation, plant, and production department are contacted and asked for cooperating in this research.

After an agreement with the respondents, the questionnaire is sent for getting a response. After a few weeks, a reminder is sent when suitable. Missing data is controlled in the questionnaires, which are sent back case-by-case through contacting the company again. The gather information or data in every country is then controlled for late respondent bias according to the industry and size of the company. The sample size was estimated to be 29000 based on a five-technique criterion. The sample was drawn of 405 respondents. The questionnaire survey was formulated and distributed among the respondents. Out of total questionnaires, 310 questionnaires were received with complete responses. The response rate turned out to be 77.4 percent. Based on the acquired response rate, the responses can be used for further analysis. The standard response rate is considered as 49 percent. The analysis of the questionnaire survey found that the average age of respondents was 44 years. Most of the employees had work experience of 12-14 years, and the majority (59 %) was working in the operation departments. Most of the employees were holding higher educational degrees, and out of a total of 301 were male, and 79 were female. The sample size in this study has been selected of 375, which is considered suitable and acceptable. The stratified random sampling design was used in the research. The population is divided into subgroups or strata from where random samples are drawn from each of the created strata in proportion to the entire population. Questionnaires were distributed with the help of stratified random sampling. The response rate is given in Table 1.

Table 1. Response Rate

Response	Frequency/Rate
Total questionnaires distributed among students	405
Total questionnaires received as filled	376
Total questionnaires identified as true responses	310
Total questionnaires excluded due to errors	56
The total rate of response	93.88 %
Total rate of valid response	77.40 %

3.1 Measurement

Six items have been used for evaluation of SC improvement programs. These items refer to the improvement programs within the management of the supply chain. It has been mentioned earlier that SS, supplier's coordination and supplier development are included in the upstream programs. However, customer coordination and distribution strategy are included in the downstream program. The improvement programs include upstream, downstream, and risk management improvement programs. A five-point Likert scale was used to measure items referring to the investment level in the particular programs over the last three years. For

measuring improvement in operational performance, 12 items were considered based on five points Likert scale. These referred to the improvements over the last three years. For consistency, the performance improvement was used with improvement programs.

The performance was taken into consideration relative to the competitors before starting the analysis. It is positively linked with the improvement of performance. Better performance is shown by the companies, who have improved their performance as compared with the competitors. Through explanatory factor analysis, the classification of the performance indicators was made into five constructs, including quality, flexibility, delivery, and constant lead-time. For answering the research question, there is a need to elaborate on the concept of configurations based on the level of sourcing, production, and sales across the globe. For measuring this, the percentage of purchasing, sales, and manufacturing across the boundaries at the location of the plan was used.

4. Data Analysis

Measurement model estimation is the next step after carrying out data screening and descriptive analysis. The small sample size and data abnormality are the most common issues that the researchers face while taking organizations as the sample for analysis. The present study was faced with the same problem. For this reason, the study adopted PLS-SEM, since it is an ideal statistical approach, whereas CB-SEM was not seemed to be a good option. Following the suggestion by [21], 121 sample size was chosen for PLS-SEM estimation.

However, a similarity exists between PLS-SEM and CB-SEM, i.e. both PLS-SEM and CB-SEM approaches involve two steps estimation [22-24]. In PLS-SEM, the path model estimation takes place with the determination of the measurement model, followed by the determination of path relations [23].

The measurement model evaluation refers to the statistical estimation of the model elements. This is done to confirm the model quality and appropriateness for further application of statistical techniques. Therefore, the study observed measures, such as reliability or internal consistency, construct validity, convergent and discriminant validity to examine the measurement model through SmartPLS.

