Causal Relationships Model for Total Quality Management, Supply Chain Management, and Organizational Performance: the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC), Thailand

Sangduen Pattanasiri and Thitima Chaiyakul*

Management Sciences Faculty, Kasetsart University Siracha Campus, Chonburi 20230, Thailand

***Corresponding author's e-mail: thitima.c@ku.th**

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Abstract

Fluctuations in the global economy in the early 21st century due to financial collapses and unexpected circumstances surrounding the COVID-19 pandemic have greatly affected the competitiveness and viability of many industries around the world including Automotive and Automotive Parts in the Eastern Economic Corridor (EEC), Thailand. Effective management strategies including total quality management (TQM) and supply chain management (SCM) will guide the better performance of businesses. Additionally, the previous published studies in Automotive and Automotive Parts industries in these issues are limited. Hence, the objective of this study is to investigate the causal relationships model which focuses on total quality management (TQM), supply chain management (SCM) and organizational performance (OP) of the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC). Data were collected from 212 companies operating in the Automotive and Automotive Parts Industries in Thailand's Eastern Economic Corridor (EEC). The data comprised answers from a self-administered survey, and these were analyzed using descriptive statistics and the structural equations modeling (SEM) method. The findings suggest that together, TQM and SCM generate positive outcomes for organizational performance. Furthermore, supply chain management mediates the relationship between TQM and organizational performance. Hence, effective total quality management and supply chain management can be integrated into businesses' management and operational strategies to improve the financial and non-financial aspects of their performance.

Keywords: Organizational performance, Total quality management, Supply chain management, Automotive and automotive parts industries, The Eastern Economic Corridor (EEC)

Introduction

The 21st century has so far proved to be economically tumultuous and businesses are operating in uncertain times. This period has witnessed several serious financial crises greatly undermining many nations, regions, and in the case of the "Great Recession" caused by the COVID-19 pandemic, the entire international economy. These circumstances have severely dented the competitiveness of all industries such as the automotive sector (Akbulaev et al., 2020). Businesses need to be able to manage industry-related conflicts such as government or industry policy and production method issues in order to remain competitive and successful. Additionally, companies must be able to produce high quality products or goods/services that meet customers' requirements.

Total quality management (TQM) is a managerial concept that has been broadly implemented in many organizations as a way for business practices and strategies to enhance the quality of products in order to satisfy customers and other stakeholders. These require the support of all employees, who are empowered with or take responsibility for maintaining high standards and strive for continuous improvement. To increase their competitiveness in the market, companies have to achieve the highest customer satisfaction, lowest operational costs and continually improve their products and services (Kumar & Sharma, 2017). TQM has long been recognized for decades as a good strategic way to enhance competitiveness. Rigby & Bilodeau (2018) surveyed more than 14,700 respondents from many countries including Thailand, finding that supply chain management (SCM) is critical to business success.

However, in many industries and the markets serving them, premium quality is not enough but on-time delivery with low cost is critical for retaining a competitive advantage. Increasing competitiveness by producing good quality products for customers' satisfaction at the lowest cost, requires a very sound and up-to-date management system that can exchange practical information between partners, customers, and relevant entities. From the beginning to the end of production operations, proven efficiency and effectiveness are essential, and it is suggested that total quality management (TQM) and supply chain management (SCM) are the tools that can make this happen.

In Thailand in 2020, the total number of motor vehicles produced fell from the previous year by 29% (Thailand Automotive Institute, 2020). The disruption of supply chains and sharp decline in purchasing power of Thai consumers and customers based overseas was caused by the hugely damaging COVID-19 pandemic and the worldwide shutdowns in trade that resulted. For decades, the domestic automotive manufacturing sector in Thailand has been shaped by changing policies in imports and exports, production methods, etc., so that operations, planning, managing, controlling the rigorous supply of auto parts are much more efficient and productive. However, this is now very much changed due to the uncertainty about the future, simply because the COVID-19 pandemic is making the profitability of business operations questionable over the long term.

