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The Role of Manufacturing Exports in the Economic Development in Malaysia

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Abstract

The purpose of this paper is to assess the role of manufacturing exports in the growth of the Malaysian economy. The greater the growth rate of manufacturing production, the greater the overall growth rate of economic products. Regression and correlation methods were used to achieve the study objectives. Secondary data used to estimate empirical models in this study were obtained from the statistical publications of the World Bank and Asian Development Bank (ADB). The data covered the period of 1981-2015. The study findings used regression analysis indicated that there were positive and significant influences of industrial output and exports on economic growth in Malaysia. The findings used correlation analysis indicated that there was a positive and significant relationship between the level of the manufacturing sector and exports that contributes to economic growth in Malaysia. The impact of this study will be discussed in its managerial perspectives. Implications are the need of taking restructuring measures in the manufacturing sector to enhance productivity growth and exports. These factors were expected to give an important contribution to the growth of Gross Domestic Product (GDP) in Malaysia. The government has to identify the weaknesses that exist in the manufacturing sector and exports.

Keywords: Economic Growth, Industrial Output, Exports, Manufacturing Sector, Gross Domestic Product (GDP)

Introduction

Three decades ago, Malaysia maintained a resource-based economy, which Malaysia exported tin, coconut oil, and rubber to other major commodities (Goldthorpe, 2015). In Malaysia, the progress we have gained over the past half-century has slowly, and the direction of economic growth has become sluggish. Investments can be attributed to higher-value activities. Malaysia has succeeded in establishing a world-class manufacturing base and embracing large investments

from multinational firms. Malaysia makes consumer and industrial electronics products as a major export (Othman et al., 2018).

When the country achieved Independence in 1957, Malaysia was more dependent on commodity crops such as rubber and tin, which was the main contributor to the country's economy. During the period between 1957 and 1970, the economy grew by 6% per annum and the private sector was one of the contributors to economic growth. Private investment offers a high percentage. The world was flat; we have seen notable increases in international trade and foreign direct investment in recent years. Many countries are involved in global production sharing. Over the past three decades, the Malaysian economy has grown by an average of 6 3/4 percent per annum, with annual per capita GDP growth of 4 percent (Zin, 2017).

This performance puts Malaysia right in the rapidly growing economic group in Southeast Asia. However, the rapid development that Malaysia achieved in the past 90s has now slowly led to a slowdown in economic growth. Malaysia needs a radical change immediately in Malaysia's approach so that economic development will continue to be sustainable in the long run and enjoyed by every citizen as well as enable Malaysia to reach the high-income nation. Malaysia must be one of them in the new global leadership. In the struggle towards achieving Vision 2020, Malaysia now portrays achievements before Malaysia in the Tenth Malaysia Plan (10MP) while attempting to realize promises in the Eleventh Malaysia Plan (11MP). In the larger scheme of things, the New Economic Model (MEB) was established, and the main thrust of the establishment of the MEB was to boost Malaysia towards an inclusive and sustainable high-income economy (6th prime minister of Malaysia in Akhbar Utusan Malaysia, March 2010).

Malaysia is a moving country, from a nation dependent on agricultural and low commodities. Today Malaysia develops into an economy determined by exports, advanced information technology, skill knowledge-based, and capital-intensive industries (Ishak, 2019).

Literature Review

Economic Growth in Malaysia

Economic growth is explained and measured by its performance through the development of an economy. In the real state of economic growth, it means the fiscal expansion of the production of goods and services carried out in a nation (Yusoff et al., 2017). The Malaysian economy developed by 7.2% in 2010, through inspirational commitments in private economic activity and enhanced employment conditions. The services accounted for 6.8% (2009: 2.6%), which was the major contributor to development, accounting for 3.9% of overall GDP growth.

The manufacturing sector soared strongly and registered an increase of 11.4% (2009: -9.4%), due to the strong expansion at the starting of the prior year, in the domestic and export-oriented industries. Within the export-oriented industry, the development of electronic and electrical output groups is supported by the recovery of global IT corporate, IT investments, and higher customer expenditure on electronics, while the development of resource-related groups is in line with the improved environment. The world economy is estimated to grow at a slightly higher rate at 3.5% (2016: 3.2%) (Malaysia International Trade and Industry (MITI), 2016).