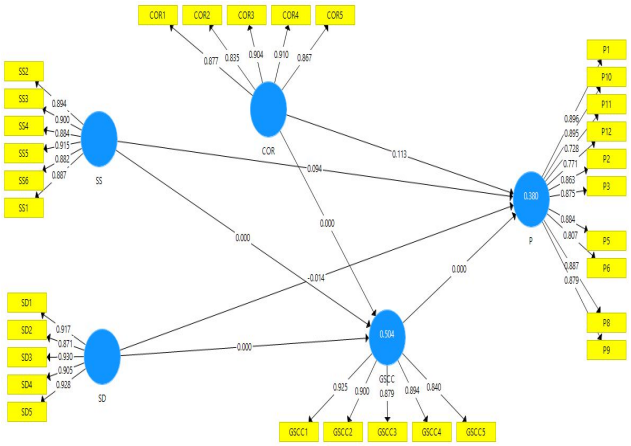

Figure 3. Measurement Model

Ensuring the reliability of measures is a prerequisite for the constructs' validity. According to Peter [25], reliability shows the measures' extent to be free from any measurement errors and are capable of yielding compatible outcomes. The reliability of measures is emphasized because unreliable measures can cause defective effects on the correlation among the measures, resulting in the weakening of the correlations. Therefore, to avoid such errors, a multi-item scaled measurement was proposed to [25], which allows excluding items from the measurement model to enhance scale reliability. However, no such measurement errors were witnessed in this study since each measure has been examined multiple times. Convergent validity and discriminant validity help to efficiently observe construct validity. Besides ensuring the construct's particular item validity, examining the item and cross loadings is a precondition for convergent validity. An item is considered to be a good indicator for measuring a construct if it exhibits high loadings for its own construct, on the other hand, if the item has higher loadings for other model constructs then it is indicative of an item's potential issue. The outer model loading must exhibit value equal to 0.50 or above, to be acceptable [26], however, less than 0.50 loadings for the outer model is considered to be unacceptable, and in order to improve the data quality, items must be excluded from the model. This is usually done be start excluding least loaded items one after another. Table 2 shows the obtained loadings based on the model's construct and indicator. The indicator loadings, i.e. 0.749-0.950, show high loadings for their own construct, therefore confirms that the construct validity is achieved for the measurement model.

Table 2. Factor loadings

	COR	GSCC	P	SD	SS
COR1	0.877				
COR2	0.835				
COR3	0.904				
COR4	0.910				
COR5	0.867				
GSCC1		0.925			
GSCC2		0.900			
GSCC3		0.879			
GSCC4		0.894			
GSCC5		0.840			
P1			0.896		
P10			0.895		
P11			0.728		
P12			0.771		
P2			0.863		
P3			0.875		
P5			0.884		
P6			0.807		
P8			0.887		
P9			0.879		
SD1				0.917	
SD2				0.871	
SD3				0.930	
SD4				0.905	
SD5				0.928	
SS2					0.894
SS3					0.900
SS4					0.884
SS5					0.915
SS6					0.882
SS1					0.887

According to [26], internal consistency measure is used for assessing the reliability of items in terms of their homogeneity. The internal consistency determines the extent of particular scale items to observe the same construct of the model [27]. In addition, Composite reliability is a measure which is commonly adopted to determine the constructs' reliability or internal consistency [26]. Just as Cronbach alpha (CA), the composite reliability is transcribed in a similar manner. Table 3 shows the result of Cronbach alpha, explaining that all values for reliability are consistent with the threshold level, i.e. greater than 0.70 value [23, 24], thereby confirming the high internal consistency for each construct. According to [28], the reliability value is termed satisfactory if it lies within 0.70 to 0.90, contrarily, the reliability value is undesirable if it is higher than 0.90 or 0.95, since it indicates the chance that the same phenomenon is measured by the majority of the variables [29].