Previous literature such as Vanichchinchai and Igel (2011) has examined the impact of total quality management and supply chain management on a firm's supply performance in Thailand's automotive industry. A path analysis has been employed to test the hypothesized

model. Two large first-tier automotive parts suppliers were used as the case studies in their research. Using reliable and valid measures of supply chain management, total quality management, and financial performance in Thailand's automotive industry, they found: firstly, a significant direct positive impact of total quality management on supply chain management and on firm performance; and secondly, a significant indirect positive influence of total quality management on the firm's performance through supply chain management. Elsewhere, Sila et al. (2006) argue that total quality management and supply chain on organizational performance are constantly changing in terms of their impact, but they can enhance efficiency and create a more competitive advantage.

The automotive and automotive parts industries have been consistently supported by Thai governments since 1963. A large group of companies are located in the Eastern Economic Corridor (EEC), which constitutes the bulk of the automotive manufacturing industry in the provinces of Chachoengsao, Chonburi, and Rayong. This project is linked to other transportation and logistics objectives: High-Speed Rail Linking 3 Airports; Intercity Motorway, Double-Track Railway; and Laem Chabang Port. It is intended that the latter will become one of the best seaports in the world using an automated system and delivering advanced full-scale services.

Since the number of the published literature on the Automotive and Automotive Parts Industries is limited, this empirical study aims to examine the causal relationships model which focuses on total quality management (TQM), supply chain management (SCM) and organizational performance (OP) of the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC). The purpose is to provide guidance and recommendations for executives, supervisors, and employees to develop production processes that are more efficient and deliver goods and services to customers, improve organizational performance and enhance competitive advantage. This study is structured as follows. A review of the relevant literature is presented in Section 2. The research methodology is explained in Section 3. The data analysis, results and discussion are revealed in Section 4 and Section 5 is the conclusion.

Literature review

The relationship between total quality management (TQM) and supply chain management (SCM)

An analysis of the research on this subject shows that Vanichchinchai and Igel (2011) explained the impact of total quality management practices and supply chain management practices on firm performance in Thailand's automotive industry. Structural equation modeling (SEM) confirmed the viability of their research model based on a validation of the empirical data. They detected a significant direct positive impact of total quality management on both supply chain management and firm performance. Their results also revealed a significant indirect positive impact of TQM on a firm's performance through supply chain management and was confirmed by Modgil and Sharma (2017), Nugroho et al. (2020). Kannan and Tan (2005) investigated the impacts of just-in-time manufacturing, supply chain management, and quality management on organizational performance. They contended that TQM correlates well

with supply chain management and it fits in well with supply chain dynamics and subsequently on a company's performance. A comprehensive review of the literature suggests that TQM significantly impacts on SCM, and this leads to the following hypothesis being posited:

H1: A company's total quality management (TQM) has a significant positive effect on supply chain management (SCM).

The relationship between total quality management (TQM) and organizational performance (OP)

Joiner (2007) investigated the impact of total quality management, co-worker support and organizational support on the total quality management performance in the motor vehicle parts and accessories industry in Australia. The results reported a significant positive relationship between total quality management and organizational performance. The evidence documented was supported by other TQM researchers, for instance Prajogo and Sohal (2006), Salaheldin (2009), Munizu (2013), Shafiq et al. (2019), Saragih et al. (2020), Latifah et al. (2021) who came to similar conclusions.

Nearly a decade ago, Zehir et al. (2012) studied the causal relationships involving total quality management, and quality innovation and how these guided organizational performance. In their 8 factors they found that the most important ones as far organizational performance is concerned were leadership, and process systematics. These were echoed by Vanichchinchai and Igel (2011), Prashanth (2017). A review of the literature suggests there is a significant positive relationship between total quality management and organizational performance. On this basis the following hypothesis is suggested:

H2: A company's total quality management (TQM) has a significant positive effect on organizational performance (OP).

