Mediating Effect of Strategic Supply Chain Management on Social and Environmental Sustainability: Evidence from SMEs of Canada, Iran, and Turkey

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***Abstract*— The cross-sectional comparative study investigates the mediating effect of strategic supply chain management in the SMEs operating in distinctive economies of Canada, Iran and Turkey on the social and environmental sustainability. Three distinctive economies having 50% similar attributes on Hofstede's cultural dimensions thus, these economies have been considered for this study. The survey questionnaire is circulated through networking, connections, referral and purposive sampling. The data is collected from 613 SMEs (over 200 in all three countries). Smart partial least square structural equation modeling (SmartPLS-SEM) is employed for the quantitative data analysis. Results confirmed that irrespective of the type of economies, strategic supply chain management has a statistically significant positive mediating role in improving the social and environmentally sustainable performances. Interestingly, the findings showed that factors of strategic supply chain management have higher positive impact in Canada than Iran and Turkey.**

The study offers a practical contribution by offering the managerial implications to improve SMEs performances as well as facilitate the different industries to adopt the research framework to further explore the role of strategic SCM in social and environmental sustainability.

***Keywords*—** *Strategic supply chain management, social sustainability, environmental sustainability. SMEs*

1. Introduction

Small and Medium-sized Enterprises (SMEs) has a pivotal role to certain extent in improving economic growths at both; national and international level [1]. It is highly important for SMEs in all types of economies to adopt appropriate strategies to survive and thrive in complex competitive business environment [2 & 3]. Thus, application of the supply chain management's concept in relation to functioning strategies of SMEs emerge as vital aspect due to supply chain operations interlinked with the activities starting from raw material extraction through transformation and flow of products to reach end-consumers [4]. The relevant essential information also flows in the due process of supply chain activities. Today, due to intense competition, there is a shift in the focus from the enterprise level to the supply chain perspective [5]. In the modern era, rapid technological advancement easy accessibility of information, timely delivery and offering high quality products at a reasonable price to meet customers' expectations have increased to larger extent [4 & 5]. On the other hand, the organisations do not operate in vacuum and therefore, it is essential that businesses take adequate actions to ensure the business operations have limited or preferably no adverse effect on the societies and environment. Hence, it becomes important for the SMEs to ensure that strategic supply chain management is functioning in appropriate manner.

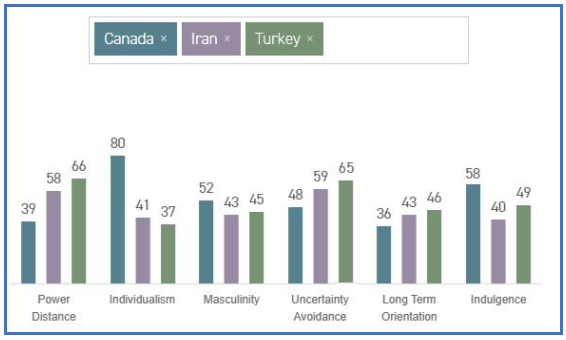

Figure 1: Hofstede's Cultural Dimension Comparison (Source: Hofstede-insight.com)

The supply chain management process and operations remain same to larger extent, irrespective of the type of economy [4]. Therefore, SMEs in three distinctive types of economies are considered in this study, namely, Canada, Iran and Turkey to assess the mediating effect of strategic supply chain management on the social sustainability (SS) and environmental sustainability (ES). Hofstede's cultural dimension are the one of the aspects for justifying the preference and selection of these distinctive economies. At least three out of six dimensions being similar is a perimeter for selection, as it constitutes 50%. The rule of thumb for setting the criteria was to have at least 50% similarity among total dimension to select cases. The masculinity (Hofstede's cultural dimension) are to larger extent similar in all three considered countries; Canada, Iran and Turkey (52 > 43 > 45). It indicates that all three distinctive economies have similar and higher masculine culture. Long-term orientation is another dimension of Hofstede's set of dimensions and it is found that there is only fractional variation among three (Canada = 36 > Iran = 43 > Turkey = 46). Uncertainty avoidance is third dimension, which is found to be similar to large extent (Canada = 48 > Iran = 59 > Turkey = 65). Moreover, fourth dimension is indulgence that is also traced to be similar (Canada = 58 > Iran = 40 > Turkey = 49). Hence, only two out of six have huge variations while rest of the four have higher similarities, therefore, these three economies are considered in this study.

