

Witnessing Economic Growth in Kazakhstan through Sustainability and Manufacturing Performance: Mediating Role of Supply Chain Performance

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Abstract—At the present time, a number of organizations consider the implementation of sustainable activities as not just a competitive gain however as well as a requirement for enduring existence. Thus, it is vital that the researcher comprise the factor of sustainability in assessing the performance of the supply chain of an organization. But very little investigations have examined the influence of sustainability and manufacturing on economic growth, with the mediating impact of supply chain performance. The existing article demonstrates a unique methodology for assessing the performance of the supply, which could be utilized by Kazakh manufacturing companies. Relied on the past studies and on the opinions of the experts, the researcher recognized the functions of the supply chain which impact the supply chain, sustainability and manufacturing performance, and the economic growth. In this study, the scholar of this study designed a survey-based questionnaire and surveyed the experts of the manufacturing organizations. Total of 267 participants filled out the survey. The results of this study show that all the research hypotheses of the study are accepted.

Keywords: Economic Growth, Manufacturing Performance, Sustainability, Supply Chain Performance, Kazakhstan

1. Introduction

The index of the developing nations proposes that the developing markets represent almost (10%) capitalization of the worldwide market [1]. The developing nations not just supply to its own economy, however as well as serve the worldwide manufacturing markets. The necessity to improve the performance of the supply chain in developing nations, mainly in Kazakhstan, South Korea, China, India, Thailand, Indonesia, Malaysia and Taiwan [1, 2] is growing. As the sector of manufacturing in all these states raises, it is not enough to concentrate just on enhancing the performance of the supply chain in terms of competence and profit. Because of the growing pressure

from the political parties and from the consumers, the sector of manufacturing in Kazakhstan has started to comprehend the necessity to balance the outcomes of the economy with the consequences of communal and ecological concerns [3]. Although developing nations play a vital part in the worldwide supply chain, still the theoretical consideration and empirical evidence on sustainability centered supply chain performance and upcoming feasible aspect of actions are inadequate in the past studies [4]. The state of Kazakhstan is graded as the important place for “Foreign Direct Investment” (FDI) [4], and the Kazakhstan industry of manufacturing is now emerging and attracting globe’s top industrialists to its marketplace [5]. This actually creates sustainability-based “Supply Chain Management” (SCM) in the manufacturing industry of Kazakhstan essential for the worldwide supply chain. According to [2], [6] and [7] it has become extremely obvious that the approach of the orthodox profit orientation towards assembly is not maintainable and the businesses have to follow the procedures, which actually seek an equilibrium among economic achievement and communal and ecological concerns. This equilibrium between communal, ecological and economic performance is referred to as (SP) “Sustainability Performance” [41-43]. Fundamental elements of supply chain functions (SCFs) involving planning, sourcing, manufacturing, and delivering a product to customers are vital for the manufacturing industry and supply chain to realize a greater profit, low cost, customer satisfaction, and compliance with sustainability requirements [8]. From the past few years, the speedy industrial development has impacted the atmosphere adversely all over the globe particularly in the emerging nations such as in Kazakhstan. Because of the internationalization, the distribution of the network of the supply chain of products and services have become more multifaceted, and it has

raised the distressing impacts across the manufacturing firms [1]. So as to retort to the ever-rising manufacturing problems, the sustainable supply-chain has arisen as an important policy. The researcher [3] claimed that the rising awareness regarding the ecological influence of the assembly procedures, shipping of products, and sourcing is placing a rising pressure not just on the producers however as well as on the down-stream and up-stream supply chain associates [1]. Several internal policies and external regulations have also forced organizations to emphasize sustainability (economic, environmental, and social) initiatives [9]. In recent times, the matter of the supply chain sustainability has drawn the consideration of the practitioners and the researchers. But still there are few investigations on this topic, thus this study will fill this research gap.

1.1 Research objectives

Following are the major four research objectives which the current study will cover:

- 1) To analyze the impact of manufacturing performance on economic growth;
- 2) To investigate the effect of sustainability performance on economic growth;
- 3) To analyze the mediating impact of supply chain performance in the relationship between manufacturing performance and economic growth;
- 4) To determine the mediating impact of supply chain performance in the relationship between sustainability performance and economic growth.