Table 3. Reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
COR	0.926	0.929	0.944	0.773
GSCC	0.933	0.934	0.949	0.789
P	0.957	0.961	0.963	0.723
SD	0.948	0.951	0.960	0.829
SS	0.950	0.951	0.960	0.799

The average variance extracted (AVE) criterion must also be examined for assessing the measurement model [30] whose value should be higher than 0.50. On the other hand, [22] recommended to analyse the criterion such as factor loadings, average variance extracted, and composite reliability, where the acceptable range for factor loadings is above 0.70, AVE>0.50 and CR>0.70. Moreover, [31] suggested that if AVE equals 0.50, then it shows that fifty percent of the manifested variables' variance is on average, explained by the latent construct.

Discriminant validity is slightly different from convergent validity since it is generally employed to assess the differences or distinct features of the different measuring tools of the model constructs. Under PLS-SEM, it can be assessed with two different measures. Thus, discriminant validity is achieved when each constructs' square root value exceeds the highest correlation with other model constructs [30]. Therefore, discriminant validity is observed for ensuring the external consistency of the underlying model.

Table 4. Validity Matrix

	COR	GSCC	P	SD	SS
COR	**0.979**				
GSCC	0.696	**0.888**			
P	0.669	0.626	**0.850**		
SD	0.915	0.649	0.676	**0.911**	
SS	0.910	0.691	0.619	0.892	**0.894**

The next step after determining the measurement model is the structural model assessment. The structural model aims to assess the correlation and regression assumptions. There is a five-step procedure presented by [29] to assess the structural model. Firstly, checking for collinearity; secondly, assessing the relationship significance as well as relevance of structural model; thirdly, observing R^2 and f^2; fourthly, assessing the model's predictive relevance i.e. Q^2 and; lastly the effect sizes (q^2). In addition, the study also determined the mediating effects of variables. The structural model estimation is presented in the subsequent sections in detail.

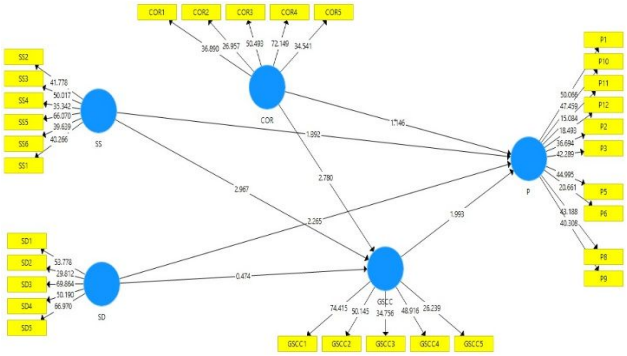

Figure 4. Structural Model

Thus, the structural model assessment begins by checking for any collinearity issues. According to [29], the term collinearity referred to as the occurrence of the high correlation between the two indicators. The collinearity test results reported that all variables are in line with the threshold level, such as VIF<5 and tolerance level>0.20, and the obtained range for tolerance level is 0.243-0.439, and for VIF it is 2.278-4.122, thus indicating no multicollinearity problem in this study.

Afterward, the significance of the structural relationships and their relevance were assessed. [29] have observed that analysing path coefficients help in assessing the hypothesized relationships between the variables. The structural model also analyses the directional relationships, path-coefficients, and the t-values, where path-coefficients are just like the standardized beta-coefficients. The study also displayed detailed information, i.e. t-values, path-coefficients, and standard error, which form the basis for the acceptance or rejection of hypotheses. The study obtained the t-values following the recommendation of [29], i.e. through 5000 iterations and performing a bootstrapping procedure. The purpose of taking 5000 bootstrap samples is to ensure empirical sampling distribution for every parameter of the model. Moreover, the S.D of sampling distribution serves as an alternative to empirical S.E for the model parameter [32]. Thus, the significance level for this study was determined by performing the 1-tailed test, and the observed critical values were 2.33, 1.65, and 1.28 at 1%, 5% and 10% significance level.