In this study, the Human Development Index (HDI) is another criterion for the selection of these distinctive economies. The HDI indicators confirmed that although there is not a huge difference between Turkey and Iran (0.792 and 0.798), but Canada has higher HDI (0.926). Interestingly, other aspects such as, employment vulnerability, work, human security, gender, and mobility and communication are largely similar in all three countries [6].

Management literature has a larger shift in paradigm and with the time it has been widely visible [7]. Global competition has increased the sustainable practices in supply chain management [7]. "One of the most significant changes in paradigm of modern business management is that individual businesses no longer compete as solely autonomous entities, but rather as supply chains. Business management has entered the era of inter-network competition and the ultimate success of a single business will depend on management's ability to integrate the company's intricate network of business relationships" [8]. This explanation is vital in reaching out for the intricated network theory. Interestingly, within supply chain management, "relational view theory of firm's dyads and network" is widely incorporated to understand the strategic supply chain management. In the complex competitive environment, the relational view theory is largely used in the SCM area because of its flexible intricated approach [9]. On the other hand, firm's dyads and network is effective in explaining the overall performance of the firm along with business dynamics [10].

Nevertheless, resource-based theory is also considered for explaining the functionality of supply chain management, but it lacks in confirming the notion that competitive edge or higher overall performance attained by the businesses through incorporating it or not [11]. Conversely, "from the unit of analysis, this is evident that RBV fails to confirm the competitive advantage while the dyads and network theory as part of relational view reveals that the organisations having higher level of networking have more strong grip on the market as they remain competitive in reducing the inventory time and improve the quality of the work through shared expertise" [12]. However, through the lens of relational view, most of the strategic supply chain management's aspects could be understood and

successfully implemented [13]. Still, the investigation of the manufacturing and servicing industries under cross-cultural context by adopting the relational view theory of firm's dyads and network is under research. In other words, there is still no conclusive traces of investigating the strategic SCM in the manufacturing and servicing industry being explored from relational view theory in cross-cultural context. In addition to that, the focus of dyads and network largely remain concentrated on the exploration of SCM limited attributes in specific region, hence, it is a gap that needs to be filled by exploring the SCM attributes in comparative manner. This way, instead of region-specific knowledge, there will be superior knowledge from cross-cultural context would be attained, offering broader generalization. Lastly, the resource-based view (RBV) has a major limitation of using "unit of analysis" while focusing only on internal resource while there is need to find a right-fit between internal and external attributes interlined with strategic supply chain management. Through this study, the attempt is made to fill the identified gap in the literature.

In the context of contrasting economies, there are limited evidence regarded the comparative approach for examining the strategic SCM in the SMEs [14, 15 & 16]. However, all prior studies stated above have focused on specific region while still the economies of scale for "emerging-middle ranged-developed" economies are under research. In this study, emerging economy is Iran, Turkey middle ranged while Canada is developed economy for investigating strategic SCM in SMEs. The study aim is, "to investigate the mediating effect of strategic supply chain management at SMEs on the social and environmental sustainability in distinctive economies".

2. Literature Review

There are traces of inconsistent findings and higher variations among the wide range of empirical studies related to the supply chain management. For instance, Truong et al.'s study found strategic SCM affect the operations of SMEs in significant manner [16]. However, the study has not established the impact on the social and environmental sustainability. On the other hand, Koh et al.'s work found no significant impact of strategic SCM on the operational efficiency of SMEs, including non-significant impact on social and environmental sustainability [17]. Comprehensive cross-sectional research in the field of supply chain is still under research as the above stated studies have used relatively small sample while heavily concentrated on region-specificity. Literature at hand focused to larger extent on the relationship between strategic supply chain management and SMEs' performance, however, the mediating effect of it on the social and environmental sustainability is under research, especially in the context of distinctive economies. Furthermore, the components of strategic SCM include determinants, practices and supporting factors that are largely traced to add competitive edge by reducing cost and implementation of sophisticated technology [18], whereas the sustainability aspects are under researched.

Some scholars have presented a viewpoint that SCM practices are not right fit for SMEs due to implementation challenges as the operations of such businesses are carried on small scale and the rate of investment remains lower, resulting in poor strategic SCM execution [18]. Conversely, wide range of studies found that strategic SCM improves the overall performance and sustainable operations of the SMEs by assisting them to maintain a steady focus on the activities that are transparent, competitive and sustainable [19 & 20]. Nonetheless, most of the SMEs perceive that strategic SCM is more to do with attainment of consumers' satisfaction through higher investment in latest information technology [21], rather than considering the impact of strategic SCM on the social and environmental sustainability. Interestingly, wide range of empirical studies have often used the terminologies such as "small and medium-sized enterprises", "strategic management" and "supply chain" in their titles but failed to explain in-depth the impact of strategic SCM in relation to sustainability [15].

