

Sustainability Supply Chain Strategies and Operational Performance in Manufacturing SMEs: The Mediating Role of Sustainability Supply Chain performance in Jordan

Thabet Banihani¹, Ammar Salah², Ibrahim Siam³, Zain Albashtawi⁴,
Mohammed Alrgaibat⁵

¹ Faculty of Administrative and Financial Sciences, Irbid National University, Jordan. Email: th.banihani@inu.edu.jo

² Department of Logistics Sciences and Supply Chain Management, Faculty of Administrative and Financial Sciences, Irbid National University, Jordan. Email: a.salah@inu.edu.jo

³ Head of Department of Entrepreneurship, Faculty of Administrative and Financial Sciences, Irbid National University, Jordan. Email: i.siam@inu.edu.jo

⁴ Business School – Department of Logistics Sciences and Supply Chain Management, Amman Arab University, Amman, Jordan. Email: z.albashtawi@aau.edu.jo

⁵ Department of Logistics Sciences and Supply Chain Management, Faculty of Administrative and Financial Sciences, Irbid National University, Jordan. Email: m.alrgaibat@inu.edu.jo

Corresponding Author:

Thabet Banihani^{1*} (th.banihani@inu.edu.jo)

Abstract: Purpose – This paper will analyze how the Sustainability Supply Chain Strategies (SSCS): cost, differentiation, response, and postponement affect operational performance (OP) of Jordanian manufacturing SMEs. The research is based on the Relational View (RV) and the Resource-Based View (RBV) which focuses on the mediating factor of the Sustainability Supply Chain performance (SSCP) in the form of flexibility, delivery, quality and cost effectiveness. Through this, the research fills a gap in the available empirical literature as it examines the impact of Sustainability Supply Chain Strategies (SSCS) on performance outcomes in the environment of emerging economies.

Design/methodology/approach They sent a designed questionnaire to the managers and owners of manufacturing SMEs in Jordan. PLS-SEM was used to examine 454 valid responses and in the testing of both direct and mediating effect.

Findings The findings suggest performance of differentiation and response strategies has a more significant impact on the operational performance compared to the cost and postponement strategies. Additionally, it was discovered that the dimensions of Sustainability Supply Chain performance (SSCP) mediate the relationship between Sustainability Supply Chain Strategies (SSCS) and operational performance completely or partially which points to the fact that strategies alone are not enough without effective Sustainability Supply Chain performance capabilities.

Practical implications - The managers and owners of manufacturing SMEs in Jordan were given a structured questionnaire. The results were analyzed using PLS-SEM, which was applied to 460 valid responses, as well as evaluated the direct and mediating effects.

Originality/value The study has two significant implications to the literature. First it changes the orientation towards practices of supply chain management to Sustainability Supply Chain Strategies (SSCS), which provide a more strategic view of value creation in supply chains. Second, it offers empirical evidence based on a little known developing economy-Jordan which enhances the supply chain management body of knowledge and provides useful insights to SME managers and policymakers..

Keywords: Sustainability Supply Chain Strategies (SSCS); Sustainability Supply Chain performance (SSCP); Operational performance (OP); Manufacturing SMEs; Jordan.

INTRODUCTION

Skill in designing and organizing effective SSCS has proven to be a critical factor for competitiveness and survival in the era of globalization, digitalization, and market uncertainty (Obiri-Yeboah et al., 2025; Bargouhi, 2025). SSCS such as cost, differentiation, responsiveness, and postponement are particularly relevant in this regard, as they can help firms reduce expenses, enhance flexibility and quality, and ensure reliability (Jum'a, 2024; Ali et al., 2022). Small and medium-sized enterprises (SMEs) are vital to the national economies of countries worldwide by diversifying industries, creating jobs, and fostering innovation. However, they are often constrained by limited financial capacity, inefficient infrastructure, and vulnerability to supply chain disruptions (Abdallah et al, 2021; Ali et al., 2022). In Jordan, SMEs represent the majority of registered enterprises, accounting for more than 90% of the industry. Manufacturing SMEs, in particular, face challenges related to global supply chain disruptions, volatile raw material prices, and heightened regional competition (Bushnaq, 2024; Abualrejal et al., 2022). These challenges make it imperative for SMEs to develop robust SSCS that are not only cost-effective but also distinctive, responsive, and flexible in order to remain competitive in dynamic and uncertain markets.

Although extensive research has examined the impact of supply chain management practices (SCMP) on firm performance, the empirical evidence remains inconsistent and, in some cases, contradictory. While strategies such as supplier alliances and customer integration are often associated with improved performance in advanced economies (Ayoub & Abdallah, 2019), studies in emerging and developing economies have reported weak, insignificant, or even contradictory outcomes (Abdallah et al., 2019; Al-Shboul & Alsmairat, 2023). These discrepancies suggest that the traditional linear model, which assumes a straightforward process–performance relationship, is overly simplistic and fails to capture the strategic dimension of supply chain value creation. Recent evidence indicates that SSCP—measured through flexibility, delivery reliability, quality, and cost efficiency—is a critical driver in translating SSCS into operational outcomes (Al Khattab et al, 2024; Abualrejal et al., 2022). However, this facilitating role has received limited attention, particularly in the context of manufacturing SMEs in emerging economies such as Jordan. Institutional weaknesses and resource constraints in such settings can significantly alter causal mechanisms, creating theoretical ambiguities and reducing the practical applicability of findings for SME managers operating under conditions of heightened uncertainty and competition (Almahairah et al, 2023).

This study has two important implications. First, it builds on existing knowledge by examining how different forms of SSCS—such as cost, differentiation, responsiveness, and postponement—affect the OP of SMEs through the mediating role of SSCP. In doing so, it addresses the need for more sophisticated models that incorporate intermediate mechanisms in the strategy–performance relationship. Second, it meets an empirical need by focusing on manufacturing SMEs in Jordan, which, despite their central role in stimulating the economy in the Middle East, have received limited academic attention. By situating the analysis within this underexplored context, the study broadens theoretical understanding of the link between SSCS and performance, while also offering policy implications and practical insights for policymakers and managers in emerging markets to enhance SME competitiveness.