The relationship between supply chain management (SCM) and organizational performance (OP)

Weerapong (2018) employed a confirmatory factor analysis model to investigate the supply chain performance of the automotive industry in Thailand, using 265 companies in their sample. Structural equation modeling (SEM) served to examine the automotive industry model and the results confirmed the empirical data. The conclusion reached was that the supply chain performance of automotive parts manufacturers in Thailand is strongly related to organizational performance. This was consistent with Chia et al. (2009), Nurul (2016), Nugroho et al. (2020), Saragih et al. (2020), Latifah et al. (2021) who also reported that supply chain management shapes organizational performance. A comprehensive review of the literature strongly suggests there is a significant relationship between supply chain management and organizational performance. This leads to the following hypothesis:

H3: A company's supply chain management (SCM) has a significant positive effect on organizational performance (OP).

The association between total quality management (TQM), supply chain management (SCM) and organizational performance (OP)

According to Saad and Patel (2006) who examined supply chain performance measurement in India's automotive sector using the balanced scorecard approach, the factor analysis found an Eigenvalue higher than 1, and identified 3 important factors, namely total quality management, supply chain management and organizational performance. The cumulative percentage variance of the 3 factors was 78.9%, meaning that all 3 factors could describe the covariance of the sample by 78.9%. In their work, Vanichchinchai and Igel (2011) validated that in Thailand's automotive industry, total quality management strengthens the supply chain management and exerts a great impact on a firm's supply functions. This finding was similar to what Sila et al. (2006), Modgil and Sharma (2017), Nugroho et al. (2020), Saragih et al. (2020) reported. Subsequently, this leads to the following hypothesis:

H4: A company's total quality management (TQM) has a significant positive effect on organizational performance (OP) through supply chain management mediating the relationship.

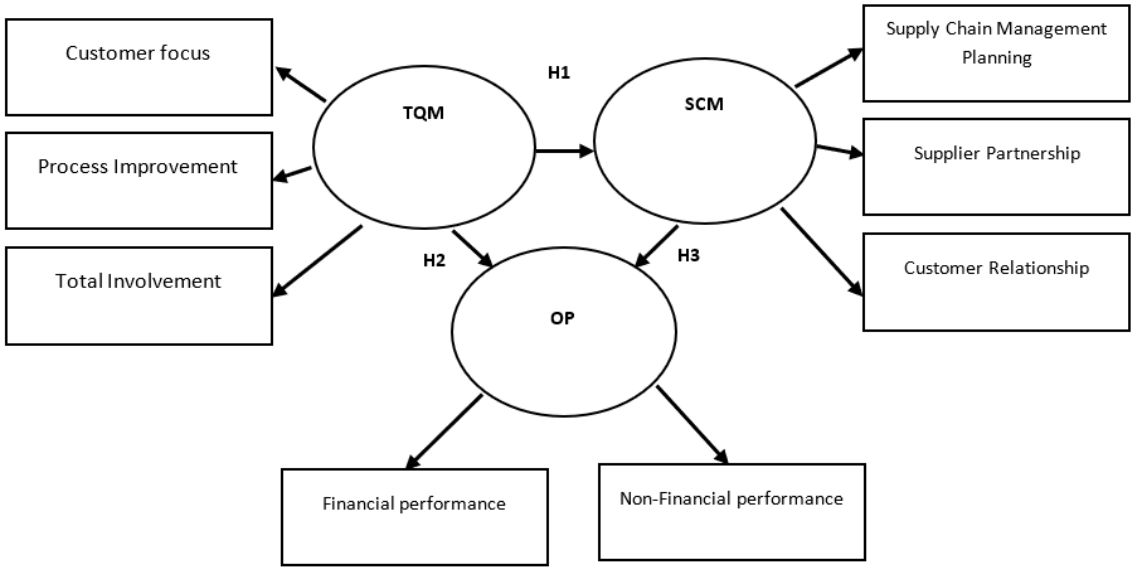

Figure 1 Conceptual framework

Conceptual research framework

According to many published studies, a conceptual framework illustrates how a theory and its facets are supposed to work as an explanatory model. The hypothesized conceptual model is developed to examine the relationship between total quality management (TQM), supply chain management (SCM), and organizational performance (OP) in the Automotive and Automotive Parts Industries in the EEC, Thailand. In this theoretical framework, TQM (Tenner & Detoro, 1992) and SCM (Chen & Paulraj, 2004) are independent variables, while OP

(Venkatraman & Ramanujam, 1986) is the dependent variable. The observed variable three dimensions of TQM were: (i) customer focus; (ii) process improvement; and (iii) total involvement. Meanwhile the observed variable three dimensions of SCM were: (i) supply chain management planning; (ii) supplier partnership; and (iii) customer relationship. Lastly, the observed variable two dimensions of OP were financial performance and non-financial performance. A conceptual framework is depicted in Figure 1.