Sustaining social and environmental challenges are evident to be tackled by the supply chain management activities in the SMEs through their performances [22]. Low cost strategies, flexibility and adaptability in order to meet the environmental challenges as well as fulfil the consumers'

requirements are prominent features, which assist business to retain stable position in the dynamics to some extent [22]. Another argument is that, SMEs support functioning is essential to link the chain of activities in desirable and sustainable manner [23]. The key performance indicators (KPIs) are essential in assessing the impact of supply chain activities within the SMEs [24]. However, these KPIs are of less importance when it comes to social and environmental challenges as they vary from organisation to organisation in distinctive types of economies. Literature has offered the insight that quality, services, speed and value formation for the end-consumers are some of the dimensions to measure the strategic outlook and performance of SCM [25]. Furthermore, using these dimensions are the best attempt to understand the business model and solutions to meet distinctive external environmental challenges [25]. Therefore, it is evident that flexible and open approach to restructure and redesign supply chain activities is part of strategic SCM in order to cope up with external challenges. One of the such examples is Procter & Gamble (P&G) that has modified its supply chain activities to ensure SCM is efficient and effective in dealing with environmental challenges [15].

An attempt was made by Vasiliu and Dobrea by commencing a research regarding potential challenges and issues of SCM in various organisations, however the result findings are inconclusive in providing details about the causes for lower sustainable impact in the presence of integrated and incorporated activities [26]. In addition to that, the drawback of Vasiliu and Dobrea's work is that the sample size of their study is not sufficient to reach comprehensive conclusion [15]. Nevertheless, there is also the traces of strengths as well as weaknesses of supply chain management when it is attempting to be more rational and strategic in encountering with the dynamic environmental uncertainties [27]. Strategic orientation, processing standards, IT support, measurements and coordination are both, strengths and weaknesses [27]. However, the same study also found that at times the strategic supply chain management is effective in increasing the level of services but fail to reduce the adverse effect on the environment [27]. Therefore, it is recommended by them that the communication needs to be improved along with the supporting factors of SCM to ensure there are desirable and sustainable operations, leading to reduce negative impact on external stakeholders [27].

Enterprise Resource Planning (ERP) software is a peripheral tool used by different enterprises to ensure the effective use of financial and other resources, however, it is ineffective in improving the SCM process and operations [28]. On the other hand, the study of Kherbach and Mocan found that SMEs are at disadvantage in comparison to large enterprises, due to financial, human and technological resource usage to reduce adverse effect on the external environmental [29]. Furthermore, the organisational flexibility tends to improve in order to meet the market requirements as well as reduce negative impact on the environment [29]. Interestingly, the same study concluded that determinants, supporting factors and practices of supply chain management are highly effective in improving organisational efficiency, meeting customer satisfaction and tackling environmental challenges. Hence, the strategic SCM has a role in meeting the environmental challenges. Nevertheless, the study does not directly explain the mediating effect on social and environmental sustainability caused by strategic SCM. Conversely, the survey of Oracle on IDG connect was carried out in four different regions, namely, (a) Asia Pacific, (b) Europe, Middle East and Africa (EMA), (c) Central and South America and (d) North America to investigate the use of cloud-based SCM solutions affecting the environment and societies [30]. Findings revealed that this strategic move tends to enhance the productivity and operational efficiency, cost reduction and enable businesses to cope up with various environmental challenges [30]. On the other hand, the use of different IT components as part of strategic SCM has been evident to be inconsistent in reducing negative impact on social and environmental sustainability and serve as a barrier for swift operations [31].

The environmental-friendly policies and practices during the supply chain management process result into improving the environmental sustainability [32]. Nevertheless, there is evidence regarding the mandatory integration of social and environmental aspects and criteria with the SCM operational is important in expanding diverse socio-economic

context [33]. Still, the area is under research as there is inconclusive evidence regarding the environmental and social sustainability association with strategic supply chain management in SMEs within distinctive economies. The practices of SCM are insignificant while determinants are significant in affecting the SMEs' strategic SCM [34]. There is no conclusive evidence about the varying impact of strategic SCM on social and environmental sustainability in emerging-middle ranged-developed economies. Interestingly, social sustainability is evident to be affected negatively in the absence of adequate strategic SCM [35, 36 & 37]. The operational efficiency tends to reduce to negative affect of inadequate strategic SCM on social sustainability [37]. There is still research needed to investigate the mediating role of strategic SCM on sustainability in cross-cultural context as the strategic SCM is directly assessed but not as a mediator. This is the identified gap in the literature that is attempted to be filled through this study by opting for one construct to assess in the cross-cultural environment.

