



Supply Chain Management in Smes: Global Perspective

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ARTICLE INFO

Received September 29, 2019
Revised from October 28, 2019
Accepted November 20, 2019
Available online March 15, 2020

JEL classification: C61, M11

DOI: 10.14254/1800-5845/2020.16-1.6

Keywords:

Supply Chain Management,
Small and Medium Sized Enterprises,
contrasting economies

ABSTRACT

Supply chain management is quite important management tool in corporations, however it seem to be more used in small and medium enterprises as well. This research investigates supply chain management in total 613 SMEs of Canada, Iran and Turkey to explore SMEs practices in global context. Results confirmed SCM's determinants, factors, barriers, practices, functioning, environmental and social sustainability statistically significantly differ in contrasting economies while only SCM determinants do not significantly differ for the size of entity. The SMEs' length duration also affected the considered attributes. Apart from SCM determinants all other factors have no significant relationship with the designation whereas types of industry significantly affect the types of practices and functioning within SCM. Lastly, this paper theorizes that the environmental and social sustainability have significant relation with the type of industry.

INTRODUCTION

The economic growths at national and international levels are shaped to a certain extent by the Small and Medium-sized Enterprises (SMEs) - OECD, 2009. In order to survive in the complex and competitive business environment, the adaptation of the adequate strategies is essential for the SMEs in all types of economies (Kljucnikov et al., 2016; Kozubikova et al., 2017; Lesakova, 2014). Therefore, the concept of supply chain management application regarding the SMEs functioning strategy becomes more essential because the operations of supply chain incorporate all activities and actions interlinked with the products' flow and transformation, starting from the extraction of raw material through various processing stages and to reach the end consumers (Kovacs and Kot, 2016). In the due process, necessary information also moves with the flow of goods in the supply chain. Now, the focus has moved from the enterprise level to the perspective of the supply chain because of the intense competition (Liberko et al., 2015). In the era of advanced technology and ease of accesses to information, customers' expectation from the companies to produce higher

level products and services at affordable prices with flexible and faster shipment to ensure timely delivery (Kovacs and Kot, 2016; Liberko et al., 2015; Kovacs and Kot, 2017).

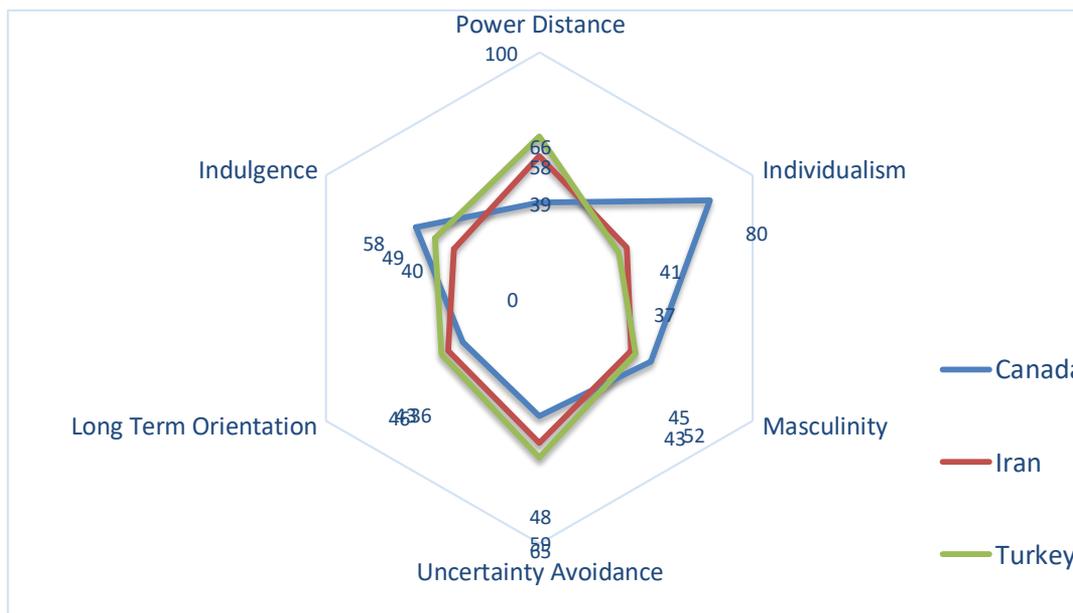


Figure 1: Hofstede's Cultural Dimension Comparison

Source: Hofstede-insight.com

Irrespective of the type of economy, the preliminary research has shown that the supply chain management process is similar to a larger extent (Kovacs and Kot, 2016). In order to ensure, this article selects three distinctive economies, namely; Canada, Iran, and Turkey are considered for measuring the supply chain management practices in SMEs. For the purpose of justifying the selection of the types of economies, the Hofstede's cultural dimensions are one attribute and it is considered in this study. The perimeter is set to measure the similarity at least three out of six dimensions. This perimeter is set on the rule of thumb to have at least 50% of the similarity among the selected cases. Hofstede cultural dimensions have revealed that there is no significant difference in the masculinity of Canada, Iran and Turkey ($52 > 43 > 45$). This reflects that there is a higher masculine culture in all three distinctive economies. In other words, the cultural aspects are higher to some extent in all distinctive economies. SMEs operate in societies and workforces are part of communities and societies, therefore, there is a likely possibility of having similar cultural attributes; "masculinity" in distinctive economies. Similarly, there is no sufficient difference in the 'long-term orientation' among considered economies as there is a trace of only fractional difference (Canada = 36 > Iran = 43 > Turkey = 46). Hence, it indicates that the SMEs approach in all three distinctive economies are largely similar to have long-term orientation. There is no huge difference in the 'uncertainty avoidance' in all three countries (Canada = 48 > Iran = 59 > Turkey = 65) and 'indulgence' (Canada = 58 > Iran = 40 > Turkey = 49). While considering six dimensions, only two have shown a higher and other four have similarity, thus, in the study, these economies are considered for assessing the SCM practices in SMEs. Furthermore, this research also considers the Human Development Index of these three distinctive economies. Another perimeter for selecting these economies is based on the evaluation of Human Development Indicators. There is not much difference between the Human Development Index (HDI) of Iran and Turkey (0.798 and 0.792) while Canada has scored 0.926 but in terms of gender, human security, work, employment and vulnerability, and mobility and communication there are higher similarities to a larger extent (Human Development Report, 2017). In other words, although, these distinctive economies have differing

HDI, but largely there are attributes similarly affecting the work, workers and workplace in a similar way to larger extent.