Literature Review

2.1 Theoretical Framework

This paper will rely on the Relational View (RV) (Dyer and Singh, 1998) and augmented by Resource-Based View (RBV). Although the RV places an extraordinary emphasis on the fact that the crucial resources and capabilities tend to be interorganizational (Lavie, 2006; Alqudah et al., 2022), in this study the emphasis is placed on the supply chain management, which is executed by the capabilities and networks both internally and across firms. The RV suggests that firms can come up with relational rents, or better returns, established in a partnership, but cannot be realized on their own. This is especially seen in the SSCS. As an example, differentiation strategy necessitates the intensive cooperation with the suppliers and the customer in order to create specific products and services that respond to the changing demands of the market. Response strategy relies on the ability to be flexible and collaborative in problem solving through partners to respond to changes in the market. Likewise, cost strategy is based on efficiency-based coordination and mutual processes amongst partners in supply chain (Hashem, 2020; Qasem & Murad, 2019). The RBV fills this viewpoint by noting the need to build internal capabilities so that these strategies can be successfully executed. The concept of SSCP that is characterized by such qualities as the flexibility, reliability of delivery, quality, and cost-effectiveness is an indicator of the quality of the internal resources of a firm, as well as its capacity to use inter-firm relationships to gain operational excellence. The RV and RBV allow offering a comprehensive model explaining the role played by SSCS in influencing OP in manufacturing SMEs. The inclusion of mediating role of SSCP in this framework adds knowledge to the association between relational and resource-based capabilities to sustainable competitiveness in resource constrained environments like Jordan.

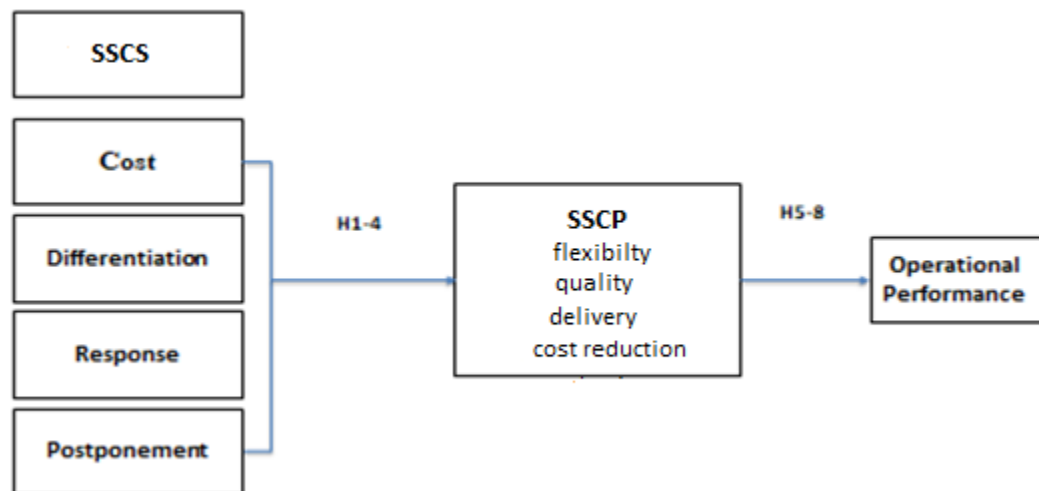


Figure 1: Theoretical framework

2.2 Conceptual framework and hypotheses development

The theoretical framework of the paper incorporates four independent variables, namely cost leadership, differentiation, response and postponement, as constructs of the SSCS, and a dependent variable, OP, as an efficiency, productivity, customer satisfaction and reliability. One of the mediating variables, SSCP, is depicted by broken lines in the framework and is operationalised as a lower cost, faster delivery time, flexibility, and quality (see Figure 1).

2.2.1 Hypotheses development

This research paper has tested four hypotheses. The initial hypothesis (H1a-H1d) dealt with the exogenous variables of the first-order dimensions of SSCS and their impacts on an endogenous construct, namely the OP. The second hypothesis (H2a-H2p) was about the correlation of SSCS and SSCP. The third hypothesis (H3a-H3d) measured the impact of SSCP on overall operation performance and the fourth hypothesis (H4a-H4p) measured the behavioral mediation of SSCP in SSCS to OP. The role of SSCS in determining OP is one of the research problems that manufacturing SMEs in Jordan

have been challenged to understand. Cost efficiency, differentiation, responsiveness, and postponement are the strategies which can also help the SMEs operate and survive in the competitive environment (Karani et al., 2022). These strategies may be adopted to lower operational expenses, increase flexibility, and responsiveness to the market forces (Nabass, 2019; Abualrejal et al., 2022). Namely, cost leadership strategy lowers the cost of running operations, differentiation approach develops distinctive value propositions, responsiveness approach allows adapting to changes in demand, and postponement approach prevents the risks of operating in volatile markets (Moh'd Anwer et al., 2023; Abualrejal et al., 2022).

The results of the study show that operations are closely linked to the SSCS and OP includes such indicators as efficiency, reliability, quality improvement, and customer satisfaction (Awwad and Anouze, 2018). The OP is a key determinant of competitiveness because the SME literature implies that it directly affects customer satisfaction, market share, and profitability (Abdallah et al., 2023). The theoretical reasoning that underlies the connection between SSCS and OP is the Resource-Based View (RBV), according to which the resources and capabilities of a firm are at the center of the attainment of a competitive advantage and superlative performance (Masoudi and Shahin, 2025). In the framework of SSCS, the RBV focuses on using the unique resources and strategic capabilities to attain OP. Cost leadership strategies are based on the effective utilization of resources and economies of scale whereas differentiation strategies are based on innovation and creativity to offer distinct products and services (Jum'a, 2021; Alqudah et al., 2022). Also, the SMEs may use the response and postponement strategies in order to improve their capacity to satisfy the customers and improve their competitiveness in the turbulent markets.