In order to examine the relationship between independent, mediating and dependent variables, this study considers (a) determinants of supply chain management, (b) factors supporting SCM and (c) SCM practices as independent variables, strategic SCM as mediating variable and environmental sustainability and social sustainability as dependent variables.

Research Framework and hypotheses

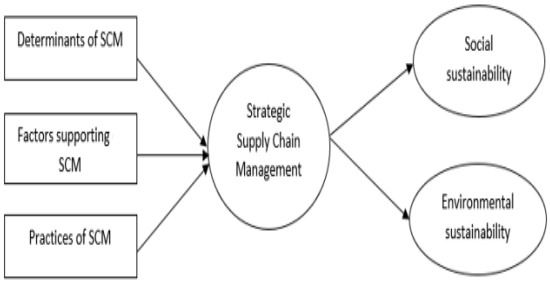

Figure 2: Own-illustrated research framework

Research hypotheses driven from the reviewed literature are as following:

H1: Determinants of SCM have significant positive impact on strategic supply chain management.

H2: Factors supporting SCM have significant positive impact on strategic supply chain management.

H3: Practices of SCM have significant positive impact on strategic supply chain management.

H4: Strategic supply chain management mediates social sustainability.

H5: Strategic supply chain management mediates environmental sustainability.

3. Research Methodology

This quantitative cross-sectional research is categorized into positivist research paradigm with objectivist epistemological stance while critical realism ontological stance to express the social reality in numeric. The research primarily focuses on the attainment of factual truth through expressing relationship in numeric, hence, follow positivism philosophy [38].

Five points Likert Scale (1=Strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly Agree) was used to measure the variables of interest. Kot et al.'s survey questionnaire is adopted because it serves the purpose to investigate the research variables in different countries [15] while Harasi's scale is used to measure the strategic supply chain management, containing intern-organisational communication, cross-organisational team, strategic planning and long-term orientation [34]. The pre-existing questionnaire as an adopted instrument enables researchers in ensuring higher content and construct validity [39]. Additionally, test-re-test reliability and inter-rater reliability is attained through usage of pre-existing questionnaire [40 & 41]. Moreover, the reliability and validity are also determined through statistical test in order to draw logical conclusion.

In present study, 613 SMEs are the total sample size whereas one respondent per organisation

participated. Using purposive sampling technique, it was ensured that fair representations in all three countries are attained by targeting minimum 200 each in selected geographic region. Out of 613 SMEs, 203 from Turkey while 205 each from Canada and Iran participated. The strategy of Haque, Faizan and Cockrill was adopted to ensure that in this comparative study, over 200 respondents participate from considered sub-groups [42]. The response rate is 58.38% as total 1050 survey questionnaires were circulated (350 in each economy). Over reliance on one sampling technique restricts the researchers in reaching target audience [43]. Hence, Haque et al.'s strategy is adopted by combining referral, purposive sampling with the connection and networking to improve the sample size. The list of registered SMEs was attained from the official ministry portal. Smart partial least square structural equation (PLS-SEM) modeling is used for the data analysis.

All ethical considerations were maintained during and after research commencement and as part of it, there was no disclosure of respondent's personal detail to general public and participants were informed about the purpose of research.

4. Results Analysis

4.1 Measurement Model

For primary data analysis, Henseler's recommendation to use prominent statistical method has been considered in this study [44]. Measurement model assessment and structural model assessment are two major parts for the statistical analysis [45]. The measurement model assessment is the first step to assess the model's validity before performing structural model assessment. As part of measurement model, the reliability is assessed through Cronbach's alpha and composite reliability while Average Variance Extracted (AVE) through factor loadings ae considered for external consistency to form convergent validity [45]. Addition to that, "convergent validity, a parameter frequently utilized in social sciences research, refers to the degree to which two measures of constructs that theoretically should be related are in fact related". Values below than 0.40 on factors loadings are excluded from the scale while only above 0.40 is included as it indicates the acceptable validity [46] (Hair et al. 2016). Moreover, Cronbach's alpha (α=<0.70), composite reliability (C.R=<0.70) and Average Variance Extracted (AVE=<0.50) is criteria for acceptability. Item loading values and AVE are presented visible in figure 3, 4 and 5 for contrasting economies while Table 1 contains Cronbach's alpha (α), composite reliability (C.R), and Average Variance Extracted (AVE). It is evident that all the obtained values are satisfactory. In addition to that, table 2 contains discriminant (external) validity, which meets the Fornell-larcker criteria [46].