Drucker (1998) explained that paradigm shift within the management literature is widely visible: *“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.”* (Cited from Habib, 2011; p. 8). This leads to the use of intricated network theory. In SCM, one of the most widely used theory is ‘relational view theory of firm’s dyads and network’. As per J. Dyer and H. Singh (1998), SCM discipline large use of relational view theory remain a focus due to its flexible intricating approach in the sophisticated competitive environment. Additionally, the firm’s dynamics are effectively explained along with the firm’s overall performance through firm’s dyads and network (Lavie, 2006).

Furthermore, D. Blanchard (2010) explained that resource-based theory is used to explain the supply chain management functionality, but it does not clearly confirm if higher overall performance or the competitive edge is attained through it or not. Additionally, J. Ramsay (2001) explained that, *“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”*. Nevertheless, J. Barney (2012) stated that, supply chain management could prosper in at least some settings under relational view. The relational view theory of firm’s dyads and network integration is yet not tested in the cross-cultural country’s manufacturing and servicing industries. Furthermore, dyads and network theory has only explored the limited attributes of SCM in specific type of economy, which is a gap to be filled through identifying the SCM in comparative manner. Furthermore, the resource-based view (RBV) has a drawback of ‘unit of analysis’ and only focused on internal resource whereas there is a need to find a match between internal and external components. This study intakes both internal and external attributes to fill the existing gap in the literature. Are the supply chain management operations within the SMEs similar in distinctive economies? This is the research question that serves the purpose of this study. There is a limited evidence from the literature in thehand to attempt a comparative approach for investigating the SCM practices in the SMEs in global context (Kot, Onyusheva and Grondys, 2018; Sundarakani, Vrat and and Kumar, 2006; Truong et al., 2017). Nevertheless, all aforementioned studies have considered specific countries andthere is no evidence of a study considering the selected three economies on the scale of “emerging-middle ranged-developed” economies, where Iran is emerging economy, Turkey middle ranged, and Canada is developed economy. Thus, this study expands the existing knowledge by contributing to cross-cultural context rather than focusing on a region-specific knowledge. In other words, the study contributes to a broader context by offering a global context (Kravchenko, 2017). Therefore, the aim of this study is, *“to investigate the supply chain management practices in the SMEs operating in distinctive economies”*.

1. LITERATURE REVIEW

A wide range of available literature regarding the supply chain management reflects inconsistent results as there are limited studies and their results regarding the SMEs have higher variation. For instance, the work of H. Truong et al. (2017) reveals that SMEs affect in a resonant manner by SCM practices while the work of S. Koh et al. (2007) reveals no significant impact of SCM practices on the SMEs’ performance. There is no conclusive evidence about the availability of comprehensive cross-sectional research in the area of supply chain. Those studies that are in hindsight have a small research sample and largely region-specific whereas fragmented in nature. Studies in literature to a larger extent focus on the relationship between SCM and SMEs’ perfor-

mance in different countries but have shown a lack of evidence regarding the explanation of effective implementation of SCM practices in SMEs in distinctive economies leading to improve operational efficiency to attain competitive advantage. Moreover, those studies lack in explaining the integration of technology and systems, leading to a reduction in competitiveness and focus on strategic SCM performance increasing competitive edge (Arend and Wisner, 2005).

Few authors have argued that SCM practices are not an appropriate fit for SMEs because these practices lead to inadequate and poor performance and a lower rate of return on investment (Arend and Wisner, 2005). On the other hand, a number of studies confirmed that SCM activities and practices improve the SMEs' performance by enabling them to retain focus on activities bringing higher value and transparency in the development of strategies, which lead to enhance the competitiveness (Thakkar et al., 2008, 2011; Tvaronaviciene, 2015; Olah et al., 2017). Nevertheless, still, a number of SMEs perceive SCM as a strategic tool for attaining the satisfaction of the customers by higher investment in the advanced information technology (Kumar, Singh and Shankar, 2015). A number of researchers have used frequently the terms such as, "supply chain" and "small and medium-sized businesses" in their titles, but in-depth analysis of their work fails to convey the actual details about the impact of SCM practices in maintaining sustainability (Kot et al., 2018; Svazas et al. 2019). Interestingly, the work of D. Kisperska-Moron et al. (2010) has revealed that on several occasions the SMEs' functioning is determined by the SCM as those enterprises act as a member of a chain. The study of O. Dumitrascu and C. Hila (2017) explains that the key performance indicators (KPI) are vital for determining the impact of a supply chain in SMEs. Nevertheless, these KPIs vary from organization to organization in different countries. The work of M. Ghicajanu (2014) considers the performance criteria regarding SCM, such as speed, quality, services and value formed for the end-consumers. Additionally, in order to attain the solutions and business model, it is essential to meet the stated criteria in the best possible manner (Ibid.). Hence, this indicates that SCM shall be flexible and open to restructuring and redesigning programs, modifications in some fields and opting for innovative solutions. For instance, Procter & Gamble (P&G) is an example of a company opting for an innovative program to increase SCM efficiency.

Interestingly, C. Vasiliu and M. Dobrea (2013) have commenced a research on the issues of supply chain management in different companies, but the findings are not conclusive because the development stage has been lower and under the evaluated integration of all incorporated activities. Additionally, the sample size is not sufficient to draw a logical conclusion from this exploratory research (Kot et al., 2018). On the other hand, the research of D. Diaconu and C. Alpopi (2014) has examined at different levels the existing SCM's strengths and weaknesses. This includes measurement, cooperation, organization, IT support management and process and strategic orientation (Diaconu and Alpopi, 2014; Cygler et al., 2018). Their study has shown the increase in the level of service, but a level of stock does not reduce, which is the key attribute of logistic cost. Hence, the authors have recommended having efficient and improved communication between internal departments as well as with external suppliers. Improved communication helps in attaining a competitive edge by improving customer satisfaction while reducing the cost of operations (Diaconu and Alpopi, 2014; Ngo and Pavelkova, 2017).