Strategic relationship with suppliers and customers also has a connection to the RBV because relational resources provide greater flexibility, cost-efficiency, and performance in deliveries (Al-Hakimi et al., 2022). The core ideas of OP are collaborative solutions that add value to services and minimize lead times, customer loyalty (Kharoub & Nour, 2025). In addition, SMEs have a chance to incorporate information systems and logistics solutions to enhance the quality of products, deliver them punctually, and save money (Omoush et al., 2020; Alqudah et al., 2023). The evidence in emerging markets reveals that the SSCS have a great chance to improve the OP through an increase in the SSCP (Acquah & Asamoah, 2025). This encompasses the reduction of operation cost, higher reliability of delivery, enhanced flexibility, and quality of products, among other elements that lead to the creation of high performance and sustainable competitive advantage (Sandouqa et al., 2020; Hani et al., 2020). Based on this literature, the following hypotheses are proposed:

H1. There is a relationship between SSC Strategies (Cost, Differentiation, Response, and Postponement) and the OP of SMEs in Jordan.

H2. There is a relationship between SSC Strategies (Cost, Differentiation, Response, and Postponement) and SSCP.

H3. There is a relationship between SSCP (Flexibility, Delivery, Quality, and Reduced Cost) and the OP of manufacturing SMEs in Jordan.

H4. SSCP (Flexibility, Delivery, Quality, and Reduced Cost) mediates the relationship between SSCS and the OP of Manufacturing SMEs in Jordan.

Research Methods

The proposed research is viewed through the perspective of positivism paradigm, where the effect of the SSCS and SSCP on the OP of SMEs are believed to be measurable and objectively observable phenomena. In this respect, a quantitative research design has been adopted where standardized instruments and structured data-collection methods were adopted to produce statistically credible findings. Quantitative inquiry, in contrast to qualitative one, utilizes pre-established instruments like surveys to test and verify relationships and confirm theoretical presumptions (Elgazzar, 2022). The population to be studied was 2,580 manufacturing SMEs registered in Jordan as highlighted in the 2023 Industrial Survey published by the Jordan Department of Statistics. These companies deal in five key industries which include food and beverage production, metal, glass, and

aluminum manufacturing, pharmaceutical and chemical products, textile and garment production and wood, furniture and ceramics. Amman was chosen as the main area of research because this city acts as the main industrial and commercial center of the country and because it is diverse in terms of business, which means that it can be used to represent the general features of Jordanian SMEs. Multi-stage sampling method was used so that all sectors of industries would be represented proportionately instead of having a sample focused on one industrial sector. A sample size of 503 SMEs was found to be sufficient using the formula of Slovin. Even though the number of 500 is not huge, the amount of responses is in the appropriate range to conduct Partial Least Squares Structural Equation Modeling (PLS-SEM) that is expected to work well with medium and even smaller samples. In this regard, a sample of over 500 can be viewed as being strong enough to test the structural links between SSCS, SSCP, and OP (Al-Zoubi, 2023; Dwaikat and Arshad, 2025).

The measurement scale applied in the development of the survey instrument was based on previous empirical studies. The instrument was expert reviewed and pilot-tested with three respondents of the target population before the actual data collection was executed to determine the clarity of the instrument, relevance of the items to the study and internal consistency. The final questionnaire had three parts which included; Section A involved demographic and organization information, Section B involved the four dimensions of SSCS (cost, differentiation, response, and postponement) and Section C involved performance constructs such as OP and SSCP (delivery, flexibility, quality, and reduced cost). The ratings were done on a seven-point Likert scale (where 1 was strongly disagree and 7 was strongly agree). Questionnaire was sent to the people in key managerial and operational roles like Production and Manufacturing Manager, Chief Operating Officer, Chief Financial Officer, CEOs, Procurement Officer, Supply Chain Manager, and Logistics and Transport Manager that are best placed to assess the strategies in the supply chain, performance capability, and performance within the respective firms.

Findings

4.1 Assessment of the Measurement Model

Measurement model was tested first before testing the structural relationships so that the constructs should have a satisfactory reliability and validity. Internal consistency was determined using the SmartPLS 4.0 with the help of Cronbachs Alpha (CA) and Composite Reliability (CR). The SSCS, SSCP, and OP had a good internal consistency with the values of CA and CR between 0.749-0.954, and all of them were higher than the recommended threshold of 0.70. The convergent validity was tested by using standardized factor loading and Average Variance Extracted (AVE). The indicators were all loaded beyond the acceptable minimum of 0.50 which was 0.637 to 0.943 and thus ensured that the indicators were contributing meaningful data to their respective constructs. The values of AVE were also more than 0.50 of all constructs, which proves that all latent variables explained more than half of the indicators variance. There were three complementary criteria that tested discriminant validity. To begin with, all the HTMT ratios fell below the 0.85 suggested by Al-Maaitah (2024), which proves sufficient separation of constructs. Second, the Fornell-Larcker test showed that the square root of the AVE of each construct was greater than the correlations of the constructs with other constructs and this supported the discriminant validity at construct level. Third, the cross-loading findings indicated that all items were loaded most on their own constructs and much lower on others, which offered more item level discriminant validity evidence. The combination of the reliability indices, convergent validity findings, and the discriminant validity analyses proves that the measurement model meets all the methodological demands. Based on this, the model offers a good basis on which to test the hypothesized structural relationships.

4.2 Assessment of the Structural Model

After the measurement model had been validated, a measurement of the strength and importance of the hypothesized relationships was done with the structural model. A number of model-fit and explanatory indicators were used to make certain robustness. Initial evaluation was done on Standardized Root Mean Square Residual (SRMR) to determine the overall model fit. The value of

SRMR of 0.067 is less than 0.08, which is the recommended value (Henseler et al., 2016), which points at the acceptable and suitable model. The explanatory power of the model was measured with the help of the coefficient of determination (R^2). The endogenous constructs R^2 values were between 0.181 and 0.436 with adjusted R^2 values between 0.171 and 0.425. The value of these indicates weak to moderate explanatory power based on the criterion of Chin (1998)-0.25 (weak), 0.50 (moderate) and 0.75 (substantial). Interestingly, SSCS, and SSCP explained well the OP among manufacturing SMEs in Jordan, as the two variables in supply chain jointly accounted about 43.6% of the variance in OP. The effect sizes (f^2) were also determined to establish the contribution made by each of the exogenous variables to its respective endogenous construct. Using the benchmarks of Cohen (2003) 0.02 (small), 0.15 (medium), and 0.35 (large) the f^2 values in this research were between 0.000 and 0.218. These findings show that SSCS had insignificant to medium influences on the SSCP and the OP. In general, the structural model is statistically sound and relevant. The synergistic-based model of SSCS (cost, differentiation, response and postponement) and dimensions of SSCP (delivery, flexibility, quality and reduced cost) offers a consistent and empirical explanation of OP in Jordanian manufacturing SMEs. The findings confirm the suggested mediating framework that SSCS have both direct and indirect influence on performance based on Sustainability Supply Chain performance.