Table 1. Measurement model (results)

Constructs	Iran			Turkey			Canada		
	α	CR	AVE	α	CR	AVE	α	CR	AVE
Determinants of SCM	0.72	0.72	0.51	0.74	0.75	0.62	0.75	0.76	0.62
Factors supporting SCM	0.81	0.73	0.52	0.72	0.82	0.60	0.98	0.86	0.68
Practices of SCM	0.71	0.73	0.6	0.76	0.76	0.60	0.77	0.78	0.65
Strategic supply chain management	0.76	0.71	0.54	0.759	0.72	0.68	0.79	0.79	0.74
Social sustainability	0.83	0.73	0.56	0.71	0.73	0.58	0.51	0.762	0.61
Environmental sustainability	0.71	0.77	0.60	0.71	0.76	0.60	0.74	0.86	0.64

Table 1 revealed that Cronbach's alpha (α) and composite reliability (C.R) for all items in Iran, Turkey and Canada is above 0.7, reflecting internal consistencies among items are acceptable. Furthermore, Average Variance Extracted (AVE) is found to be greater than 0.5, indicating model is acceptable. Fornell-Larcker's criteria along with cross loadings are used for determination of discriminant validity (external consistency) [46]. "The AVE of the exogenous (latent) variables higher than the extracted square root average variance reflects results validity" [46]. Below are the results of discriminant validity for all three countries is found to be greater than 0.50, thus, all the constructs are acceptable (Table 2).

Table 2. Fornell-Larcker test

Constructs	Determinants of SCM	Factors supporting SCM	Practices of SCM	Strategic supply chain management	Social sustainability	Environmental sustainability
Iran						
Determinants of SCM	0.542					
Factors supporting SCM	0.701	0.626				
Practices of SCM	0.625	0.561	0.672			
Strategic supply chain management	0.657	0.576	0.576	0.594		
Social sustainability	0.593	0.665	0.611	0.639	0.511	
Environmental sustainability	0.526	0.618	0.659	0.646	0.581	0.667
Turkey						
Determinants of SCM	0.635					
Factors supporting SCM	0.603	0.713				
Practices of SCM	0.527	0.563	0.606			
Strategic supply chain management	0.524	0.756	0.545	0.522		
Social sustainability	0.661	0.595	0.658	0.538	0.625	
Environmental sustainability	0.681	0.532	0.512	0.681	0.597	0.655
Canada						
Determinants of SCM	0.711					
Factors supporting SCM	0.712	0.814				
Practices of SCM	0.732	0.698	0.755			
Strategic supply chain management	0.765	0.754	0.571	0.697		
Social sustainability	0.799	0.793	0.656	0.699	0.763	
Environmental sustainability	0.622	0.727	0.737	0.789	0.792	0.724

In second part, the research hypotheses developed from the available literature are tested through the structural model. Using structural model assessment, the research findings are attained.

4.2 Structural Model Assessment

In the next section, structural model assessment is used to examine the relationship between research variables. For testing hypotheses, we used mainly t-value to reject or retain hypotheses. The threshold t-value=1.96, hence, above it is significant while below it will be non-significant. Moreover, R2 indicates the predictors (determinants of SCM, factors supporting SCM, practices of SCM, causing variability in dependent variables (social sustainability and environmental sustainability) whereas as (f2) determines the size effect of the relationship.