J. Tartavulea and R. Petrariu (2013) have commenced a research in the medium and large enterprises involved in the logistics market primarily using ERP software due to popularity the sophisticated tool has attained. The findings have confirmed that ERP is more useful for financial and accounting departments while only marginally important for the SCM process. Hence, this reflects that ERP is not too effective in improving the SCM process. O. Kherbach and M. Mocan (2015) have considered financial, human and technological resources for comparing the SMEs being at disadvantage to the large enterprises, especially the ability of large businesses to have organizational and behavioural flexibility to overcome the obstacles in the market. The same research has found that within SCM, information technology is a powerful tool for SMEs. IT enhances the performance of SMEs by increasing organizational efficiency in their supply, customer orientation and

production process (Kherbach and Mocan, 2015). The study concludes that implementation of SCM systems within the SMEs as it consistently assimilates all channels from the supply source to end-consumers by ensuring the structural attributes remain intact in dynamic markets (ibid). On the other hand, Oracle (2016) has commenced a survey on IDG connect in four distinctive regions namely; Middle East, Europe and Africa (EMA), North America, Asia Pacific, and Central and South America in order to discover the attitude of the organizations in the adoption plan for cloud-based SCM solutions. Results confirm that three strategic benefits of the cloud-based implementation improve operational efficiency, productivity improvement and reduction in cost (Oracle, 2016). Nevertheless, there is inconsistent evidence regarding the IT benefits SMEs in SCM because at times it serves as a barrier to smooth operations (Laforet, 2013; Olah et al., 2017).

Interestingly, J. Dubihlela and O. Omoruyi (2014) have argued that IT is not the only barrier as poor organization structures that affect the implementation of SCM. Measurement systems, information and recognition of technology are major barriers to the implementation of a successful supply chain (Fawcett, Magnan and McCarter, 2008). The environmental sustainability improves due to the adoption of environmentally friendly practices in the supply chain management process (Fung, Morton and Chong, 2000). On the other hand, the study confirms that the integration of environmental and social criteria within SCM is vital in growing diverse socio-economic context (Harms, 2011). Yet, there is no conclusive evidence about the environmental sustainability inter-linked with the supply chain process in the SMEs in contrasting economies (Szczepanska-Woszczyna and Kurowska-Pysz, 2016, Mesjasz-Lech, 2014).

The study of S. Koh et al. (2007) confirms that SMEs are affected by the determinants of SCM but the practices of SCM do not affect SMEs. However, there is no evidence regarding the variation in impact among different countries. Factors supporting SCM affect the performance and efficiency of SCM (Awheda et al, 2016). The study of S. Malik et al. (2014) has found that failure of factors supporting SCM creates a negative impact on the performance of SMEs, Social sustainability evidences very low among the SCM within the organizations. This reduces the functionality and driving power of the managers as well as businesses (Mani, Agarwal and Sharma, 2015). However, there is little evidence regarding the confirmation of social sustainability impact on SMEs performances. The literature confirmed that SCM has internal as well as external attributes of SCM and SMEs, however, there is a gap of both used together for investigating the SMEs' supply chain management. All attributes are considered under one construct to assess in the cross-cultural environment. Thus, in this study, the conceptual framework of earlier study of S. Kot, I. Onyusheva and K. Grondys (2018) is taken to further expand the supply chain management in SMEs from Europe to global perspective. The main notion of this article is to examine SCM's determinants, supporting factors, barriers, practices, functioning and environmental and social sustainability in the differing countries. Furthermore, the set of aforementioned variables are also examined to assess the variations they have in the differing size of entity, time duration in market, type of industry, and designation/position in organization.

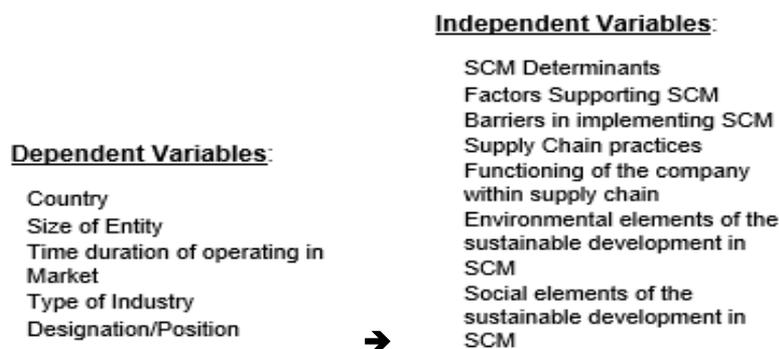


Figure 2: Theoretical framework of current study

Based on the critical review of the literature available in the hand, a set of research hypotheses are formed:

In terms of economies:

H1: Determinants of SCM, Factors supporting SCM, Barriers in SCM, SCM types of practices, Environmental sustainability and Social sustainability do not affect operations differently contrasting economies

In terms of the size of entity:

H2: Determinants of SCM, Factors supporting SCM, Barriers in SCM, SCM types of practices, Environmental sustainability and Social sustainability do not affect operations differently in distinctive size of entity

In terms of time spent in the market:

H3: Determinants of SCM, Factors supporting SCM, Barriers in SCM, SCM types of practices, Environmental sustainability and Social sustainability do not affect operations differently due to time duration in market

In terms of the type of industry:

H4: Determinants of SCM, Factors supporting SCM, Barriers in SCM, SCM types of practices, Environmental sustainability and Social sustainability do not affect operations differently in different type of industry

In terms of designation/position in the SME:

H5: Determinants of SCM, Factors supporting SCM, Barriers in SCM, SCM types of practices, Environmental sustainability and Social sustainability do not affect operations differently for different designations

2. RESEARCH METHODOLOGY

This cross-sectional research falls in the positivist research paradigm with critical realism ontological stance and objective epistemology. Since the research focused on gaining factual truth by expressing the relationship between research variables in numeric, therefore, the philosophy is positivism and the paradigm is scientific/positivist (MacKenzie and Knipe, 2009; Mack, 2010). The attempt was to gain the existing reality in direct mode, thus, the aforementioned ontology and epistemology were considered because it had enabled researchers in investigating the factual truth in an appropriate manner (MacKenzie and Knipe, 2009; Mack, 2010).