Table 5. Direct Relationships

	(O)	(M)	(STDEV)	(|O/STDEV|)	P Values	Status
COR -> GSCC	0.424	0.427	0.153	2.780	0.003	Accepted
COR -> P	0.329	0.321	0.183	1.796	0.036	Accepted
GSCC -> P	0.267	0.267	0.134	1.993	0.023	Accepted
SD -> GSCC	-0.052	-0.046	0.109	0.474	0.318	Rejected
SD -> P	0.388	0.406	0.182	2.131	0.017	Accepted
SS -> GSCC	0.351	0.346	0.118	2.967	0.002	Accepted
SS -> P	-0.126	-0.133	0.155	1.815	0.034	Accepted

Table 6. Mediation

	(O)	(M)	(STDEV)	(|O/STDEV|)	P Values	Status
COR -> GSCC -> P	0.113	0.110	0.066	1.711	0.044	Accepted
SD -> GSCC -> P	-0.014	-0.010	0.031	0.440	0.330	Rejected
SS -> GSCC -> P	0.094	0.093	0.060	1.957	0.023	Accepted

The predictive accuracy of the model can be assessed through analyzing coefficients, which is the square root of the correlation of actual and predicted endogenous construct values. The combined effects of latent exogenous variables' on the endogenous variables are reflected by the coefficients [29]. Furthermore, the value of R^2 shows the predictive accuracy of the model, and it ranges from zero to one, thus, the greater the value, the higher the predictive accuracy. If the values for the coefficient of determination equal 0.75 then it is considered to be substantial if R^2 equals 0.50 it is considered to be moderate, and if R^2 equals 0.25 then it is considered to be weak [22, 23]. Thus, the R^2 for the targeted construct exhibits a higher value if there are a greater number of paths for the targeted construct. Several researchers seek for the parsimonious model as it requires few exogenous variables for explaining the data.

Table 7. R-Square

	R Square
GSCC	0.504
P	0.380

Subsequently, in order to assess the predictive relevance of the structural model, the size of the effect was observed. Since Q^2 value reflects the predictive relevance of the model, therefore greater than 0 value for Q^2 shows some predictive relevance, and less than 0 value shows that there is no predictive relevance of underlying path model.

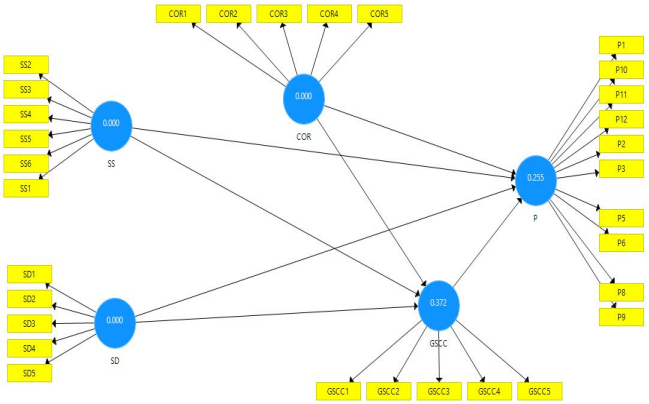

Figure 5. Predictive Relevance

It can be applied to only a single item construct or reflective endogenous variable. Thus, the blindfolding

procedure is performed to calculate the Q^2 value [29] as presented in Table below

Table 8. predictive relevance **(Q^2)**

	SSO	SSE	Q^2 (=1-SSE/SSO)
COR	1,085.000	1,085.000	
GSCC	1,085.000	681.003	0.372
P	2,170.000	1,616.324	0.255
SD	1,085.000	1,085.000	
SS	1,302.000	1,302.000	

5. Conclusion and Discussion

It has been revealed through the results that global supplier base can be managed with SC investments. However, there is a limited influence on the global customer base. This influence has been supported by the example of Barons. It experienced a reduced return on their supply chain investment. A good return from supply chain investments is experienced by locals as they can outperform at the local level with a direct relationship between the customers and suppliers. This relation is based on reputation and mutual knowledge.