Table 1. Results of the measurement model

Construct	Item	Loadings	CA	CR	AVE
Cost	CT1	0.917	0.954	0.965	0.844
	CT2	0.943			
	CT3	0.933			
	CT4	0.931			
	CT5	0.867			
Differentiation	DN1	0.819	0.863	0.869	0.587
	DN2	0.881			
	DN3	0.904			
Response	R1	0.834	0.749	0.855	0.663
	R2	0.844			
	R3	0.763			
Postponement	PT1	0.803	0.845	0.903	0.758
	PT2	0.892			
	PT3	0.913			
Delivery	D1	0.868	0.876	0.908	0.668
	D2	0.882			
	D3	0.884			
	D4	0.834			
Flexibility	F1	0.824	0.787	0.854	0.549
	F2	0.885			
	F3	0.907			
Quality	Q1	0.932	0.781	0.855	0.748
	Q2	0.791			

Sustainability Supply Chain Strategies and
Operational Performance in Manufacturing SMEs:
The Mediating Role of Sustainability Supply
Chain performance in Jordan

Reduced cost	RC1	0.869	0.852	0.909	0.769
	RC2	0.851			
	RC3	0.911			
OP	OP1	0.774	0.901	0.927	0.718
	OP2	0.904			
	OP3	0.891			
	OP4	0.876			

Table 2. Continued

Construct	Item	Loadings	CA	CR	AVE
Delivery	DL1	0.869	0.877	0.909	0.669
	DL2	0.883			
	DL3	0.885			
	DL4	0.835			
Flexibility	FL1	0.825	0.788	0.855	0.548
	FL2	0.886			
	FL3	0.908			
Quality	Q1	0.933	0.782	0.856	0.749
	Q2	0.792			
Reduced Cost	RC1	0.868	0.853	0.908	0.768
	RC2	0.852			
	RC3	0.912			

4.3 Path coefficient (direct effect and mediation)

The empirical results revealed significant differences in how SSCS translate into OP among Jordanian manufacturing SMEs. The cost strategy ($\beta = 0.135$, $t = 4.564$, $p < 0.001$) emerged as a substantial driver of performance, underscoring the importance of efficiency-based strategies under conditions of financial and resource constraints. Similarly, the postponement strategy ($\beta = 0.069$, $t = 2.855$, $p = 0.005$) demonstrated a positive and significant direct effect, indicating that delaying product differentiation and final assembly until demand becomes clearer can yield immediate efficiency gains. In contrast, the differentiation strategy ($\beta = 0.010$, $t = 0.432$, $p = 0.666$) and the response strategy ($\beta = 0.018$, $t = 0.678$, $p = 0.498$) did not show significant direct effects. This highlights the challenges SMEs face in leveraging innovation- or agility-oriented strategies in isolation, particularly in contexts characterized by limited resources, fragmented infrastructures, and unstable supply environments.

Nevertheless, the mediation analysis provided strong evidence that SSCP is the determining factor linking strategy to outcomes. The cost strategy enhanced performance both directly and indirectly through delivery reliability ($\beta = 0.029$, $p = 0.005$), cost reduction ($\beta = 0.014$, $p = 0.001$), quality improvement ($\beta = 0.060$, $p < 0.001$), and flexibility ($\beta = 0.035$, $p < 0.001$). This suggests that competitiveness-based strategies yield stronger results when supported by operational strengths. Interestingly, the response strategy did not show a direct effect, yet it exhibited strong mediated effects through flexibility ($\beta = 0.028$, $p < 0.001$), delivery ($\beta = 0.013$, $p = 0.001$), cost reduction ($\beta = 0.021$, $p = 0.001$), and quality ($\beta = 0.025$, $p = 0.001$). This indicates that responsiveness in turbulent markets can

only generate competitive advantage when SMEs build supply chains that are agile, cost-efficient, and quality-oriented at the same time. The postponement strategy was unique in showing both direct and indirect effects, influencing performance directly as well as indirectly through delivery, flexibility, and cost efficiency. Taken together, these findings confirm that SSCP acts as a partial mediator for cost and postponement strategies, and as a full mediator for differentiation and response strategies. This provides strong empirical support for the notion that strategies alone cannot succeed without the operational infrastructure and supply chain capabilities required to implement them effectively.

Table 3. Heterotrait-monotrait ratio (HTMT) - matrix

Variables	1	2	3	4	5	6	7	8	9
1. Cost	1.000	0.541	0.420	0.143	0.226	0.412	0.326	0.056	0.305
2. Differentiation	0.541	1.000	0.518	0.315	0.399	0.432	0.283	0.226	0.261
3. Response	0.420	0.518	1.000	0.415	0.463	0.641	0.340	0.169	0.312
4. Postponement	0.143	0.315	0.415	1.000	0.444	0.276	0.117	0.226	0.108
5. flexibility	0.226	0.399	0.463	0.444	1.000	0.402	0.251	0.399	0.143
6. OP	0.412	0.432	0.641	0.276	0.402	1.000	0.375	0.172	0.350
7. delivery	0.326	0.283	0.340	0.117	0.251	0.375	1.000	0.108	0.332
8. Quality	0.056	0.226	0.169	0.226	0.399	0.172	0.108	1.000	0.164
9. Reduce cost	0.305	0.261	0.312	0.108	0.143	0.350	0.332	0.164	1.000