The questionnaire was adopted from Kot et al. (2018) as this was the instrument that suits the research objective at most by exploring the SCM practices in SMEs in different countries. The adoption of a pre-existing questionnaire helps the researchers in attaining face validity, construct validity and content validity (Hyman, Lamb and Bulmer, 2006). Moreover, the pre-existing questionnaire usage helps the researchers in attaining 'test re-test reliability' and 'inter-rater reliability' (Healy and Perry, 2000; Haque and Aston, 2016). Hence, the pre-existing survey questionnaire was used in this research. The validity and reliability were also determined by using statistical tests to ensure logical conclusion from the analysis. Total main seven items contained sub-sections on the Likert scale ranging from 1 to 5. The operationalization of variables is done through asking set of questions for each dependent variable. "Global competitiveness against our supply chain", "End customer needs", "Integration of processes within supply chain" and "Members of supply chain cooperation" are determinants of SCM while factors supporting SCM "Information technology", "Process of the integration of processes amongst members of the supply chain", and "Concentration on end customers" and barriers in SCM "Lack of understanding of goals and ideas of SCM amongst employees", "Problems with the quality of activities caused by members of the supply

chain", "Laws and provisions hampering relations in SCM" and "Communication problems and confidential data" are measured on 1 to 5 (1=doesn't matter to 5=very important) scale.

SCM Practices are measure through questions such as, "members of our supply chain jointly manage inventory and logistics", "members of our supply chain use information technologies to increase the efficiency of communication", "members of our supply chain build long-term relationships based on established guidelines" and "members of our supply chain use Just in Time concept / as a tool for enhancing competitiveness" on a 5 points scale (1=no implementation to 5=full implementation). Moreover, operations within SC were measure through questions, "lower total costs of products: Product competitiveness due to lower total unit cost", "shorter delivery time: Ability to adjust the delivery time to customer requirements", and "in appropriate quantity and on time: ability to meet specified or scheduled delivery times and ordered quantities of products" on 1-5 scale (1=definitely worse than competitors to 5=definitely better than competitors).

Environmental sustainability elements in SCM were measured through questions, "environmentally-friendly production processes", "use of renewable sources in production", "engaging in production processes free from harmful substances emissions" and "recycling of defective and waste products" while social sustainability via questions, such as, "providing health and safety equipment", "timely and lawful payment of taxes and fees payable", "applying ethical business and trade standards", "investments in poverty reduction programs" and "contribution in local community charitable donations" on 1-5 scale (1=doesn't matter-to-5=very important)

The sample size for the present study is 613 Small and Medium-sized Enterprises (SMEs). One participant per company was selected. According to Haque, Aston and Cockrill (2017), in the comparative studies, it is essential to have over 200 respondents from sub-groups to draw a logical conclusion. Following the same strategy, it was ensured that over 200 companies weretargeted in each considered economy. Three-hundred-and-fifty SMEs were considered in each country and using purposive, referral sampling and networking techniques while ensuring at least to have over 200 from each country. The selection of these sampling techniques was made on the basis of its cost-effectiveness because it had savedtime, money,and energy. A totalof 613 (Canada = 205, Iran = 205 and Turkey = 203) filled and completed questionnaire were received out of 1050 circulated questionnaires. Hence, the response rate was 58.38%, which would beacceptable in social science researches. The list of the considered SMEs was obtained from the registered SMEs on the official ministry portal. Once considered, these companies were approached using referral and networking approach while purposive sampling was employed to ensure equal split among considered countries. Moreover, the funnel approach of Haque and Aston (2016) hadbeen employed to measure the variations between distinctive economies.

The ethical considerations were made during the commencement of the research process by ensuring that the anonymity maintained as the sharing information and details were not disclosed to the general public. Moreover, the participants were informed about the purpose of research, voluntary participation and option to leave at any stage if they feel to opt out. Using SPSS 25.0 the quantitative analysis was carried out. The reliability test for internal consistency of items of scale Cronbach's alpha was considered. The obtained value of 0.832 is good as it is greater than 0.7 (0.823 > 0.70), which is acceptable in most social science researches (Nunnally and Bernstein, 1994). In order to ensure the validity, the fitness of the model was considered in this study.

Table 1. Fitness of the model

χ^2 value	Degree of Freedom	P value	AGFI	AIC	CFI	GFI	RMSEA
122.723	3	0.000	0.913	367.481	0.926	0.973	0.053

The fitness of the model confirmed that the model is acceptable because the observed values are fit with the expected values. AGFI, CFI and GFI scored over 0.9 and the criteria for selection is a value lying between 0 to 1, thus, the model is a good fit (Table 1). Additionally, RMSEA obtained value 0.53 and it is greater than 0.5 therefore, it further confirms the model is a good fit (Table 1).

After determining the reliability and validity aspects, the selection between parametric and non-parametric test was made. According to J. Pallant (2016), the non-continuous items on a scale, whether nominal or categorical data in relation to continuous variables are measured through One-way ANOVA or Kruskal-Wallis test. McDonald (2007) argued that a scale having one set of variables on continuous scale while the other on discrete scale is measured through One-way Anova (parametric) or Kruskal-Wallis (non-parametric) test. In case of violation of normality assumption, Kruskal-Wallis test to be used for measuring the relationship between variables while One-way ANOVA is used when normality assumption is satisfied. Since the data are not normally distributed because one respondent per organization was targeted, reflecting a violation of the normality assumption, hence, Kruskal Wallis (non-parametric) was preferred over One-way ANOVA (parametric) test. The present research has two types of data (a) categorical data and (b) ordinal data. Therefore, Kruskal Wallis test is used for the statistical analysis because the independent variables having categorical data and dependent variables measured on the ordinal scale.