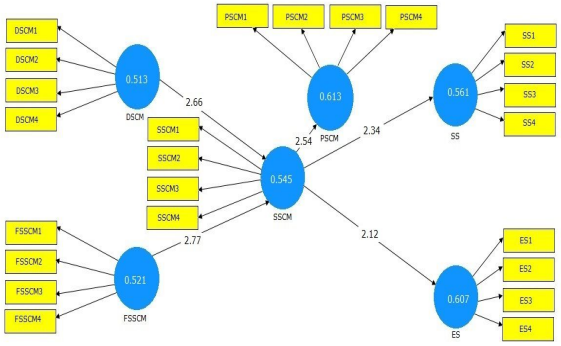

Figure 3: Iran's structural model results

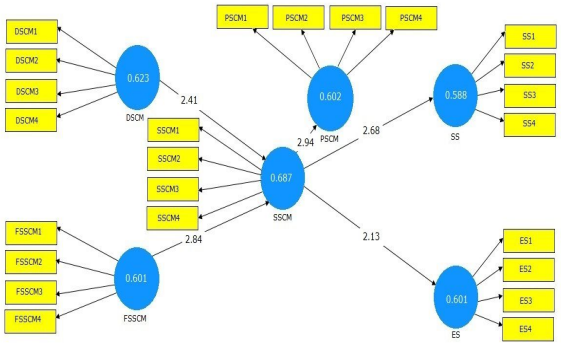

Figure 4: Turkey 's structural model results

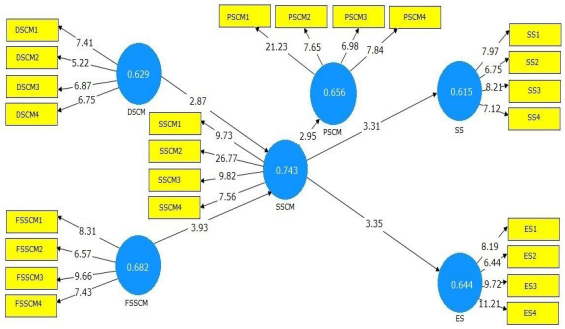

Figure 5: Canada's structural model results

Table 3: Structural model results

Hypotheses	B	SD	T Value	P-value	f^2	R^2
Iran						
Determinants of SCM -> Strategic SCM	0.88	0.33	2.66	0.000	0.16	0.66
Factors supporting SCM-> Strategic SCM	0.61	0.22	2.77	0.000	0.15	0.62
Practices of SCM -> Strategic SCM	0.79	0.31	2.54	0.000	0.22	
Strategic SCM -> Social sustainability	0.54	0.23	2.34	0.000	0.35	
Strategic SCM -> Environmental sustainability	0.66	0.31	2.12	0.000	0.36	
Turkey						
Determinants of SCM -> Strategic SCM	0.82	0.34	2.41	0.000	0.17	0.68
Factors supporting SCM-> Strategic SCM	0.71	0.25	2.84	0.000	0.16	0.59
Practices of SCM -> Strategic SCM	0.64	0.31	2.94	0.000	0.24	
Strategic SCM -> Social sustainability	0.51	0.19	2.68	0.000	0.35	
Strategic SCM -> Environmental sustainability	0.49	0.23	2.13	0.000	0.37	
Canada						
Determinants of SCM -> Strategic SCM	0.89	0.31	2.87	0.000	0.19	0.69
Factors supporting SCM-> Strategic SCM	0.59	0.15	3.93	0.000	0.18	0.67
Practices of SCM -> Strategic SCM	0.68	0.23	2.95	0.000	0.26	
Strategic SCM -> Social sustainability	0.96	0.29	3.31	0.000	0.36	
Strategic SCM -> Environmental sustainability	0.57	0.17	3.35	0.000	0.39	

*Note: ***p<0.1, **p<0.05,* ns= nonsignificant (p>.05) *(Two Tail)*

The statistical test confirmed that determinants of supply chain management have significant positive impact on the strategic supply chain management of SMEs in distinctive economies (Iran--> t-value=2.66 > 1.96, Turkey--> t-value=2.41 > 1.96, Canada--> t-value=2.87 > 1.96; Table 3). Hence, we fail to reject hypothesis 1. The present findings are aligned with the earlier work as reference [17] and [18] has found positive association between determinants of SCM and strategic SCM. Furthermore, reference [34] also argued that Strategic SCM is un-observed variable, that could be only explored through interlinked other organisational components. In this study, the determinants of SCM are one of the organisational components, which has positively established the impact on strategic SCM in SMEs, irrespective of the type of economies. Moreover, observed β of determinants of SCM are found to be positive in all three countries, indicating that strategic SCM is positively affected by determinants of SCM with change in 1-unit of standard deviation (Iran--> β=0.88, Turkey--> β=0.82, Canada--> β=0.89; Table 3). However, there is not much difference but from the comparative lens, Canada scored higher than Turkey and Iran.