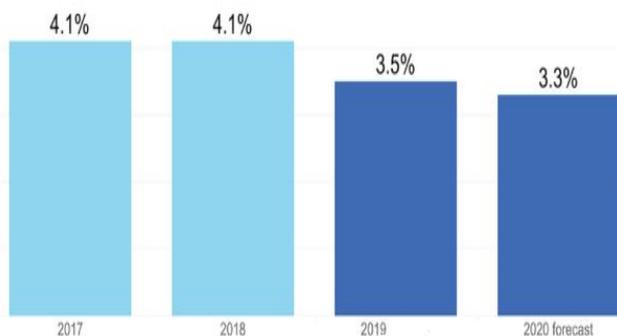


Figure 1: Economic Growth Rate in Kazakhstan due to sustainability

Source: (Asian Development Outlook 2019)

The findings of the study have a major theoretical significance by inspecting the role of mediator. In this study, the researcher just not discovered the supply chain performance however as well as discovered the sustainability and manufacturing performance of the Kazakh firms and their impact on economic growth, which will be a great contribution to the existing literature.

2. Literature Review and Hypothesis development

2.1 Manufacturing Performance and Economic Growth

Kaldor's argues that there is a strong causal relationship between manufacturing output growth and the growth of GDP. He stated in one of his articles that manufacturing is the engine of growth whether it's financial, economic or technical. In recent decades, the role of manufacturing performance has increased throughout the world and its concepts and practices are adopted by higher developing companies. If manufacturing performance of any company at national or international level, is getting high than it will definitely show its impact on the economic growth of the company as per studies [10]. Manufacturing performance will only increase [11] if awareness, expertise, labor, finance, skills, human resources and other resources are incorporated in the manufacturing industries, to enhance its performance and production capability. This will, however, enlarge the economic growth, which will be beneficial for the economy of a certain country and for the manufacturing rate of a certain product. Researchers have claimed that manufacturing growth directly influence the GDP growth. Economic growth is essential because it empowers humans by giving them better standards of life [12-14]. It is also beneficial because it provides employment to the people and through economic growth country's revenue is generated. Performance measures is also an important fact related to manufacturing performance [15]. According to the past studies many industries focuses on practical measures and performance measures of the manufacturing performance. These measures are implemented in an organization by using interpret structure modeling. This modeling approach acts as a surface for integration of Theory of Constraints (TOC) [16] because it develops a strong relationship between manufacturing performances, production of products and operational performance. According to different studies this theory has been used as a common practice amongst multiple countries and their firms, who incorporated this theory to increase the manufacturing performance capacity by challenging the market competitors, to enhance the economic growth [17, 18]. The implication of this theory also helps the researcher to investigate the impact on the performance of manufacturing plants. Manufacturing flexibility also leads to the firm performance [19] of manufacturing growth. This factor will also affect the strategic flexibility to ensure the growth of economy of the manufacturing industries. So, this study has proposed the following hypothesis that;

H1; Manufacturing performance has a significant effect on the economic growth.

2.2 Sustainability Performance and Economic Growth.

Economic growth depends on the outcome, which is a real output, that is measured by Gross Domestic Product (GDP). Economic growth takes place only if the actual output increases with the time. Sustainability and economic growth [20] both are interlinked, because if the performance of industry is sustainable than, so will be the production, if the production is high than eventually economic growth will also be high [21]. Sustainable growth or sustainable performance acts as a trade game between speedy economic development today and growth rate in the future [22]. As per studies demand of products give rise to the consumer's spending which triggers the rate of economic growth. But however, the sustainability performance is achieved only if the [23] output growth rate is maintained wisely and which continues to rise with the time. According to the researchers the empirical analysis of the sustainability performance with the economic growth is conducted according to voluntary disclosure theory [24, 25]. This theory shows a confined relationship between sustainable performance and stable economic growth performance. Through voluntary theory we can study the role of sustainability in the economy [26]. Voluntary theory acts in such a way that it enables us to find out the sustainability of small and large sized enterprises, considering its function, practices and beneficial impact on economic growth. Sustainability and financial performance are evaluated in terms of economic development. So, this study has proposed the following hypothesis that is;

H2; Sustainability performance has a significant effect on performance of economic growth

2.3 Mediating Role of Supply Chain Performance relation with Manufacturing performance and with economic Growth.

Manufacturing performance has a great impact on the supply chain performance due to its reliability and dependability. Every manufacturing industry [27] goes through a supply chain performance to calculate the manufacturing power and manufacturing performance. Manufacturing exportation industry evaluates the impacts on supply chain performance through using the index of competitiveness which works in comparison to supply chain and supply chain performance [28, 29].