3. RESULTS DISCUSSION

Descriptive statistics:

Majority of the SMEs have a workforce ranging between 50-250 (51%), while operating for 'more than 15 years' (34%), followed by '8 to 15 years' (32%), reflecting the SMEs have been largely active for longer time duration. In this study, majority of SMEs are involved in clothing and textile (21%), followed by logistic and transportation (18%) and cars and automotive (15%). Furthermore, majority of respondents are "Director of Logistics" (23%), followed by "Marketing Director" (21%) and "Owner" (19%).

Table 2: Test Statistics^{a,b}

	<i>Determinants of Supply Chain Management</i>	<i>Factors Supporting SCM</i>	<i>Barriers in SCM</i>	<i>Types of Practices</i>	<i>Function in SCM</i>	<i>Environmental Sustainability</i>	<i>Social Sustainability</i>
Chi-Square	4.397	6.264	10.102	31.185	12.858	23.722	30.947
Df	2	2	2	2	2	2	2
Asymp. Sig.	.001	.044	.006	.000	.002	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: Type of Country

There is no statistically significant evidence of the determinants of supply chain management affecting the differently distinctive economies, hence, the authors reject the null hypothesis ($P > \alpha$; $0.001 < 0.05$, Table 2). In other words, the determinants of Supply Chain Management function and affect differently in different types of economies. The funnel approach further reveals that there is a large variation in the functionality of SCM determinants (Canada= 67%, Iran =66.2% and Turkey = 65.9%). Hence, this reflects that determinants have a significant impact on the overall operations of supply chain management irrespective of the type of economy. Thus, this study supports the work of Koh et al. (2007) that the determinants of supply chain affect SMEs. In addition to that, new knowledge is attained that these determinants function differently in distinctive econo-

mies. Moreover, the factors supporting supply chain management function differently in a different type of economies as there is statistically significant evidence, therefore, the authors reject the null hypothesis ($P < \alpha$; $0.044 < 0.05$, Table 2). In other words, the factors supporting supply chain affect the overall SCM operations differently in distinctive types of economies. The funnel approach reveals that developed countries have higher pieces of evidence of factors supporting SCM improving the overall operations in contrast to less developed economies (Canada = 71% compared to Iran = 32% and Turkey 28%). Hence, this study supports the work of A. Awheda et al., (2016) and S. Malik et al. (2014) and partially differs from the work of O. Kherbach and M. Mocan (2015). Interestingly, in terms of economies, this is a newly developed knowledge. Additionally, the barriers in SCM are statistically evident to highly and significantly affecting the distinctive economies differently, therefore, the authors reject the null hypothesis ($P < \alpha$; $0.006 < 0.05$, Table 2). Furthermore, results in-depth analysis reveal that barriers are higher in the SCM operations in the developing economy in contrast to a developed economy (Iran = 66% and Turkey = 58% compared to Canada = 39%). Thus, this study partially differs from the work of Laforet (2013) but indirectly supports the work of Oracle (2016).

Statistical results reveal types of practices differ in distinctive types of economies in a highly significant manner, hence, the authors reject the null hypothesis as there is statistical evidence against it ($P < \alpha$; $0.000 < 0.05$, Table 2). Hence, the study opposes the work of Koh et al. (2007). The funnel approach reveals large variations in distinctive economies (Canada = 52% compared to Iran = 17% and Turkey = 16.6%). Moreover, the functioning within the supply chain management differs in distinctive economies in a highly significant manner $P < \alpha$; $0.002 < 0.05$, Table 2). Thus, there is evidence against the null hypothesis and therefore, the authors reject it. The study supports the work of M. Ghicajanu (2014) and O. Dumitrascu and C. Hila (2017). In addition, the funnel approach reveals developed economy has higher functioning in contrast to developing economies (Canada = 68% compared to Iran = 23% and Turkey = 37%). In addition to that, environmental sustainability is highly statistically significantly different in distinctive economies ($P < \alpha$; $0.000 < 0.05$, Table 2). Since there is evidence against the null hypothesis, therefore, the authors reject it. The study is aligned with the work of Fung et al (2000). In-depth analysis reveals that Environmental sustainability is higher in Canada in contrast to Iran and Turkey (68% compared to 28% and 31%). Lastly, statistically, social sustainability highly significantly different in distinctive economies, thus, the authors reject the null hypothesis ($P < \alpha$; $0.000 < 0.05$, Table 2). Hence, the study supports the work of Mani et al (2015). Funnel approach reveals that Canada and Turkey have higher social sustainability than Iran (61% and 56% compared to 46%). Interestingly, the present findings contribute new knowledge to all considered dimensions.

Statistical results reveal that the determinants of SCM have no significant impact on the size of the enterprise ($P > \alpha$; $0.078 > 0.05$, Table 3). Thus, the authors fail to reject the null hypothesis. Funnel approach reveals that the determinants of SCM have no significant impact on the size of enterprises as it is evident relatively lower in all three countries (Canada = 37%, Iran = 32% and Turkey = 29%). This partially opposes the work of Koh et al. (2017). Interestingly, factors supporting SCM have a statistically significant impact on the size of enterprises in all three considered countries ($P < \alpha$; $0.002 < 0.05$, Table 3). Thus, the authors reject the null hypothesis by supporting the work of Awheda et al. (2016). In-depth analysis reveals that in developing country these factors have a higher impact on the size of enterprises in contrast to developing countries (Canada = 72% compared to Iran = 61% and Turkey 57%). Furthermore, barriers in SCM have a statistically highly significant impact on the size of enterprise ($P < \alpha$; $0.000 < 0.05$, Table 3).