Table 4. Fornell-Larcker criterion

	Cost					operatio nal			Re duc e	
		Diff eren tiation	Flexi bility	respo nse	postp onem ent	perform ance	deliver y	Qu alit y	cost	flexib ility
Cost	0.919									
Differentiation	0.505	0.867								
Flexibility	0.381	0.456	0.873							
Response	0.138	0.291	0.366	0.869						
Postponement	0.190	0.337	0.368	0.356	0.814					
OP	0.392	0.401	0.553	0.255	0.327	0.863				
delivery	0.311	0.265	0.300	0.108	0.199	0.340	0.870			

Sustainability Supply Chain Strategies and
Operational Performance in Manufacturing SMEs:
The Mediating Role of Sustainability Supply
Chain performance in Jordan

Quality	0.030	0.164	0.119	0.163	0.315	0.102	0.095	0.865		
Reduce cost	0.283	0.238	0.268	0.108	0.113	0.318	0.303	0.128	0.877	
flexibility Source(s): Authors'	0.011	0.032	0.084	0.088	0.114	0.170	0.077	0.275	0.228	0.913

Table 5. Path coefficient for direct relationship

Hypothesis	Direct Relationship	Sample (O)	STDEV	t-value	p-value	Remarks
H1A	Cost Strategy → OP	0.135	0.030	4.564	0.000	sig
H1bB	Differentiation Strategy → OP	0.010	0.024	0.432	0.666	Not sig
H1c	Response Strategy → OP	0.018	0.026	0.678	0.498	Not sig
H1d	Postponement Strategy → OP	0.069	0.024	2.855	0.005	sig
H2a	Cost Strategy → Delivery	0.424	0.039	10.895	0.000	sig
H2b	Cost Strategy → Flexibility	0.262	0.043	6.062	0.000	sig
H2c	Cost Strategy → Quality	0.154	0.049	3.109	0.002	sig
H2d	Cost Strategy → Reduced Cost	0.199	0.042	4.690	0.000	sig
H2e	Differentiation Strategy → Delivery	0.158	0.043	3.647	0.000	sig
H2f	Differentiation Strategy → Flexibility	0.238	0.044	5.449	0.000	sig
H2g	Differentiation Strategy → Quality	0.156	0.050	3.129	0.002	sig
H2h	Differentiation Strategy → Reduced Cost	0.164	0.048	3.396	0.001	sig
H2i	Response Strategy → Delivery	0.183	0.046	4.013	0.000	sig
H2j	Response Strategy → Flexibility	0.196	0.045	4.355	0.000	sig
H2k	Response Strategy → Quality	0.304	0.045	6.801	0.000	sig
H2l	Response Strategy → Reduced Cost	0.136	0.045	3.039	0.003	sig
H2m	Postponement Strategy → Delivery	0.081	0.046	1.752	0.081	Not sig
H2n	Postponement Strategy → Flexibility	0.158	0.049	3.227	0.001	sig

H2o	Postponement Strategy → Quality	0.127	0.051	2.482	0.013	sig
H2p	Postponement Strategy → Reduced Cost	0.210	0.046	4.614	0.000	sig
H3a	Delivery → OP	0.161	0.054	2.971	0.003	sig
H3b	Flexibility → OP	0.179	0.051	3.524	0.000	sig
H3c	Quality → OP	0.197	0.044	4.424	0.000	sig
H3d	Reduced Cost → OP	0.099	0.042	2.372	0.018	sig

Indirect effect (mediation effect)

Hypothesis	Indirect Relationship	Sample (O)	STDEV	t-value	p-value	Remarks
H4a	Cost Strategy → Delivery → OP	0.017	0.005	3.313	0.001	sig
H4b	Differentiation Strategy → Flexibility → OP	0.044	0.011	4.018	0.000	sig
H4c	Response Strategy → Quality → OP	0.022	0.007	3.108	0.002	sig
H4d	Postponement Strategy → Reduced Cost → OP	0.012	0.003	3.937	0.000	sig

Table 6. Continued

Hypothesis	Indirect Relationship	Original Sample (O)	STDEV	t-value	p-value	Remarks
H4e	Cost → Delivery → OP	0.029	0.011	2.803	0.005	sig
H4f	Cost → Reduced Cost → OP	0.014	0.004	3.225	0.001	sig
H4g	Cost → Quality → OP	0.060	0.015	4.019	0.000	sig
H4h	Cost → Flexibility → OP	0.035	0.009	3.870	0.000	sig
H4i	Differentiation → Quality → OP	0.031	0.004	7.666	0.000	sig
H4j	Differentiation → Reduced Cost → OP	0.016	0.005	3.107	0.002	sig
H4k	Differentiation → Flexibility → OP	0.043	0.008	5.327	0.000	sig
H4l	Differentiation → Delivery → OP	0.025	0.008	3.058	0.002	sig
H4m	Response → Flexibility → OP	0.028	0.004	6.293	0.000	sig
H4n	Response → Delivery → OP	0.013	0.004	3.276	0.001	sig

Sustainability Supply Chain Strategies and
Operational Performance in Manufacturing SMEs:
The Mediating Role of Sustainability Supply
Chain performance in Jordan

H4o	Response → Reduced Cost → OP	0.021	0.005	3.862	0.000	sig
H4p	Response → Quality → OP	0.025	0.008	3.194	0.001	sig
H4q	Postponement → Reduced Cost → OP	0.020	0.003	7.850	0.000	sig
H4r	Postponement → Quality → OP	0.030	0.006	5.296	0.000	sig
H4s	Postponement → Flexibility → OP	0.047	0.008	6.046	0.000	sig
H4t	Postponement → Delivery → OP	0.068	0.010	6.788	0.000	sig

The mediation analysis, which required an extended period of evaluation, supported the argument that SSCP is not merely a supporting force but a core mechanism that transforms strategic intent into operational excellence. The differentiation strategy improved performance only through mediated relationships with quality ($\beta = 0.031$, $p < 0.001$), flexibility ($\beta = 0.043$, $p < 0.001$), delivery ($\beta = 0.025$, $p = 0.002$), and cost reduction ($\beta = 0.016$, $p = 0.002$). This indicates that innovative offerings and customized value propositions alone are insufficient to enhance SME performance unless supported by strong supply chain capabilities. This observation aligns with the Relational View (RV), which considers value creation and relational rents as outcomes of collaborative routines and inter-firm capabilities rather than individual firm behavior. Similarly, the response strategy was fully mediated by the dimensions of SSCP, reinforcing the idea that agility and adaptability can only yield tangible results when firms operate with stable delivery systems, flexible operations, and efficient cost structures.