Methodology

Population, sample size, and respondents

The population of this study are the total of 521 companies in the Automotive and Automotive Parts Industries in the EEC, Thailand. Since this study use SEM in analysis of the influence of the causal relationship model between TQM, SCM, and OP, the rule of thumb used is that the minimum sample size should be above 200 (Hoe, 2008; Comrey & Lee, 1992). Therefore, to prevent incomplete data the survey the data were collected from 280 companies operating in the Automotive and Automotive Parts Industries in the EEC. A self-administered survey was implemented and answers were analyzed using descriptive statistics and SEM. Samples were selected based on nonprobability sampling and purposive sampling. Respondents consisted of managers and supervisors who worked in quality control departments, supply chain management and production departments. One person per company participated in the questionnaire survey, which took the form of an e-questionnaire in Google Forms and sent to 280 companies. This was done to gather the information quickly.

Data collection methods

A 5-point Likert scale is used in the research questions. The highest score is 5.00 (strongly applied to this dimension) and the lowest score is 1.00 (weakly applied to this dimension). Cronbach's alpha coefficient served to evaluate the consistency of the questionnaire, by looking at 30 samples. The results for the values of ascertaining Cronbach's alpha ranged between 0.911-0.929, and this confirmed the high reliability of the Likert scale. Therefore, all Cronbach's alpha scores were acceptable for this study's modified instrument. The analysis was done with descriptive statistics (frequency, mean and standard deviation) and data were processed and evaluated using the Statistical Package AMOS program. SEM served to test the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC) model.

Data analysis, results and discussion

As stated previously, the data were collected from 212 companies and the respondents were mostly working in: suspension system parts (37.7%); body parts (23.6%); power transmission parts (21.2%); 9 electrical parts (9%); assembly automotive parts (2.8%); and other, i.e. chemical companies, rubber companies, and plastic companies (5.7%). Results for the descriptive statistics analysis (mean ($\bar{X}$), standard deviation (SD), skewness (SK), and kurtosis (KU)) are presented in Table 1.

Table 1 Descriptive statistics of Variables: TQM, SCM and OP

Variables		$\bar{X}$	SD	SK	KU
1. Total quality management	(TQM)	3.79	0.51	-0.05	-0.28
1.1. Customer focus	(CUS_F)	4.04	0.53	-0.35	-0.34
1.2. Process improvement	PRO_I	3.76	0.56	0.05	-0.20
1.3. Employee involvement	EMP_I	3.57	0.73	-0.05	-0.02
2. Supply chain management	SCM	3.82	0.46	-0.29	0.00
2.1. Supply chain management planning	PLAN_M	3.78	0.57	-0.08	-0.19
2.2. Supplier partnership	SUPP_M	3.78	0.57	-0.24	0.07
2.3. Customer relationship	CUS_RE	3.91	0.54	0.01	-0.04
3. Organizational performance	OP	3.53	0.54	-0.26	0.39
3.1. Financial performance	FIN_OP	3.33	0.61	-0.18	0.29
3.2. Non-Financial performance	NON_F	3.73	0.61	-0.22	-0.12

Table 1 presents the results regarding the descriptive statistics of all indicators of the structural factors for TQM, SCM, and OP. It emerged that all average values were higher than the median of the 5-point Likert scale. The highest average indicator was the customer focus factor ($\bar{X}$= 4.04, SD = 0.53) while the lowest average indicator was the financial performance factor ($\bar{X}$ = 3.33, SD = 0.61). The skewness and kurtosis of all variables are lower than 2. The skewness (SK) values ranged between −0.35 and 0.01, while kurtosis (KU) values were between −0.34 and 0.39. This meant that the collected data have a normal distribution.