Hence, there is strong statistical evidence against the null hypothesis and therefore the authors reject it by opposing the work of Laforet (2013). In-depth analysis reveals that irrespective of the size of enterprises, the barriers in supply chain management are evident in all three considered countries (Canada = 66%, Iran = 71% and Turkey = 69%). Interestingly, barriers in small (10 to 49 employees) size organizations are higher in contrast to moderate (50 to 250 employees) size organizations. Moreover, statistically, the types of SCM practices have an extremely significant

impact on the size of the enterprise, thus, the authors reject the null hypothesis ($P < \alpha$; $0.000 < 0.05$, Table 3). The funnel approach further has shown the variation is higher in the developed country in contrast to developing countries (Canada = 82% compared to Iran = 53% and Turkey = 65%). Further, the functioning within the supply chain management has a statistically highly significant impact on the size of enterprises ($P < \alpha$; $0.000 < 0.05$, Table 3). Therefore, the authors reject the null hypothesis in light of statistical evidence and support the work of Dumitrascu and Hila (2017). The detailed analysis reveals that functioning with the SCM is higher evident in the developed economy in contrast to the developing economy (Canada = 61% compared to Iran = 46% and Turkey = 42%). Interestingly, small size (10 to 49 employees) enterprises are weaker and (50 to 250 employees) have a strong functioning within the SCM.

Table 3. Test Statistics^{a,b}

	<i>Determinants of Supply Chain Management</i>	<i>Factors Supporting SCM</i>	<i>Barriers in SCM</i>	<i>Types of Practices</i>	<i>Functioning with in SCM</i>	<i>Environmental Sustainability</i>	<i>Social Sustainability</i>
Chi-Square	3.097	9.458	13.806	32.020	16.490	18.025	21.212
Df	1	1	1	1	1	1	1
Asymp. Sig.	.078	.002	.000	.000	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: Size of Enterprise

Statistical results have shown that environmental sustainability has a highly significant impact on the size of the enterprise ($P < \alpha$; $0.000 < 0.05$, Table 3). Therefore, the authors reject the null hypothesis by confirming the work of R. Fung et al. (2000). Funnel approach further reveals that moderate organizations have a higher preference for environmental sustainability in contrast to relatively smaller organizations (52% compared to 31%). Additionally, moderate organizations have a higher preference in a developed country than developing countries (Canada = 67% compared to Iran = 46% and Turkey = 53%). The statistical test also reveals that social sustainability has a highly significant impact on the size of enterprises in both developed and developing economies ($P < \alpha$; $0.000 < 0.05$, Table 3). Hence, the authors reject the null hypothesis. This study supports the work of Mani et al. (2015). Moreover, the detailed analysis reveals that small and moderate organizations in Canada have higher social sustainability in contrast to Iran and Turkey (65% compared to 42% and 41%). Interestingly, this study contributes to new knowledge in terms of different economies.

Table 4. Test Statistics^{a,b}

	<i>Determinants of Supply Chain Management</i>	<i>Factors Supporting- SCM</i>	<i>Barriers in SCM</i>	<i>Types of Practices</i>	<i>Functioning with in SCM</i>	<i>Environmental Sustainability</i>	<i>Social Sustainability</i>
Chi-Square	9.604	12.238	19.423	25.966	13.655	14.537	22.808
Df	3	3	3	3	3	3	3
Asymp. Sig.	.022	.007	.000	.000	.003	.002	.000

a. Kruskal Wallis Test

b. Grouping Variable: Length of the Organization

The test confirmed that the determinants of SCM have a statistically significant effect on the length of the business ($P < \alpha$; $0.022 < 0.05$, Table 4). Hence, the authors reject the null hypothesis. In other words, determinants of SCM have significant linkage with the duration of the business in the domestic market. Funnel approach reveals that the variation is higher in a developed country in contrast to developing countries (Canada = 61% compared to Iran = 52% and Turkey 54%). Indirectly to some extent to the work of Koh et al. (2007) is confirmed. The factors supporting the SCM are also evident to have statistically significant linkage with the duration of the business ($P < \alpha$; $0.007 < 0.05$, Table 4). Therefore, the authors reject the null hypothesis. Moreover, the funnel approach has shown that the supporting factors are more effective in smooth operations for the organizations having more than 15 years in the operating dynamics irrespective of the type of economy (67%). Hence, this study is aligned with the work of Malik et al. (2014) while differing from the work of Kherbach and Mocan (2015). The statistical test has shown that barriers in SCM have an extremely significant correlation with the length of the organization, thus, based on evidence, the authors reject the null hypothesis ($P < \alpha$; $0.000 < 0.05$, Table 4). The findings are aligned with the work of Oracle (2016). Interestingly, funnel approach reveals that all organizations ranging from 'less than 3 years' to 'more than 15 years' experience the barriers in supply chain management, but higher duration organization faces it relatively lower in contrast to organizations having a small length (29% compared to 65%).

Moreover, the types of practices of supply chain management statistically highly significantly affect the length of the organization ($P < \alpha$; $0.000 < 0.05$, Table 4). Hence, the authors reject the null hypothesis by supporting the work of Ghicajanu (2014). The in-depth analysis confirms that organizations with more length (more than 15 years) have a higher implementation of the SCM practices in contrast to organizations having a relatively small duration in the business irrespective of the type of economy (Canada = 72%, Iran = 64% and Turkey = 60.7%). Functioning within the SCM has a statistically significant impact on the length of the organization ($P < \alpha$; $0.003 < 0.05$, Table 4). Therefore, the null hypothesis is rejected while contradicting to the work of Koh et al. (2007). Interestingly, the organizations having more than 15 years of existence have higher coordination and swift operations in contrast to organizations with less than 3-years time period (58% compared to 22%). The statistical test confirms that environmental sustainability significantly while social sustainability extreme significantly affects the length of the business ($P < \alpha$; $0.002 < 0.05$; $P < \alpha$; $0.000 < 0.05$, Table 4). Therefore, the null hypotheses are rejected in the light of statistical evidence. Hence, the findings are consistent with the work of Fung et al. (2000) and Mani et al. (2015). The funnel approach has shown that organizations with more than 15-years operating duration have a higher preference for the implementation of environmental and social sustainability (environmental sustainability = 59% and social sustainability = 63%).