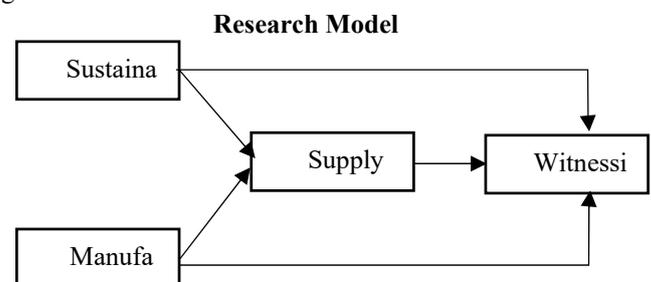
If the supply chain performance is flexible, than eventually [30] it will enhance the growth rate of economy. The effect of the supply chain performance is studied when it is applied on the business and operational performance [31-33]. In the business environment, supply chain tackles with the economic performance that

generates new competencies in the manufacturing process and enhances the supply chain performance in general. So, through this study the hypothesis that we predicted is;

H3; Supply chain performance has a significant mediating effect on manufacturing performance and economic growth.

Sustainability is an essential presentation element that has gained major grip on supply chain designing. Sustainability performance and supply chain performance both work side by side in order to define the dynamics of industries that are based on supply chain performances. This also effectively coordinates [34] with the global supply chain, only if the industry and economy is sustainable. Production efficiency and sustainability both has a strong influence on the supply chain performance, therefore increases the supply chain performance demand at the international level [35]. According to the past researches industries are composed of diverse players at every level of their supply chain with a lot of structural and performance differences but, only thing that can prevent these differences is the sustainability performance stabilizing the supply chain performance [36]. Sustainability affect the supply chain performance which further, enhances the economic growth at larger level of structural and financial performances of the industry. So, this study has proposed the following hypothesis;

H4; Supply chain performance has a significant mediating effect between sustainability performance and economic growth.



3. Research Methodology

3.1 Research Design:

In this section, the procedure of data collection, method, and data analysis has been elaborated along with the reasoning for selecting a particular approach, method and technique.

3.2 Research Philosophy:

Research philosophies are of two kinds i.e. Positivism and Interpretivism. In positivism philosophy the researcher basically relied on the actual findings of the study and the researcher do not interpret the results by himself. Where as in intepretivism the researcher will intervene in the results of the study. In this paper positivism philosophy has been chosen by the researcher

because the researcher did not intervene in the study findings.

3.3 Research Approach and Methods:

Research approaches encompass two types i.e. Deductive and Inductive. In deductive approach the already available theory will be tested whereas in inductive approach new theory is developed by the researcher. In this paper deductive approach is selected because researcher of this paper did not develop a new theory either tested the already existing theory. Research methods are of three forms i.e. qualitative, mixed and quantitative. Qualitative is linked with non-numeric data. On the other hand, qualitative is lined with numeric data and the mixed method include quantitative and qualitative methods. For this study quantitative method has been used as the results of this study are in numeric form. That is why this method is selected in this paper.

3.4 Time horizon:

Time horizon are of three types i.e. longitudinal, cross-sectional and time series. Time series basically used in the study of finance and relied on the time series data such as on secondary sources. The longitudinal study is performed more than one time and in this time horizon on different time periods data will be collected from the sample. The cross-sectional study is opposite to longitudinal as this study is performed in one shot. The researcher will perform this study only 1 time and will collect data for the analysis just 1 time. This study used cross-sectional time horizon because this study was conducted by the author of this paper just one time.

3.5 Sample size and Sampling technique:

In this paper convenient sampling technique has been used. There are other sampling techniques as well but for this study the researcher selected convenient sampling technique. This particular technique has been used by the researcher because the employees who were convenient

4.1 Reliability and suitability of the data

The reliability of the data was analyzed with the help of Cronbach alpha while suitability is tested by the KMO test by using SPSS,

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		
		.924
Bartlett's Test of Sphericity	Approx. Chi-Square	4459.865
	df	210
	Sig.	.000

More than .60 the value of KMO is considered as good fit for data suitability of data for major analysis, now the current value is .96 is more reliable and good fit.

and were willing to fill out the questionnaire form were included in the sample. Employees of the automobile industry were the respondents of this study. Total 284 respondents participated in the study.