It is also noteworthy that the postponement strategy demonstrated both direct and mediated effects. Consistent with the literature (Bugaje & Halimah, 2024; Ayoub & Abdallah, 2019), postponement enhances efficiency by reducing lead times, lowering inventory levels, and improving cash flow. The findings of this study further extend this understanding by showing that postponement also leverages SSCP dimensions to maximize its contribution to OP. Likewise, the cost strategy exhibited both direct and indirect effects, supporting the argument of the Resource-Based View (RBV) that the effective utilization of resources, combined with operational and relational capabilities, leads to sustainable competitive advantage. These results are also consistent with recent research in emerging economies (Nabass & Abdallah, 2019; Anouze et al., 2018), which identifies cost efficiency, flexibility, and delivery reliability as critical intermediaries between strategies and performance.

Collectively, these results challenge the conventional linear assumption of a simple strategy–performance connection and instead provide empirical support for more complex models in which strategies must be integrated into capability-enhancing supply chains. Theoretically, they broaden the boundaries of both the RBV and RV by demonstrating that, in resource-constrained settings such as Jordan, competitive advantage is not derived merely from the implementation of strategic orientations but from their integration into cooperative, adaptive, and high-functioning supply chain systems. In practice, the findings remind managers that investments in differentiation or responsiveness will yield little real-world impact without deliberate improvements in delivery reliability, flexibility, quality management, and cost efficiency.

Conclusion and Implications

This study contributes to the body of knowledge on the relationship between SSCS, SSCP, and OP of SMEs in Jordan, using the Resource-Based View (RBV) and Relational View (RV), which explain how effective efficiency-oriented, differentiation-focused, responsive, and postponement strategies, coupled with high performance of supply chain, affect operational results, with the RBV emphasizing

internal resources and capabilities and the RV emphasizing inter-organizational relationships and networks. This is a combination of two views that provides a strong explanatory framework of the context in which Jordanian SMEs are confronted with the environment with resource scarcity, intense competition, institutional and regulatory issues, and volatile markets. The findings indicated that cost and postponement strategies directly affect operations of SMEs, whereas differentiation and response strategies directly affect operations, mediated by Sustainability Supply Chain performance, which supports the RV hypothesis that competitive advantage is not related to the ownership of resources but to effective use in collaborative supply chains. This implies that the change in performance is not primarily driven by internal processes but by the alignment of strategic intent with supply chain capabilities in the highly dynamic and resource-constrained environment of Jordanian SMEs.

This research falls under the literature of supply chain management on three levels. First, it empirically underscores the role of SSCP as an important mediating variable between the SSCS and the performance of the supply chain. The findings indicate that the relationship is not a simple straight-forward-effect-relationship but rather describes the translation of strategic decisions to competitive advantages via delivery, flexibility, quality, and cost-efficiency. Second, the research expands the domain of the Resource-Based View (RBV) and Relational View (RV) to a market scenario that is characterized by institutional, infrastructural, and resource limitations. These contextual forces influence the execution and performance of SSCS and therefore complicate the notion that Western-based models are universally applicable and justify the contextual adjustment. Third, the paper advances the theoretical foundation of SME supply chain management by demonstrating the contingency factor of firm size and resource scarcity between the correlation of SSCS and performance, which provides a more context-specific explanation of value creation in SMEs. On the issue of managerial implications, the findings give some practical advice to the SME managers in Jordan. They show that cost and postponement strategies may be effective solution to the enhancement of the OP itself, but differentiation and response strategies cannot be successful unless the supply chains are supported with powerful capabilities to transform them into their practical outcomes. The managers are thus advised to be more concerned with investments in the delivery reliability, quality control mechanisms, flexible production process and cost reduction mechanisms in order to increase the mediating role of SSCP. As an example, pharmaceutical and textile SMEs in Jordan can enhance their competitiveness by investing in responsive production systems and logistic alliances that would enable them to deliver products faster and customizing the products to a higher level. Likewise, the SMEs within the food and beverage industry can use the postponement techniques where they defer the product differentiation strategies to later in the production cycle where they can be in a better position to provide the customer with the opportunity to respond to their tastes and still remain cost effective.

The policy implications of the findings involve, at least, the government agencies and industry associations in Jordan. To address the risks of supply disruptions, increasing prices of inputs, and institutional inefficiencies, the policymakers are recommended to develop support programs that will help the SMEs to cooperate, especially in constructing industrial clustering which would lead to the transfer of knowledge, routine problem solving strategies, and relation specific investments that will make SMEs to work as a team to absorb the risks involved. These findings can be applied by government programmes like the Jordan Chamber of Industry and the Jordan Investment Commission to develop certain interventions, which facilitate the SMEs to integrate the cost, differentiation, response, and postponement strategies and more effective mechanisms of Sustainability Supply Chain performance. Finally, this study validates hypothesis that on the one hand, implementation of the SSCS in the manufacturing environment of Jordan only result in competitive advantage and improved OP but not on the other hand, implementation of the strategies and good SSCP capabilities, making SSCP a pivotal mediator, in the achievement of sustainable competitiveness by SMEs.

From a practical standpoint, the study presents a number of actionable recommendations for SME managers. Cost strategies should be accompanied by process innovations and collaborative supplier relationships to ensure efficiency under resource constraints, differentiation strategies should be supported by strong supply chain capabilities—particularly flexibility and quality systems—to translate innovation into performance, responsiveness should be enabled by agile logistics alliances

and digital monitoring tools to ensure timely delivery and cost-effectiveness, and postponement strategies are enabled by delaying product customization until demand signals are clearer and supported by adequate logistics and production systems. Taken together, these recommendations imply that strategic orientations are not enough in the absence of supply chain structures and capabilities that enable them..