The statistical test shows that the determinants of supply chain management have no significant impact on the type of industry ($P > \alpha$; $0.055 > 0.05$, Table 5). In other words, there is no strong evidence against the null hypothesis, therefore, the authors fail to reject it. Irrespective of the types of industry, SCM determinants do not have significant linkage. Hence, this study indirectly differs from the work of Koh et al. (2007). The in-depth analysis reveals that all types of industries have no linkage with the specific type of determinants in all three considered countries. Moreover, the statistical test has also shown that factors supporting SCM have no significant correlation with the different types of industries ($P > \alpha$; $0.187 > 0.05$, Table 5). Hence, the authors do not reject the null hypothesis. Indirectly the present study supports the work of Kherbach and Mocan (2015) but opposes the findings of Malik et al. (2014). In other words, the factors of supply chain management do not affect the distinctive types of industries differently. Additionally, the funnel approach has found no conclusive evidence of the specific type of factor affecting a certain type of industry. Another statistical finding is that barriers in the supply chain do not affect the distinctive type of industry differently ($P > \alpha$; $0.293 > 0.05$, Table 5).

Table 5. Test Statistics^{a,b}

	Determinants of Supply Chain Man- agement	Factors Supporting- SCM	Barriersin SCM	Types of Practices	Functioning with in SCM	Environmental Sustainability	Social Sustainability
Chi- Square	21.997	17.282	15.226	29.531	32.032	30.491	25.241
Df	13	13	13	13	13	13	13
Asymp. Sig.	.055	.187	.293	.005	.002	.004	.021

a. Kruskal Wallis Test

b. Grouping Variable: Type of Industry

The authors fail to reject the null hypothesis because there is no strong evidence against it hence, the study supports the work of Laforet (2013). In other words, the barriers in supply chain management do not affect specific industry differently in comparison to other industries. Again, the funnel approach does not provide any conclusive evidence of higher or lower variation in certain types of industries. Interestingly, the statistical test has confirmed that types of practices significantly affect the types of industry differently ($P < \alpha$; $0.005 < 0.05$, Table 5). Thus, the authors reject the null hypothesis. Funnel approach has shown that textile and clothing business in Iran (69%), pharmaceutical firms in Canada (72%) and construction business in Turkey (53%) are highly affected by the different types of SCM practices. Furthermore, the functioning within SCM has a statistically significant impact on different types of business ($P < \alpha$; $0.002 < 0.05$, Table 5). Hence, the authors reject the null hypothesis as there is sufficient statistical evidence against it. Thus, the study indirectly supports the work of Ghicajanu (2014). Funnel approach has revealed that overall pharmaceutical businesses have higher functionality of SCM, followed by construction, clothing, furniture, wholesale and retail, and so on (32% compared to 27%, 16%, 13%, and remaining = 12%).

The statistical test reveals that environmental sustainability has a significant impact on the distinctive types of industry ($P < \alpha$; $0.004 < 0.05$, Table 5). Therefore, the authors reject the null hypothesis. In this way, the work of Fung et al. (2000) is supported. The detailed analysis reveals that in Canada the environmental sustainability is higher than Iran and Turkey (67% compared to 46% and 53%). Within Canada, pharmaceutical business has demonstrated higher whereas dairy firms in Iran and construction firms in Turkey have shown a higher preference for environmental sustainability. Moreover, the statistical test has confirmed that social sustainability significantly and differently affects the distinctive types of industry in all three countries ($P < \alpha$; $0.021 < 0.05$, Table 5). Hence, in the light of the evidence, the authors reject the null hypothesis and in the hindsight work of Mani et al. (2015) is supported. In other words, social sustainability affects different industries differently. Again, the funnel approach reveals that Canada has a higher preference for social sustainability in contrast to Iran and Turkey (65% compared to 42% and 41%). Interestingly, again pharmaceutical firms in Canada whereas textile and clothing in Iran and construction business in Turkey have scored higher compared to others.

Lastly, the statistical test has revealed that determinants of supply chain management have a significant correlation with the designation/position within the firm ($P < \alpha$; $0.029 < 0.05$, Table 6). In the light of the evidence, the authors reject the null hypothesis. Thus, it can be said that designation within the organization is significantly affected by the determinants of the supply chain management. The in-depth analysis reveals that Supply Chain Manager is highly affected by these determinants in contrast to other positions (52% compared to remaining other designation = 48%). Hence, partially this study supports the work of S. Kot et al. (2018). Moreover, in Canada, Supply chain manager has scored higher whereas in Turkey and Iran Director of logistic are highly affected by the determinants. Additionally, the statistical test has revealed that factors supporting SCM do not affect the designation/positions within the organization ($P > \alpha$; $0.352 > 0.05$, Table 6). Hence,

the authors fail to reject the null hypothesis. This is a unique finding. The funnel approach also does not find any conclusive evidence of variation in designations caused by factors supporting SCM. Furthermore, barriers in supply chain management do not have a significant correlation with the designation ($P > \alpha$; $0.408 > 0.05$, Table 6).

Table 6. Test Statistics^{a,b}

	<i>Determinants of Supply Chain Management</i>	<i>Factors Supporting-SCM</i>	<i>Barriers in SCM</i>	<i>Types of Practices</i>	<i>Functioning with in SCM</i>	<i>Environmental Sustainability</i>	<i>Social Sustainability</i>
Chi-Square	12.432	5.551	5.064	6.292	2.948	3.692	5.745
Df	5	5	5	5	5	5	5
Asymp. Sig.	.029	.352	.408	.279	.708	.595	.332

a. Kruskal Wallis Test

b. Grouping Variable: Designation within the Organization

Hence, the authors do not reject the null hypothesis. In other words, barriers in supply chain do not affect differently personnel employed at distinctive positions. Moreover, the types of practices do not affect the personnel operating in different designations differently ($P > \alpha$; $0.279 > 0.05$, Table 6). The authors fail to reject the null hypothesis. In other words, the types of practices do not affect different personnel on varying positions differently. Again, the funnel approach has no conclusive evidence of variations in this regard.

The statistical test also confirms that there is no significant correlation between the functioning within SCM and types of designation of different personnel ($P > \alpha$; $0.708 > 0.05$, Table 6). Hence, the authors fail to reject the null hypothesis. This reflects that functioning with the SCM does not differ for the personnel working in different positions within the firm. Therefore, this study indirectly supports the findings of Dumitrascu and Hila (2017). Additionally, the statistical test has shown that environmental sustainability and social sustainability do not significantly affect differently the distinctive types of personnel working on distinctive positions (Environmental sustainability: $P > \alpha$; $0.595 > 0.05$; Social sustainability: $P > \alpha$; $0.352 > 0.05$, Table 6). Therefore, the authors cannot reject null hypotheses in this regard. In other words, the aspects of environmental and social sustainability do not have a significantly different impact on the personnel working in different positions. These findings are a new development in the context of contrasting economies.