Table 2 Scale correlation matrix (Pearson's product-moment correlation)

Variables	CUS_F	PRO_I	EMP_I	PLAN_M	SUPP_M	CUS_RE	FIN_OP	NON_F
CUS_F	1	.582**	.370**	.295**	.351**	.514**	.332**	.312**
PRO_I		1	.677**	.394**	.349**	.539**	.445**	.514**
EMP_I			1	.433**	.352**	.546**	.425**	.492**
PLAN_M				1	.606**	.498**	.310**	.384**
SUPP_M					1	.492**	.350**	.300**
CUS_RE						1	.382**	.506**
FIN_OP							1	.546**
NONF								1

Note: ** means significance at 0.001-two tails

In testing the hypotheses, Pearson's correlation test was analyzed to verify the relationship between observed variables (dimensions of TQM, SCM, and OP). The results are depicted in Table 2. A total of 28 coupled variables are positively related and running in the same direction. The correlation coefficient between 0.295 - 0.677 reveals significance at the 0.01 level. According to Kline (2005), if the correlation is >0.8 then severe multicollinearity may be present, and this will have a serious impact on the regression analysis. In this research, the correlation coefficient between all observable variables is less than 0.85. Subsequently, all observable variables can be used for the SEM analysis.

Results of testing the hypothetical structural model

The structural modeling analysis using AMOS produced the causal relationship between Total Quality Management (TQM), Supply Chain Management (SCM), and Organizational Performance (OP) of the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC), Thailand. Hence the model should be revised by making meaningful modifications and this involves adjusting a specified and estimated model by either freeing parameters that were fixed or fixing free parameters. Following model modification, the goodness-of-fit indices for the path model (Chi-square = 22.179, Chi-square/df = 1.706, df = 13, p-value = 0.053, GFI = 0.975, AGFI = 0.930 CFI = 0.987, RMR = 0.001, RMSEA = 0.058, NFI =0.969) are well within the accepted limits. These numbers indicate a good fit to the data as illustrated in Table 3 and Figure 2.

Table 3 The structural relationship between TQM, SCM, and OP of the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC), Thailand

Indices	**Criterion**	**Before adjusted**		**After adjusted**	
		Statistics	**Evaluated results**	**Statistics**	**Evaluated results**
$\chi 2$	$p \geq 0.05$	0.000	Failed	0.053	Passed
$\chi 2$/df	≤ 3.00	3.909	Failed	1.706	Passed
GFI	≥ 0.90	0.928	Passed	0.975	Passed
AGFI	≥ 0.90	0.857	Failed	0.930	Passed
CFI	> 0.90	0.932	Passed	0.987	Passed
RMR	≤ 0.08	0.018	Passed	0.009	Passed
RMSEA	≤ 0.08	0.117	Failed	0.058	Passed
NFI	≥ 0.90	0.901	Passed	0.969	Passed