Reference

- Abdallah, A. B., Alfar, N. A., & Alhyari, S. (2021). The effect of supply chain quality management on supply chain performance: The indirect roles of supply chain agility and innovation. *International Journal of Physical Distribution & Logistics Management*, 51(7), 785–812. <https://doi.org/10.1108/IJPDLM-03-2020-0118>
- Abdallah, A. B., Rawadiah, O. M., Al-Byati, W., & Alhyari, S. (2021). Supply chain integration and export performance: The mediating role of supply chain performance. *International Journal of Productivity and Performance Management*, 70(7), 1907–1929. <https://doi.org/10.1108/IJPPM-04-2020-0186>
- Abualrejal, H. M. E., Alqudah, A. Z., Ali, A. A. A., Saoula, O., & AlOrmuza, T. K. (2022). University parcel centre services quality and users' satisfaction in higher education institutions: A case of Universiti Utara Malaysia. In M. Al-Emran, M. A. Al-Sharafi, M. N. Al-Kabi, & K. Shaalan (Eds.), *Proceedings of International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2021* (Vol. 2) (pp. 885–895). Springer. https://doi.org/10.1007/978-3-030-85990-9_70
- Abualrejal, H. M. E., Shtawi, H. O., Hassan, M. G., Alqudah, A. Z., & Alamrani, A. A. (2022). Assistive technology and its impact on educational achievement for visually impaired students at SKPK Princess Elizabeth. In M. Al-Emran, M. A. Al-Sharafi, M. N. Al-Kabi, & K. Shaalan (Eds.), *Proceedings of International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2021* (Vol. 2) (pp. 873–883). Springer. https://doi.org/10.1007/978-3-030-85990-9_69
- Acquah, I. N., Asamoah, D., Kumi, C. A., Akyeh, J., & Agyemang, P. (2025). Untangling the nexus between supplier relationship management and competitive advantage: Insights on the role of procurement performance and supply chain responsiveness. *International Journal of Emerging Markets*, 20(6), 2661–2682. <https://doi.org/10.1108/IJOEM-08-2022-1322>
- Al Azzani, H. A., Mat Jusoh, N., & Abbas, A. (2024). Market and supply chain orientation: Dynamic capabilities leading to innovation and operational capabilities. *Sage Open*, 14(2), 21582440241248895. <https://doi.org/10.1177/21582440241248895>
- Alamro, A. S., Awwad, A. S., & Anouze, A. L. M. (2018). The integrated impact of new product and market flexibilities on operational performance: The case of the Jordanian manufacturing sector. *Journal of Manufacturing Technology Management*, 29(7), 1163–1187. <https://doi.org/10.1108/JMTM-04-2018-0100>
- Ali, A. A. A., Abualrejal, H. M. E., Mohamed Udin, Z. B., Shtawi, H. O., & Alqudah, A. Z. (2022). The role of supply chain integration on project management success in Jordanian engineering companies. In M. Al-Emran, M. A. Al-Sharafi, M. N. Al-Kabi, & K. Shaalan (Eds.), *Proceedings of International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2021* (Vol. 1) (pp. 646–657). Springer. https://doi.org/10.1007/978-3-030-82616-1_53
- Al-Janabi, S. G. A. (2020). The impact of just in time practices on operational performance of fast food restaurants in Jordan (Doctoral dissertation, Middle East University).
- Almahairah, M. S. Z., Goswami, S., Karri, P. N., Krishna, I. M., Aarif, M., & Manoharan, G. (2023, December). Application of Internet of Things and Big Data in Improving Supply Chain Financial Risk Management System. In *2023 10th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)* (Vol. 10, pp. 276–280). IEEE.
- Almahairah, M. S. Z., Goswami, S., Karri, P. N., Krishna, I. M., Aarif, M., & Manoharan, G. (2023, December). Application of Internet of Things and Big Data in Improving Supply Chain Financial Risk Management System. In *2023 10th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)* (Vol. 10, pp. 276–280). IEEE.
- Almohtaseb, A., Aldehayyat, J., Al Khattab, A., & Alabaddi, Z. (2024). The role of supply chain management in improving performance of Jordanian small and medium enterprises. *Problems and Perspectives in Management*, 22(1), 218–230. [https://doi.org/10.21511/ppm.22\(1\).2024.20](https://doi.org/10.21511/ppm.22(1).2024.20)
- Alqudah, A. Z., Abualrejal, H. M. E., & Elias, E. M. (2022). Hospital supply chain management and quality of services within hospitals: A preliminary review. In F. Saeed, F. Mohammed, & F. Ghaleb (Eds.), *Advances on*

Intelligent Informatics and Computing: Health Informatics, Intelligent Systems, Data Science and Smart Computing (IRICT 2021) (pp. 775–784). Springer. https://doi.org/10.1007/978-3-030-98741-1_66

Alqudah, A. Z., Abualrejal, H. M. E., & Elias, E. M. (2023). Supply chain and quality services in among Jordanian public hospitals: A preliminary review. *Res Militaris*, 13(2), 112–122. <https://resmilitaris.net/issue?issue=Issue+-2&volume=Volume+-13&year=2023>

Alshahrani, M. A., & Salam, M. A. (2022). The role of supply chain resilience on SMEs' performance: The case of an emerging economy. *Logistics*, 6(3), 47. <https://doi.org/10.3390/logistics6030047>

Al-Shboul, M. D. A. (2024). Investigating the quality of the relationship, supply risk mitigation on medium and large-sized manufacturing firms' supply chain performance in the developing countries: The moderating effect of supplier involvement. *The TQM Journal*, 36(4), 1162–1192. <https://doi.org/10.1108/TQM-06-2022-0199>

Al-Shboul, M. D. A., & Alsmairat, M. A. (2023). Enabling supply chain efficacy through SC risk mitigation and absorptive capacity: An empirical investigation in manufacturing firms in the Middle East region—a moderated-mediated model. *Supply Chain Management: An International Journal*, 28(5), 909–922. <https://doi.org/10.1108/SCM-09-2022-0355>

Alsmairat, M. A., Al-Ma'aitah, N., Al-hwameil, T., & Elrehail, H. (2024). Supply chain partnership and sustainable performance: Does TQM mediate the relationship? *International Journal of Quality and Service Sciences*, 16(1), 63–86. <https://doi.org/10.1108/IJQSS-06-2022-0120>

Al-Zoubi, L. (2023). Supply chain resilience and firm performance in turbulent contexts: An example of Jordan and the Arab Spring (Doctoral dissertation, University of Sheffield).