CONCLUSION AND RECOMMENDATIONS

From the statistical analysis, it is theorized that supply chain management's determinants affect SMEs differently in the context of considered economies, reflecting the significant impact on the overall operations of SCM in SMEs. In a developed economy, the impact is higher than the emerging and middle-ranged countries. Furthermore, there is no statistically significant evidence regarding the impact of these determinants on the size of enterprises. There is not much difference between the three considered countries. In addition to that, the length of business is affected by these determinants. However, there is no statistical evidence that the type of industry is affected by the determinants of SCM. The designation within the SMEs is significantly correlated with determinants of SCM, where the supply chain manager is more affecting in all three countries while using effectively these determinants in contrast to other positioned individuals.

The factors of SCM function differently in different economies and therefore significantly impact the operations of SCM. The highest impact of SCM's factors is evident in Canadian SMEs while the lowest in Turkey's SMEs. These factors impact the size of enterprises differently in considered countries where Canada has scored higher, followed by Iran and Turkey. Moreover, the length of a business entity is significantly affected by SCM's factors, especially businesses having over fifteen years of operations incorporate factors supporting SCM. Interestingly, there is no statistical evidence that the factors supporting SCM impact differently to the different types of SMEs in terms of business models. Nevertheless, the factors supporting SCM are not affected by the designations held by individuals in SMEs.

The barriers in SCM highly statistically significantly affect distinctive economies. Detailed analysis has confirmed Iranian SMEs having higher barriers causing hinderance in smooth operations of SCM while Canadian SMEs experiencing the lowest barriers in SCM process. These barriers impact significantly in the SMEs by having the highest effect on Iran, followed by Turkey and lastly, Canada. Interestingly, small-sized enterprises face more barriers in SCM than the medium-sized enterprises. The statistical evidence also confirms that the length of organization is significantly affected by the SCM barriers, where more barriers in SCM experienced by the short length business while less by business with a long duration of operations. Furthermore, these barriers do not differ in affecting the types of business, considering the industry. Additionally, no correlation is evident between the barriers of SCM and designations within the SMEs.

SCM practices significantly vary in contrasting economies, where Canadian SMEs have scored higher while Iranian and Turkey's SMEs have scored lower. These practices have a significant impact on all three considered economies as highest scored by Canadian SMEs while lowest scored by Turkey's SMEs. Types of practices significantly affect the length of organizations as a higher implementation of practices are evident in SMEs existing for over 15 years while lower implementation of practices in smaller length, irrespective of the type of economy. The impact of varying types of practices affect the industry of operations for SMEs differs in a significant manner. As the practices are higher evident in textile and clothing business in Iran, pharmaceutical companies in Canada and construction businesses in Turkey. However, there is no statistical evidence regarding the correlation between SCM practices and the designations held by individuals within the SMEs.

Functioning within the SCM significantly differs in distinctive economies as Canada has scored higher, followed by Turkey and Iran. Additionally, these functions have also a significant impact on the size of enterprises. Canada has scored higher while Iran and Turkey have scored lower. In small-sized enterprises, functioning is weaker while stronger in medium-sized enterprises. These functions within SCM have an impact on the length of organization. Hereby, swift coordination is evident in SMEs existing for a longer duration than the smaller duration one. The functions within SCM also impact the business differently as pharmaceutical, clothing, furniture and retail experience more than the other businesses.

Environmental sustainability is significantly different in contrasting countries. Canada has scored the most, followed by Turkey and Iran. Medium-sized enterprises have more concern for environmental sustainability in comparison to small-sized enterprises. It is also evident that environmental sustainability impacts the length of the SMEs and those firms having over 15 years of experience have a higher preference for implementation of environmental sustainability. Social sustainability is evident to statistically vary in contrasting economies. Canadian SMEs especially medium-sized enterprises have scored highest, while Turkey remains in the middle and Iran holds the lowest in both small and medium-sized enterprises. The implementation of social sustainability is higher in the SMEs with more than 15 years of experience in dynamics. These practices are also evident to differ significantly from the types SMEs in different industries. However, no evidence is found regarding the relationship between environmental and social sustainability with the designations in SMEs.

Based on the findings, it is recommended to the SMEs that by increasing the transparency in the operations and integration of standardized approach of ERP for saving time and money. This will help in reducing errors as teamwork benefited by increased accuracy and reduced miscommunication. Furthermore, the real-time report must be used to ensure there is a reduction in the control and quality of the production. This will also help in improving the critical decision-making process. There is a need to empower the designated people in the SCM process in order to have effective decision making. There should be regular training and development programs to improve the knowledge, skills, and abilities to accept responsibility in an effective and efficient manner.

This study has practical as well as social implications. Through constructing and validating a multi-dimensional construct of SCM practices in contrasting economies and by assessing and exhibiting its value in improving operational efficiencies of SMEs, it offers SCM managers with useful tool for evaluating the efficiency of existing SCM practices. Additionally, the analysis of the supply chain management practices within SMEs in distinctive economies reflect that SCM components directly influence the SME's operational efficiency, which could benefit in attaining the economies of scale. Similarly, social implications are that the evidence from contrasting economies about the importance of supply chain management process within the SMEs improves the functioning, which leads to improve their contribution to the GDP and thus, this will urge the governments to further promote small and medium sized businesses. These SMEs are part of the society and ease of regulation from the governments will enhance the chances of their survival and sustenance, which will have positive social impact on the societies and communities.

The future researchers shall consider the in-depth interviews with the experts and managers experienced in supply chain management. At present, this study is only quantitative and representing factual truth whereas the inclusion of interviews will add the useful truth by having more in-depth understanding about the research phenomenon. Moreover, this research is cross-sectional as the responses are studied once in a given time interval while the future researchers shall consider the longitudinal panel study to have more detailed analysis regarding the variation in responses in the different time interval.

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