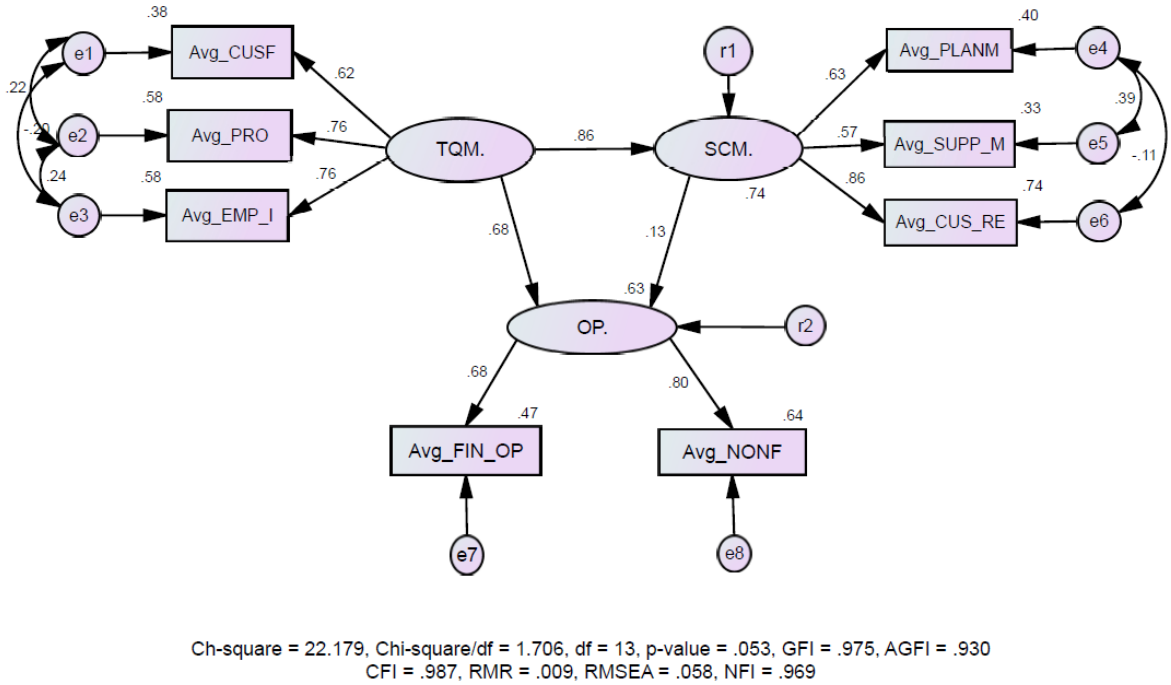

Figure 2 After adjusting the Model: The structural relationship between TQM, SCM and OP in the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC), Thailand

Table 4 Results of confirmatory factor analysis between TQM, SCM and OP

Variables	**Observable variables**	**Factor Loading**			**β**	**R2**
		b	**S.E.**	**t-value**		
TQM	CUS_F	1.000	-	-	0.62	0.384
	PRO_I	1.304	0.148	8.803	0.76	0.575
	EMP_I	1.696	0.235	7.225	0.76	0.576
SCM	PLAN_M	1.000	-	-	0.63	0.397
	SUPP_M	0.906	0.120	7.551	0.57	0.327
	CUS_RE	1.290	0.167	7.878	0.86	0.739
OP	NON_F	1.000	-	-	0.68	0.467
	FIN_OP	0.864	0.107	8.087	0.80	0.638
Chi-square = 22.179, Chi-square/df = 1.706, df = 13, p-value = 0.053, GFI = 0.975, AGFI = 0.930 CFI = 0.987, RMR = 0.001, RMSEA = 0.058, NFI =0.969						

Note: means the program does not report the parameters' constants

Moreover, confirmatory factor analysis was tested for assessing the structural relationship between Total Quality Management (TQM), Supply Chain Management (SPC),

and Organizational Performance (OP) in the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC), Thailand. The results for this are presented in Table 4.

Testing of mediating effect

The concept of mediation is used to indicate that the effect of one independent variable (TQM) is transferred by a third variable to a dependent variable (OP) of the Automotive and Automotive Parts Industries in the EEC as depicted in Table 5

Table 5 The effect of independent variables is transferred by a third variable to a dependent variable

Variable	R2	Effect	Cause variable	
			TQM	SCM
SCM	0.74	Direct effect DEa	0.861	-
		Indirect effect IEb	-	-
		Total effect TEc	0.861	-
OP	0.63	Direct effect DEa	0.678	0.133
		Indirect effect IEb	0.115	-
		Total effect TEc	0.793	0.133

This research has not only examined the direct effects of TQM on OP, but also investigated the indirect effects between them via SCM. This is known as the mediator effect which explains the effect of moving from an independent variable (TQM) to a dependent variable (OP) through a mediator variable (SCM). As depicted in Figure 3, the mediation model decomposes the total effect of TQM on OP (c 0.678), into two parts: firstly, the indirect effect of SCM on OP, quantified by 0.115 (ab) (the product of a 0.861 and b 0.133); and secondly, the direct effect of TQM on OP with the effect of the mediator increase, quantified by 0.793 (ab+c′). A full mediation decision is made according to the results established by this test.