3.6 Procedure of Data Collection:

A number of researchers use different procedure of data collection. Like some researchers conduct interviews while some scholars use survey-based questionnaire. Every researcher selects the data collection technique according the requirement of their study and on their personal choice. In this study data was collected through questionnaire. The researcher used face to face technique to collect the data from the respondents.

3.7 Data Analysis:

The entire analysis was performed with the help of SPSS and AMOS. With the help of SPSS and AMOS various tests has been run by the researcher. For example, Confirmatory Factor Analysis, Structure Equation Modeling, Descriptive Statistics, Multi Regression and Correlation. After the entire analysis the researcher of this paper interpreted the results of this paper.

4. Empirical Finding

From 267 respondent's data was collected, the target respondents of the study are the students of entrepreneur programs. In this study 110 male and 157 females were participating, mostly respondents are the younger age, 116 respondents have less than 30 years of age. There are 126 respondents are the students of the bachelor program, while 108 respondents studying a master's degree.

Table 2. Data Reliability

Variable	No of items	Cronbach alpha
MP	6	0.941
SP	7	0.923
SPC	4	0.912
WEG	4	0.723

The outputs of the Cronbach alpha test shows that every variable has value more than .70, while the minimum value of Cronbach alpha must b.70 is required, so our data has excellent reliability outcome.

4.2 Discriminant and convergent validity

Table 3. Discriminant and convergent validity

	CR	AVE	MSV	MP	SP	SPC	WEG
MP	0.943	0.732	0.491	0.856			
SP	0.946	0.716	0.381	0.594	0.846		
SPC	0.910	0.717	0.491	0.701	0.617	0.847	
WEG	0.727	0.415	0.010	0.086	0.100	0.064	0.644

Discriminant validation of the data is required to judge the multicollinearity problem of the data, while convergent validity is obtaining to analysis the internal consistency of the constructs. Discriminant validity is checked by seeing the CR and AVE value if the CR is greater than .70 and AVE more than .50 the validation is okay. The current finding shows that all contracts have more than, 70 CR value and value of AVE is also greater than .50 for all constructs. Other remaining parts of the table prove the convergent validity of each construct because all variable has more value for itself as compared to others.

4.3 Confirmatory Factor Analysis

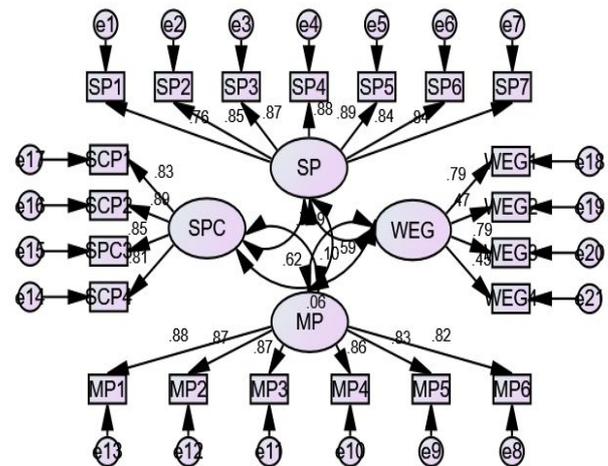
CFA is the test which provides the ultimate indicators to assess the fitness of the research model, the following are the outputs and threshold values of assessing the model fitness;

Table 4. CFA

Indicators	Threshold range	Current values
CMIN/DF	Less or equal 3	2.435
GFI	Equal or greater .80	.862
CFI	Equal or greater .90	.949
IFI	Equal or greater .90	.940
RMSEA	Less or equal .08	.073

The value for the current study shows that all indicators are accepted, and research model is a good fit. Moreover, following picture show the standardized loading of each item;

Figure 2. CFA



4.4 Structural Equation Modeling

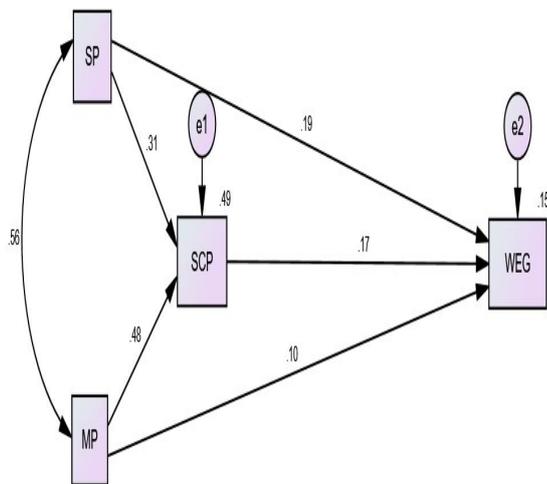
Following are the results of SEM which indicated the hypothetical effect of the construct;