Factors supporting SCM have a statistically significant positive impact on the strategic SCM in distinctive economies (Iran--> t-value=2.77 > 1.96, Turkey--> t-value=2.84 > 1.96, Canada--> t-value=3.93 > 1.96; Table 3). Therefore, hypothesis 2 is retained as we fail to reject it. In other words, strategic SCM is positively affected by the supporting factors of SCM in SMEs, irrespective of the types of economies. This study, to large extent support the previous empirical works, such as, reference [35], and [36] as these studies indirectly showed the positive association between considered variables. On the other hand, present study partially differs with the study findings of reference [29] because according to reference [29] no significant role offered by supporting factors was evident previously in SMEs. Nevertheless, present findings further offered a new insight by confirming the positive relationship from SMEs in distinctive economies. With the 1-unit deviation from standard, there are traces of positive impact caused by supporting SCM factors in strategic SCM in all three countries' SMEs (Iran--> β=0.61, Turkey--> β=0.71, Canada--> β=0.59; Table 3).

Practices of SCM have a statistically significant positive impact on the strategic supply chain management of the SMEs in contrasting economies (Iran--> t-value=2.54 > 1.96, Turkey--> t-value=2.94 > 1.96, Canada--> t-value=2.95 > 1.96; Table 3). In the light of evidence, hypothesis 3 cannot be rejected therefore, we retained it. Reference [17] stated that strategic SCM is largely positively affected by the practices of SCM because it increases the operational efficiency of the SMEs. Therefore, this study supports the argument posed by reference [17]. On the other hand, references [24] and [25] argued that the strategic SCM differ for the SMEs operating in different types of economies whereas we found no variations in strategic SCM due to differing practices of SCM, thus, we differ with their findings. Interestingly, reference [47] stated that adaptive approach in practices of SCM is highly effective in improving the efficiency of operations and strategic planning. Through funnel approach it is evident that businesses having more adaptive approach are more likely to have better strategic SCM operations. Additionally, the positive variation is caused by practices of SCM in all three considered economies (Iran--> β=0.79, Turkey--> β=0.64, Canada--> β=0.68; Table 3).

Strategic supply chain management has a significant positive mediating effect on the social sustainability (Iran--> t-value=2.34 > 1.96, Turkey--> t-value=2.68 > 1.96, Canada--> t-value=3.31 > 1.96; Table 3), and environmental sustainability (Iran--> t-value=2.12 > 1.96, Turkey--> t-value=2.13 > 1.96, Canada--> t-value=3.35 > 1.96; Table 3). Thus, in the light of available statistical evidence, we fail to reject hypothesis 4 and 5. In other words, social and environmental sustainability are evident to be positively mediated by the strategic supply chain management in the contrasting economies' SMEs. Considering, social sustainability aspect, the study supports earlier work of references [17, 22, 29 & 33] while oppose the findings of reference [25, 35, 36 & 37] that there is negative linkage with our findings confirmed positive association with strategic SCM. The increase in 1-unit standard deviation of strategic SCM causes positive variation in the social sustainability (Iran--> β=0.54, Turkey--> β=0.51, Canada--> β=0.96; Table 3). References [22], [29] and [32] are supported because environmental sustainability being found to be positively mediated by strategic supply chain management while opposes the previous argument of references [35, 36 and 37]. Interestingly, reference [15] stated that environmental challenges are dealt effectively by having strategic supply chain management process at workplace. Reference [15] work is extended by confirming the evidence from distinctive economies. Furthermore, there is a positive variation caused by strategic SCM in the environmental sustainability in distinctive economies (Iran--> β=0.66, Turkey--> β=0.49, Canada--> β=0.57; Table 3).

Table 3 also contains the variance (R2) and the effect size (f2). "The value of variance (R2) is a value that indicates that the variability in the independent variable causing the variation in dependent variable" [48]. In Iran's SMEs, 66% variation caused by variables in social sustainability and 62% in environmental sustainability. Considering Turkey's SMEs, 68% variation in social sustainability and 59% in environmental sustainability is caused by variables in question while in Canada 69% in social sustainability and 67% in environmental sustainability.

"The values of effect size (f2) are considered as small (0.02), medium (0.15) and large (0.35) respectively" [49]. In present study, the size effects (f2) are moderate for determinants of SCM in Iran, Turkey and Canada (0.16, 0.17 and 0.19); factors supporting SCM (0.15, 0.16 and 0.18); and practices of SCM (0.22, 0.24 and 0.26). Furthermore, strategic SCM has a large size effect on social sustainability and environmental sustainability in Iran, Turkey and Canada (SS=0.35. 0.35 and 0.36; ES=0.36, 0.37 and 0.39).