Therefore, Malaysia is expected to benefit from world economic development. Among the main trading partners of Malaysia, the only United States (US) is showing profitable economic growth. Where the demand for Malaysian exports of goods from the US helped the

development of the Malaysian economy. Malaysia's major exports to the US are electrical and electronic goods (Jomo, 2016).

Industry in Malaysia

Industrialization in Malaysia has evolved clearly when the Industrial Policy is established. The Industrial Policy was introduced in the 50's and 60's era, a method for diversifying the economy of the nation. At that time, it was more dependent on rubber and mug beans. The commodity price of rubber and tin was unstable (Awalludin et al., 2015).

Since the 70s, the government has diversified its economy. The government has also been focusing on more rapid industrial growth to meet job requirements and the New Economic Policy (NEP). The Government has concentrated on industrial-based exports and industries that require the labor force. Beginning in the 80s, the national industrial program is more focused on the promotion of heavy industries. The program is to strengthen the nation's industrial base and elicit people's skills in higher technology. In the mid-80s, the country experienced a recession and directly impacted existing industrial policies that remained weak structural characteristics. The National Industrial Policy Review (KDPM) was launched in 1983 with the intention of identifying weaknesses in structural characteristics and overcoming them (Lee & Chew-Ging, 2017).

The task of KDPM is to improve the existing national industrial policies. In 1986, the State created the country's first Industrial Master Plan (PIP). The purpose of the PIP is to formulate the objective of industrial development in general in identifying strategies for small potential sectors to proliferate. Besides, it has changed the Investment Incentive Act 1968 with the Investment Incentive Act 1986. This has led to the establishment of the Malaysian Industrial Development Authority (MIDA), Investment Center (COI), and this facilitates the process of obtaining tax incentives through MIDA. In the 90s and 21st this year, the sector is experiencing a range of rivals from other sectors is continuing its ability to contribute to the country's economy. Thus, the government once again enacted various acts, strategies, and plans in ensuring that this sector is not left behind in its role as contributing to the country's economic progress (Rasiah, 2017).

Developments in Exports

For the period 1951-1998, Malaysia's exports almost increased. This choice is believed by ADB's empirical work that there is a strong correlation between the rate of export growth and real GDP (ADB, 1999). The findings from the research are supported by arguments that export policies play an essential and strategic role in Malaysia's economic growth and development over the last two decades (Yusof, 2016).

During the crisis, the prices of all these items have fallen significantly. Since then, only the cost of electronics has recovered. With the increase in electronic prices, which was one of the factors contributing to the strong export growth rate in 1999? To revive economic growth, the government reoriented the policy and introduced a set of measures designed to promote private sector activity. More importantly, it is the change in Malaysia's export trade pattern that makes the task of promoting more complex export trade and development in the nineties (Abadi, 2017).

It should be recognized that the development of export promotion and will require a high degree of professionalism, in particular, the need for well-trained and experienced staff and specialized support institutions. The Export Promotion Council, recognizing the new challenge, has proposed the establishment of an autonomous institution called the Trade and Development Corporation of Malaysia (MTDC), which is supported by a fund called the Export Promotion Fund (EPF).

MTDC assists in developing future country export promotion strategies and action programs covering markets and products, creating a range of services based on exporters' needs, working with other institutions providing export promotion services, and assisting assistant agencies in channeling trade promotion assistance from international and nationality. Additionally, MTDC is also expected to be a source of reference for the government to track early warning signals of global change and trends affecting Malaysia's trade. With this support of other trade and export facilities, such as facilitating trade procedures and coordinating import-export forms and documents, Malaysia's future export performance becomes brighter (Moorthy & Subramaniam, 2017).

Theoretical Concept

Economic Growth

The theory of economic growth is a logical story of how the growth process takes effect. This theory explains what factors determine the increase in output per capita in the long run. Next, about how these factors interact with each other, so there is a growth process. One thing to know is that in economics, there is not only a growth theory but there are many growth theories. Until now, there has been no comprehensive and complete growth theory and is the only standard growth theory. Economists have different views on economic growth. According to economists, economic theory can be divided into two, namely - The initial economic growth theory and the theory of economic growth of neoclassical and classical (Greiner et al., 2015 & Zhang, 2017).

Historical flows expanded in Germany, and its emergence was a reaction to the classical views of the clans that states that economic growth could be accelerated with the industrial revolution. In contrast, the historical trend noted that economic growth was gradually being made (Nuralam, (2015).