Ayoub, H. F., & Abdallah, A. B. (2019). The effect of supply chain agility on export performance: The mediating roles of supply chain responsiveness and innovativeness. *Journal of Manufacturing Technology Management*, 30(5), 821–839. <https://doi.org/10.1108/JMTM-01-2018-0027>

Bargouthi, M. I., Bharadwaj, P., & Byramjee, F. (2025). The influence of selected supply chain management practices on SMEs performance: The mediating role of competitive advantage. *Journal of Global Operations and Strategic Sourcing*. <https://doi.org/10.1108/JGOSS-12-2023-0131>

Dwikat, S. Y., Dwaikat, N. Y., Arshad, D., & Hanaysha, J. (2025). Fostering sustainability in industrial SMEs in developing countries: The mediation role of strategic flexibility. *Management & Sustainability: An Arab Review*, 1–26. <https://doi.org/10.1108/MSAR-03-2024-0004>

Hani, J. B. (2022). The influence of supply chain management practices on supply chain performance: The moderating role of information quality. *Business, Management and Economics Engineering*, 20(1), 152–171. <https://doi.org/10.3846/bmee.2022.16157>

Hashem, T. N. (2020). The role of supply chain strategy and affiliate marketing in increasing the demand for e-commerce—social media POV. *Int. J Sup. Chain. Mgt Vol*, 9(1), 832.

Hashem, T. N. (2020). The role of supply chain strategy and affiliate marketing in increasing the demand for e-commerce—social media POV. *Int. J Sup. Chain. Mgt Vol*, 9(1), 832.

Jum'a, L., & Bushnaq, M. (2024). Investigating the role of flexibility as a moderator between supply chain integration and firm performance: The case of manufacturing sector. *Journal of Advances in Management Research*, 21(2), 203–227. <https://doi.org/10.1108/JAMR-06-2022-0160>

Jum'a, L., Zimon, D., & Ikram, M. (2021). A relationship between supply chain practices, environmental sustainability and financial performance: Evidence from manufacturing companies in Jordan. *Sustainability*, 13(4), 2152. <https://doi.org/10.3390/su13042152>

Karani, A. M. (2022). Effect of supply chain strategies on the performance of manufacturing firms in Kenya (Doctoral dissertation, JKUAT-COHRED).

Kharoub, T., & Nour, A. I. (2025). The role of supply chain management in enhancing competitive advantage and company performance in industrial joint stock companies listed on the Palestine Stock Exchange. In *The paradigm shift from a linear economy to a smart circular economy* (pp. 69–85). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-54391-7_4

Martina, I. G. A. S. H. I., Ringim, K. J., Bugaje, I. B., & Halimah, S. S. (2023). Effect of supply chain management practices and SMEs performance: Moderating role of information technology capability.

Masoudi, E., & Shahin, A. (2025). The impact of TQM on quality performance: The mediating role of supply chain integration in manufacturing SMEs. *The TQM Journal*, 1–21. <https://doi.org/10.1108/TQM-08-2024-0227>

Sustainability Supply Chain Strategies and
Operational Performance in Manufacturing SMEs:
The Mediating Role of Sustainability Supply
Chain performance in Jordan

- Moh'd Anwer, A. S. (2023). Enabling manufacturing firms' supply chain performance in the Middle East region through boosting the quality of multi-directional relationship, and supply chain risk dilution: A moderated-mediation model. *Heliyon*, 9(11), e22235. <https://doi.org/10.1016/j.heliyon.2023.e22235>
- Nabass, E. H., & Abdallah, A. B. (2019). Agile manufacturing and business performance: The indirect effects of operational performance dimensions. *Business Process Management Journal*, 25(4), 647–666. <https://doi.org/10.1108/BPMJ-01-2018-0026>
- Obiri-Yeboah, H., Amoatey, C. T., Ottou, J., & Yirenkyi-Fianko, A. (2025). Supply chain management practices and the organizational performance of manufacturing SMEs in an emerging economy: The mediating role of supply chain performance. *Modern Supply Chain Research and Applications*, 1–32. <https://doi.org/10.1108/MS CRA-06-2024-0048>
- Omoush, M. M. (2020). Investigation the relationship between supply chain management activities and operational performance: Testing the mediating role of strategic agility – A practical study on the pharmaceutical companies. *International Business Research*, 13(2), 1–74. <https://doi.org/10.5539/ibr.v13n2p1>
- Qasem, A., Murad, Z. M., & Gharaibeh, E. S. (2019). Impact of supply chain strategy and change order on contractors' cash flow in Jordanian construction industry: a case study of basic educational school construction. *Int J Supply Chain Manag*, 8(3), 460-473.
- Qasem, A., Murad, Z. M., & Gharaibeh, E. S. (2019). Impact of supply chain strategy and change order on contractors' cash flow in Jordanian construction industry: a case study of basic educational school construction. *Int J Supply Chain Manag*, 8(3), 460-473.
- Rizwan, B., & Siddiqui, D. A. (2023). The crucial role of supply chain agility and firm's export commitment on export performance: The mediatory role of innovativeness, responsiveness, and competence, complemented by market dynamics. *SSRN*. <https://doi.org/10.2139/ssrn.4423893>
- Saad, N. A., Elgazzar, S., & Mlaker Kac, S. (2022). Investigating the impact of resilience, responsiveness, and quality on customer loyalty of MSMEs: Empirical evidence. *Sustainability*, 14(9), 5011. <https://doi.org/10.3390/su14095011>
- Sandouqa, S. A. (2020). The impact of enterprise resource planning (ERP) system usage on supply chain integration at Jordanian pharmaceutical manufacturing organizations in Amman (Master's thesis, Middle East University).
- Takrouri, H. A. A. R. M. (2025). An empirical study on the impact of supply chain dynamic capabilities on supply chain resilience: The mediating role of technological innovation (Doctoral dissertation, Arab American University Palestine).