When less investment is made by locals, they are able to achieve higher performance in contrast to others. Several considerations can arise by looking at the individual contributions by SC improvement programs. The important and significant marginal contributions can be revealed. In this way, a positive influence of SC investments might be created on performance, but the area of investments is crucial. There is a need for the companies to focus on the investment areas and deal with the global SC configuration adopted by them. There is a variation of results from one group to another. Locals can achieve higher performance improvements through supplier development (i.e. quality and flexibility) and distribution strategy (i.e. lead-time, quality, and delivery). Greater benefits are achieved by the companies by focusing on product distribution in the market.

Barons do not experience the significance of these investments. Alternatively, a positive influence has been shown by Barons on quality performance through supplier and customer coordination. It reflects that companies related to the group of Barons have invested in improvement programs, which have not resulted in performance. Greater improvements are not experienced by shoppers from any particular improvement programs. It shows that performance improves to some extent from SC improvement programs.

The role of the GSC has been analyzed in this research as a mediator between the relation of SC improvement programs and investment. It is indicated by the main findings of the research that the relation between performance and action programs is influenced by global SC configurations in term of percentage sales, manufacturing, and sourcing. Significance is revealed by some relations for one configuration. It is concluded that a significant contingent factor is the overall SC configuration, which should be considered in the process of evaluating investments in improvement programs of supply chain other than the traditional variables including GNI, company size (which have controlled the results). The results are consistent with some traditional research contributions and offer a relevant extension as well [33].

The focus of previous research has been on a single dimension of globalization at a specific time. However, in this research, three dimensions have been considered together, including sales, manufacturing, and sourcing. A very limited performance set, i.e. lead-time or inventory, was used by the previous contributions, but a wide range of performance indicators have been used in this study. This study covers a complete range of basic performance in operations.

Another result of the study is the provision of benefits by improvement programs of SC in all the considered performance measures. There are some differences among the companies having different supply chain configurations. The group of locals reveals significant findings for upstream and downstream improvement programs. A negative influence of coordination activities on quality has been shown by Barons, which is classified by global sales and local sourcing and manufacturing. The high and positive influence of SC investments has been shown by the Shoppers cluster. Beyond this high effect, no specific effect is shown. Moreover, no significant influence from supply chain investments is shown by Global. However, this can be because of the small size of the group in the sample taken and the complexity of configuration, making investments less effective. The main issue of global distribution management and not global sourcing can justify the predominant influence of improvement programs for Shoppers. This lowers the advantages of improvement programs and de-motivates companies to invest [34, 35].

5.1 Practical Implications

It can be concluded that this research contributes to the previous research related to global SC management by offering a distinct overview and an inclusive analysis on a wide range of empirical evidence. The results are useful for the practitioners as they highlight the significant topic for managers in operations. Managers experience the challenges in managing global SCs, and it seems that a high level of local distribution and global sourcing categorizes shoppers. These have resulted in benefits to the companies investing their efforts and money in the improvement programs. There is a need for more work for

the practitioners and researchers for improving the performance of Barons (based on global distribution and local sourcing). Managers can be given important information by understanding the programs, which influence the factors of performance given a particular configuration of global SC. This will assist managers in decision-making.

It has been found in this research that supplier development and distribution strategy benefits locals. However, supplier and customer coordination negatively influence Barons. Another important message for policymakers is the size of the firm. Even small firms can achieve higher benefits through improvements in their supply chain. The research analysis of the income level of the country shows that higher benefits are achieved by the Locals in emerging or developing countries. It is a positive aspect for the managers in emerging economies and a threat for managers in developed economies.

5.2 Limitations

There are some limitations of research as well. Small sample size does not represent the complete set of population. Therefore, the results cannot be generalized or extended. The determination of the relations in other industries is important even the dataset is obtained from consolidated research testing. Moreover, some potential variables related to the context have not been considered. Incorporating these variables, such SC strategy objectives would be interesting. The future researches can consider the wide range of SC improvement programs. This research has considered the performance improvement and not absolute values. It may refer to the fact that there is no need for further improvements by the companies, who are performing well.

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