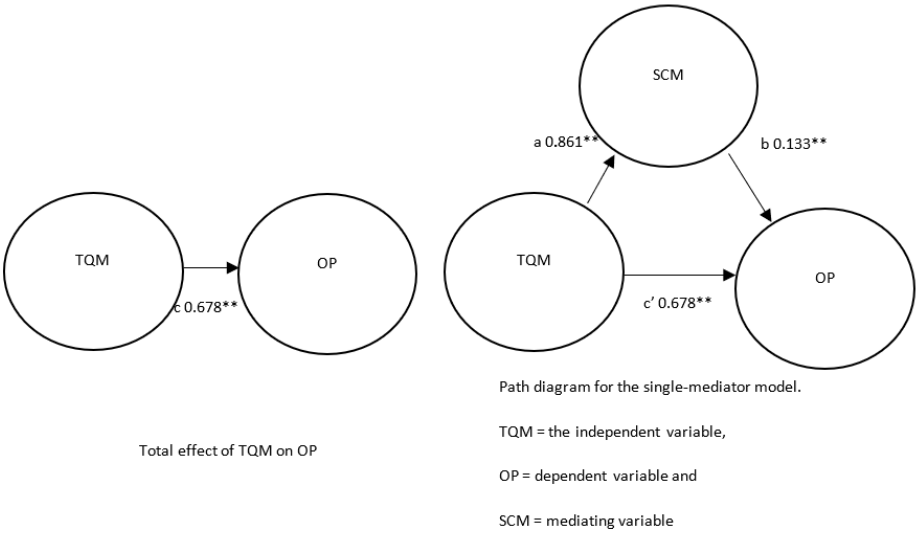

Figure 3 Illustrates the effect of the mediating variable.
Note ** means that significance is at the 0.01 level

Hypothesis testing results and discussion

H1: A company's total quality management (TQM) has a significant positive effect on supply chain management (SCM).

Based on what is documented in Table 4 and Figure 2, TQM can be positively correlated with SCM in the Automotive and Automotive Part Industries in the EEC as $\beta = 0.86$ at a significance level of 0.01. Accordingly, the H1 hypothesis is acceptable and this agrees with the findings of and Kannan & Tan (2005), Modgil & Sharma (2017), and Nugroho et al. (2020). This implies that in the companies operating in the EEC, applying the total quality practices i.e., customer focus, continuous quality improvement, and employee empowerment will benefit all the supply chain relationships among suppliers, organizations, and customers. The companies would produce quality products and services as customers demand, and businesses will order the required materials from their suppliers in the appropriate quality and time. Additionally, companies could forecast the quantity and quality of their purchased materials in an agreed-to long-term contract. In this way the companies would create cooperative relationships with their suppliers and give them a competitive advantage.

H2: A company's total quality management (TQM) has a significant positive effect on organizational performance (OP).

According to the results reported in Table 4 and Figure 2, TQM is positively correlated with OP in the Automotive and Automotive Part Industries in EEC as $\beta = 0.68$ at a significance level of 0.01. This means that H2 hypothesis is supported and corroborates the findings of Joiner (2007), Prajogo & Sohal (2006), Salaheldin (2009), Munizu (2013), Shafiq et al. (2019), Zehir et al. (2012), Vanichchinchai & Igel (2011), Prashanth (2017), Nugroho et al. (2020), Saragih et al. (2020), and Latifah et al. (2021). It is strongly suggested here that companies

who manage according to what TQM demands, will in fact improve how they operate, in terms of both financial and non-financial performance. In term of financial performance, well executed TQM practices will lead to higher profits for companies. Profits will rise since the customer is satisfied with the quality of a company's product and service, which in turn increases sales, and reduces operating costs or at least keeps in them control. With regard to enhancing non-financial performance, TQM practices will result in better quality products and less criticism or poor feedback from customers. As well, employees are more satisfied in their work because their adherence to quality improvement processes is leading to desired outcomes.

H3: A company's supply chain management (SCM) has a significant positive effect on organizational performance (OP).