5. Conclusion

5.1 Overall conclusion

The conclusion is drawn from the statistical analysis of data gathered from the small and medium-sized enterprises (SMEs) operating in Iran, Turkey and Canada. It is confirmed that determinants of supply chain management (SCM), factors supporting SCM and practices of SCM have statistically significant positive impact on the strategic supply chain management. Furthermore, results also confirmed that strategic SCM mediates significant positively the social sustainability and environmental sustainability. In other words, there are traces that despite operating in distinctive economies, there are positive mediation caused by strategic SCM of SMEs in the social and environmental sustainability. Furthermore, the statistical test results confirmed that the size effect (f2) is moderate for the impact of determinants of SCM, factors supporting SCM and practices of SCM on the strategic SCM at the SMEs operations in all three considered distinctive economies. Interestingly, strategic SCM is not only a significant mediator but also found to have large size effect (f2) on the social sustainability and environmental sustainability in Iran, Turkey and Canada. In the lights of results, it is confirmed that strategic SCM within the SMEs is a significant mediator that positively mediates the social and environmental sustainability in distinctive economies. Interestingly, the nature and strength of the relationship between research variables are more prominent and stronger in Canada (developed economy) in contrast to Iran (emerging economy) and Turkey (middle ranged economy).

5.2 Recommendations

The SMEs should consider the use of latest technology as part of the strategic supply chain management process and therefore, shall opt to incorporate and integrate the standardized ERP approach while commencing operations so that time, money and other invaluable resources are effectively utilized during the strategic SCM process. Moreover, the use of technology should also be considered in assessing the supporting factors and ongoing practices of SCM so that operational efficiency could further be improved. Funnel approach revealed that within the SCM operations, the miscommunication between teams tends to reduce the accuracy in real time production. Therefore, it is recommended that reference [47] strategy should be considered by having polar adaptive approach to link all the units so that there is higher communication and accuracy during exchange of information. Since, the organisations are part of the societies therefore, it is important that the adverse effect of the SMEs' operation on the societies and environment is reduced to larger extent. It is recommended that the SMEs should the relationship ties should be strengthened between SMEs and their stakeholder network in order to share resources and knowledge that can promote sustainable operations in societal and environmental context. In addition to that, environmental and social responsibility practices should be made mandatory for the managers to ensure that the strategic perspective to environmental and social sustainability is attained. Through sharing stakeholder network, the good spill-over effects for wider societies could be attained through promotion of socially responsible and environmentally responsible behaviour [50-52].

5.3 Contributions

The study contributes in both; theoretical and practical manner. Considering theoretical aspect, the research enhances the existing knowledge about the mediating effect of strategic SCM on the social and environmental sustainability. Moreover, it offers the wider generalizability by offering the insight from the cross-cultural perspective. The study framework is pioneer to investigate the social and environmental sustainability as separate attributes in relation to strategic SCM (as a common mediator) through SMEs from distinctive economies' perspective while previously, the area was under research, but now there is a theoretical framework to further expand the scope of studies in this dimension. The practical implication of this study is that the managers have the evidence now to ensure that determinants, supporting factors and practices of SCM are largely interlinked with the strategic SCM, which further mediates the social and environmental sustainability. Thus, the managers should focus on ensuring the adaptive sustainable approach for maintaining organisational operational efficiencies. The study is invaluable for the governments and policymakers to ensure that SMEs are encouraged towards use of sustainable operations, so that sustainable SMEs' ongoing operations have a positive social impact on the communities and societies.

5.4 Research Limitations and future directions

Although, best possible efforts were made to ensure that the research is commenced in comprehensive manner but there is always room for improvement. Alike other studies, there are also limitations attached with this study. The research design is cross-sectional, therefore, respondents only participated once in a given time interval. Future researchers shall consider longitudinal panel study to ensure that same respondents participate twice in different time lags, because there are chances that with the passage of time there could be variation or further confirmation. Hence, this design would offer more definite and concrete evidences. Furthermore, there should be panel interviews with the experts from the industry in order to gain deeper insight. The qualitative perspective would give details of the useful truth while currently the quantitative attempt has offered only factual truth (higher emphasis on the numeric expression of relationship). In other words, with the qualitative study, there will be high chances of further exploring the hidden trends and aspects interlinked with the research variables.

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