The new classical economic growth theory also introduces a theory that explains the relationship between per capita income and the population. The theory is called an optimal population theory. The classic growth theory can be seen that if there is a population shortfall, the average production is higher than per capita income. Focus The neoclassical growth theory is from a different point of view that is in terms of supply. The theory was developed of factors of production, namely capital growth, population growth, and technological growth affect the growth of the national economy (Ros, 2001).

Industry

According to Hartwell (2017) generally, the development of the small industrial sector is usually preceded by hand-made industries developing into small sectors and ultimately being a significant industry. The story of the industry itself by its nature is mostly the development of an existing agricultural sector such as the palm oil industry which is a consequence of the

development of the oil palm plantation sector. According to Tobing et al (2019), the industry is an activity to transform raw materials into semi-finished or finished goods for sale.

It means industrial companies cannot expand themselves without competition from other companies. According to Stephens (2019), the industry is a collection of various firms that produce the same raw material, the same expenditure process, and the same results.

Exports

Lall (2000), had elaborated on the basic theory of exports, according to him a rapidly growing region when its export sector expanded. The concept of the basic export theory is (1) providing a reasonable explanation of external demand factors in regional growth, (2) is the adoption of a static-based economic model rather than the short term for long-term dynamic growth conditions, (3) income from export revenue will result in the development of population activity, capital and labor movement, external economic development and subsequent regional growth.

In his theory, he has introduced an export role in which the export sector plays a major part in the economic growth of a region that is direct. However, he noted that rapid inflows of population and capital to the area would result in rapid development and economic activity would be diversified and expanded until the export sector's interest would decrease. To further develop the region's development, the North noted the need for industrial processes to transform this standard export structure, especially from exports of agricultural products to manufactured goods.

A total of three hypotheses developed and tested based on the research questions are as follows:

- **H1:** Industrialization has a positive effect on Malaysia's economic growth.
- **H2:** Exports have a positive effect on Malaysia's economic growth.
- **H3:** There is a link between industry, exports, and economic growth in Malaysia.

The next figure 1 illustrates the research model.

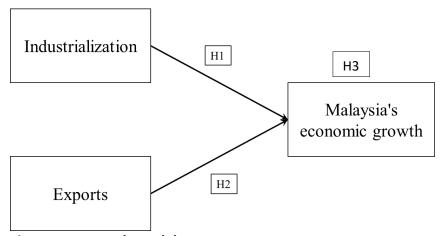


Figure 1: Research model

Methodology Data Collection

In this study, the data used are secondary data in the form of time series from 1981-2015 obtained from several sources. The major source of data is the International Financial Statistic Yearbook, 1990 by the International Monetary Fund (IMF), World Bank 1989-1990, the Asian Development Bank (ADB), and the Malaysian Economic Report. According to Andrews (2012) concludes the secondary data analysis (ASD) is "a research strategy which makes utilize of pre-existing quantitative data or pre-existing qualitative data for the intention of examining new questions or evaluating past researches. "Heaton, therefore, states that secondary data analysis is a research strategy that utilizes existing quantitative or qualitative data to discover new problems or examination the finding of past studies.

Table 1: Main indicators of the Malaysian economy 1981-2015

Year	Industry	Exports	GDP	
			(Industrial	
			Origin)	
1981	9155	27109	47600	
1982	9671	28108	50446	
1983	10429	32771	53584	
1984	11711	38647	57743	
1985	11263	38017	57093	
1986	12111	35319	57750	
1987	13734	45225	60863	
1988	16151	55260	66218	
1989	18444	67825	72297	
1990	21340	79646	119082	
1991	24307	94497	135123	
1992	26859	103657	150682	
1993	30324	121237	172194	
1994	34842	153921	195461	
1995	39790	184986	222473	
1996	44681	197026	253733	
1997	50270	220890	281795	
1998	45155	286563	283243	
1999	90345	321560	300764	
2000	109998	373270	356401	
2001	103434	334284	352579	
2002	112076	357430	383213	
2003	125332	397884	418769	
2004	144007	481253	747048	
2005	154657	533787	543578	
2006	168736	588966	596784	
2007	178353	604300	665340	

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2008	194652	663014	769949
2009	173230	552518	712857
2010	192493	638822	821434
2011	212618	697862	911733
2012	224730	644864	971252
2013	232659	637864	1018614
2014	253337	678865	1106466
2015	263717	685398	1157139

Source: Asian Development Bank Report

Item Development

All the items are modified from the past study. Table 2 appears the clarification of the operational definition of each construct, number of items, and source adoption.