According to the findings in Table 4 and Figure 2, SCM is positively correlated with OP in the Automotive and Automotive Part Industries in the EEC as $\beta = 0.13$ at a significant level of 0.01. It means that H3 hypothesis is supported as its findings echo those of Chia et al. (2009), Habidin et al. (2016), Weerapong et al. (2017), Nugroho et al. (2020), Saragih et al. (2020), and Latifah et al. (2021). This indicates that efficient supply chain management practices would increase the performance of those companies in the EEC both financially and non-financially. Good relationships between organizations and their suppliers where the right information is being shared in the right way, enables firms to manage their inventories well and diminish transportation costs, handling costs, ordering costs, etc., and it means the materials as required in terms of quality and quantity will be available.

H4: A company's total quality management (TQM) has a significant positive effect on organizational performance (OP) through supply chain management mediating the relationship.

According to structural equation modeling (SEM), the proposed and alternative models presented support the H4 hypothesis. The results shown in Tables 3, 4, and 5 and Figures 2 and 3, show that TQM influences OP through one mediator variable, i.e. SCM in the Automotive and Automotive Parts Industries in the EEC. This refers to the goodness-of-fit indices for the path model. The statistics are as follows: Chi-square = 22.179, Chi-square/df = 1.706, df = 13, p-value = 0.053, GFI = 0.975, AGFI = 0.930 CFI = 0.987, RMR = 0.001, RMSEA = 0.058, and NFI =0.969. These results are well within the accepted limits, indicating a good fit to the data, at a significance level of 0.01.

Based on the standardized coefficients of the three hypotheses as depicted in Table 5 and Figure 3, the direct effect of TQM on OP with the effect of the mediator increase, is quantified by 0.793 through one mediator variable (SCM). The coefficient is 0.133 at a significance level of 0.01 and this outcome is similar to what other researchers reported, for example Saad & Patel (2006), Vanichchinchai & Igel (2011), Sila et al. (2006), Modgil & Sharma (2017) Nugroho et al. (2020), and Saragih et al. (2020). This confirms that the implementation of both total quality management and supply chain management together will directly improve organizational performance. In addition, total quality management exerts a direct positive effect on supply chain management. Furthermore, it indirectly improves firm performance through supply chain management. This is because TQM practices implemented in companies

operating in the EEC support supply chain practices and encourage cooperation among suppliers, organizations, and customers regarding product design, purchasing, material handling, and delivery of supplies and goods. When all of these are done well, they enhance the functioning of the business organization.

Conclusions

The study tested hypotheses on the causal relationships between model constructs TQM, SCM, and OP in the Automotive and Automotive Parts Industries in the Eastern Economic Corridor (EEC), Thailand. It employed Pearson's correlation test and structural equation modelling (SEM). The evidence confirms that TQM wields a strong impact on OP through one mediator variable of SCM. Also, TQM can directly impact on both SCM and organizational performance. A business should establish and integrate a total quality management system with an efficient supply chain management, as this will consolidate business practices and effectiveness and lead to better financial and non-financial outcomes. The company should improve its TQM throughout all its operations and departments, with an emphasis on customer needs, good quality output and superior products and services that keep clients satisfied. Customer relationships require consistently good communication as this will produce feedback that can serve to improve internal workplace processes. All employees whether high or low should become involved in solving workplace process and procedural problems. Doing so will improve the quality of their own department/unit and the whole organization.

On the subject of increased effectiveness of supply chain management, a business should plan to improve it by invoking a strategy that builds mutual trust among all stakeholders who are part of the process. This can be done by enhancing information sharing, collaboration with suppliers along the supply chain in which companies work together to align their processes, strategies, and business plans. Each organization should manage its sourcing of raw materials and other requirements in as cost-effective a way as possible. Finally, a business that operates in the EEC should increase customer retention and get new customers by emphasizing the relationships with all clients so that good outcomes produce 'word of mouth' business opportunities. It is critical to engage with multiple communication channels such as social media, email, etc., and include after-sales contact channels so that feedback can be evaluated.

This study specifically investigated the Automotive and Automotive Parts Manufacturing companies in EEC, Thailand which are private sector enterprises. Therefore, the results of this study may be relevant only to this industry. Future research should look at other industries or other types of organizations such as state-owned enterprises or government agencies so that the results will be more generalizable.

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