Table 5. Structural Equation Modeling

Total effect	MP	SP	SCP
SCP	.478***	.312***	.000
WEG	.180**	.237***	.167**
Direct effect	MP	SP	SCP
SCP	.478**	.312***	.000
WEG	.100	.185**	.167**
Indirect effect	MP	SP	SCP
SCP	.000	.000	.000
WEG	.080*	.052*	.000

Structural equation modeling was applied on data in order to make decisions about study hypotheses. Finding shows that sustainability performance has positive and significant impact on economic growth whereas the direct impact of manufacturing performance is insignificant that's why hypothesis of this study is rejected. However, indirect effect of sustainability performance and manufacturing performance on witnessing economic growth is significant via supply chain performance. Supply chain performance significantly mediates between supply chain sustainability and economic growth by 5.2%. whereas it's mediating role between manufacturing performance and economic growth is 8%. The following figure present the screenshot of SEM when it was run in the AMOS, this figure shows the impact of each contract on another with standardized beta values. (please see figure 3);

Figure 3. SEM



5. Discussion and Conclusion

5.1 Discussion:

H1: The impact of manufacturing performance on economic growth is significant.

The paper findings suggest that the impact of manufacturing performance on economic growth is significant. H1 is rejected because P value of H1 is insignificant. Manufacturing performance has immaterial association with economic growth. H1 is in line with [37].

H2: The impact of sustainability on economic performance is significant.

In accordance with the findings the impact of sustainability on economic performance is significant. H2 is accepted as well. The P value of H2 is significant. The findings of this paper as well as complement the researches of [38, 39] as these researchers stated in their studies that sustainability will enhance and boost the economic growth.

H3: the mediating impact of supply chain performance in the relationship between manufacturing performance and economic growth is significant.

The results demonstrate that the mediating impact of supply chain performance in the relationship between manufacturing performance and economic growth is significant as P value is significant. The findings depict that supply chain performance contribute to manufacturing performance and economic growth. The results are supported by [40]. Hence H3 is also accepted.

H4: The mediating role of supply chain performance in the association between sustainability performance and economic growth is significant.

The findings demonstrate that mediating role of supply chain performance in the association between sustainability performance and economic growth is significant as the P value is significant. As supply chain performance plays an essential role in sustainable

activities and as well as in economic growth. Hence, H4 is as well as accepted.

5.2 Conclusion:

The objective of this paper was to study the impact of sustainability and manufacturing performance on economic growth with the mediating role of supply chain performance. The results suggest that sustainability and manufacturing performance when applied then it will enhance the economic growth that in turn enhance supply chain performance. Performing sustainable conduct can make an organization more eye-catching to various stakeholders such as to employees, consumers and suppliers and the better condition of the operation will enhance the economic growth and can enhance the efficiency of workers by lessening absenteeism and by raising inspiration. This paper used quantitative method. Data was gathered from the employees who were working in the automobile companies. The researcher developed four hypotheses in this study and first hypothesis is rejected while remaining three hypotheses are accepted and the results complement the results of past researchers.

5.3 Implications:

The current research provides the reasoning to organizations employing a strategy of being receptive to its outside stake holders, particularly in the developing nations such as Kazakhstan. The findings of the study suggest to the policy makers that integrating or replying to the stakeholder's concerns is actually a (win win) state which just not enhances the economic growth and the supply chain performance, however as well as puts an organization in a superior competitive place. Furthermore, the results offer a vital theoretical contribution through determining the role of mediation. The researcher just did not investigate the impact of sustainability on economic growth but as well as inspected the impact of manufacturing performance on economic growth through supply chain performance which is a major contribution in the literature.

5.4 Research Limitations and Future Indications:

The current research investigated the aspect of supply chain performance from the perspective of purchasers. The future research that involves the viewpoints of purchasers as well as of suppliers concerning the aspect of supply chain performance would be extremely valuable. In addition, the sample size of this study is comparatively very small, and it is just for one sector. For having more generalized and comprehensive results, scholars can use the same research design to a bigger sample and for various sectors. This study used quantitative approach thus a further research should use mixed method and should be

conducted in other state. Future studies can add other constructs to the present model.

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