Table 2: Construct operational definition and source adoption.

Construct	Operational definition	Number	Source
		of items	adaptation
Industry	The industry is an economic activity that converts raw materials, raw materials, half-baked goods, and or ready-to-use goods into higher value-added products including the panning activities of industrial development and industrial engineering.	4	(Wallace, (2017)
Exports	Exports are goods and services produced domestically and purchased by foreigners. Similarly, a statement made by Samuelson states that exports are economic activities that sell national products abroad.	4	(Miroudot & Ye (2017)
Economic growth	Economic growth is the process of changing the economic state of a country. Gross National Product Development (GNI) growth potential reflects output growth and per capita growth.	5	(Asiyan, (2013)

Analysis Tool

Economics Model

Here are the collected data to analyze this study.

In this study, the functional relationship is expressed as follows:

Y = f (EXP, IND,)(1)

Where;

Y is a Gross Domestic Product (GDP)

EXP is an export

IND is industrial

This original model is transformed in the form of logs. Data value is enormous. Do so to avoid counterfeiting of decisions. All the results presented in this chapter will refer to the

equation below. The term error (e) is normally distributed. Logarithmic forms can be written as follows:

Correlation Analysis

Collaboration is a linear relationship between two variables. Correlation analysis involves a calculation that determines the strength and direction of the relationship between two variables. The coefficient of correlation is $r (-1 \le r \le 1)$. One of the most commonly used correlation analyses in SPSS is the 'Pearson correlation. Pearson's coefficient describes the relationship between two variables that are either 'continuous' or 'scale' in SPSS. In the discussion of this study, Pearson correlation was used. The easiest way to study the bivariate relationship between industrial (manufacturing), export, and growth is to calculate and examine the Pearson correlation coefficient. Linearity and Homoskedasticity are tested by checking the 'scatter dots' of the related variables. The function of the Pearson correlation coefficient is to measure the relationship of variables and is based on the following formula:

$$rxy = \frac{N\sum xy - \sum x\sum y}{[(N\sum X2 - (\sum x)2)][N\sum y2 - (\sum y)2]}$$

By: Y = Dependent variable

X = Independent variable

If the correlation coefficient is equal to 1, there is a strong positive relationship between the two variables.

Regression Analysis

Regression analysis was used to see the relationship between dependent variables and independent variables. These relationships can be linear and non-linear. In this study, the focus is on linear relationships. The independent variables in this study are one, so a simple linear regression model is applied. The method of analysis in this study is the method of quantitative analysis. To determine the degree of influence of the independent variables on the independent variables, the Linear Regression model with the Ordinary Least Square method is used to measure the relationship of the variables. In general, the form of the regression equation is as follows:

$$Y = \alpha + \beta 1 X^{1} + \beta 2 X^{2} + e$$
(3)

The above formulas are then transformed into semi-logarithmic forms with the following equations:

$$LogY = \alpha + \beta 1 LogIND + \beta 2 LogEXP$$
(4)

Where;

Log Y = Economic Growth

Log IND = Industrial

Log EXP = Export

 α = Constant

 β 1, β 2, = Coefficient of regression

y = 1, 2, 3 (time-series data, 1981-2015)

e = interrupt variables

To produce a good regression equation, it is necessary first to test the assumption of regression analysis. Statistical testing is the procedure used to test the acceptance or subtraction of the hypothesis (H) from a sample. The decision to form H was made based on statistical test values obtained from existing data (Lang, (2016). The R² test is used to know what percentage of the model describes the variability of the dependent variable. The higher the R² percent (closer to 100%), the higher the model's ability to explain the dependent variable's behavior.

Result and Analysis Descriptive Statistic

The dependent and non-dependent variables were eliminated by the Consumer Price Index (CPI) of 2000, which was considered the base year (2000 = 100). Furthermore, all-time series variables have been transformed into logs. Data on all variables were obtained from the Asian Development Bank (ADB) publications. This study uses annual data from 1981-2015 of 35 years. The current value series for all data set is in the local currency (millions of dollars).

Unit Root Test

The first step in the budget is to test the variable properties that come with the unit root test (Unit Root Test). It is expected that without the variables of the integrated series of order I (2) or higher-order, the integration of the series will not be greater than I (1), as I (2) will, in this case, complicate the estimation procedure.

Table 3: Results of Unit Source Testing by the Augmented Dickey-Fuller (ADF) and Phillips Perrons (PP).

Variables	PP Test (with intercept)		ADF (Stationary)		
	First Difference	level	First Difference	level	
Malaysia					
Log EXP	-3.639	- 1.932	0.235	-0.411	
LogIND	-3.639	- 1.335	0.235	-0.811	
LogY	-3.639	- 0.687	0.235	-2.806	

Table 3 shows the results of the Unit Root Test using the ADF and Philips-Perrons method. Based on the results it was found that all the variables in the time series are non-stationary and

the hypothesis in the Unit Cause Test accepted at the 1% level of significance for any of the variables considered. Therefore, we can conclude that all variables are investigated in the form of the first difference (I). Consequently, we can conclude that all the variables under investigation are in the same order as I (1) and we can proceed to the next step of the analysis by conducting the data validity test.

Data Normalization Test

Table 4: Independent and dependent variables

Variables				Shapiro-Wilk		
	Standard					
	Min	Median	Mod	Deviation	Desperation	Significant
Log Y	12.38	12.55	11	1.08	-0.179	0.009
Log EXP	12.12	12.44	10 ^a	1.164	-0.406	0.001
Log IND	10.88	10.77	9 ^a	1.185	-0.155	0.003

To determine the validity of the variables utilized in this research, normality tests were performed for each independent and dependent variable. The test outcomes are as shown in table 3 above. It shows that all variables have the same mean, median, and mode. Two types of tests for normal can be run. For small data sets of 2000 elements, we used the Shapiro-Wilk test, otherwise, the Kolmogorov-Smirnov test was utilized. In this research, only 35 years of data were used, so the Shapiro-Wilk test was utilized.

From table 3 the P-value for Log Y is 0.009, for Log EXP is 0.001 and Log IND is 0.003. Thus, alternative hypotheses can be rejected and conclude that the data obtained from these normal distributions prove that they are within the normal distribution and are suitable for analysis in the following study. In Table 4 above it is established that all variables are within the standard deviation because the sum (total) cannot be considered abnormal because each item is normal. The standard deviation, as expressed by Altman & Bland (2005) is within the range of +2 to -2 for 'skewness'. This demonstrates that in the normalization test, all variables found that all variables were normal. This implies that the test performed must use parametric. The finding of the 'histogram' test of all the independent and dependent variables are as below:

(a) Normal distribution curve for Economic Growth (PERT) (Log Y)

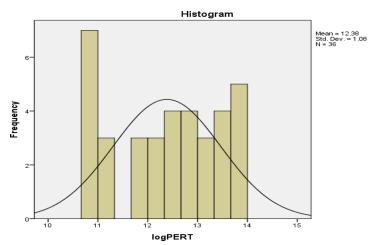


Figure 2: Normal distribution curve for Economic Growth (PERT) (Log Y)

(b) Industrial Normal Distribution Curves (INDUSTRY) (Log IND)

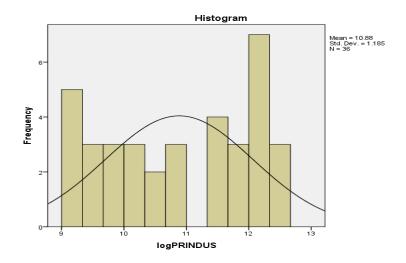


Figure 3: Industrial Normal Distribution Curves (INDUSTRY) (LogIND)

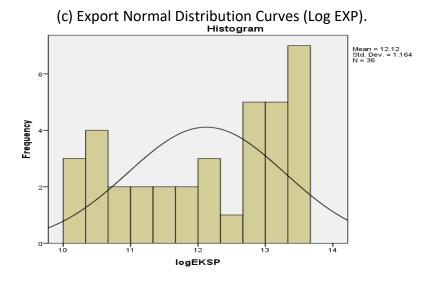


Figure 4: Export Normal Distribution Curves (LogEXP).

Pearson Correlation Analysis

Pearson Correlation Analysis is to find the relationship between industrial, export, and economic growth. These analyses were used to answer hypotheses 1 to 3, which suggested a positive relationship between the two variables tested. This correlation coefficient (r) must be in the range of +1 to -1. If the correlation coefficient is 0 then there is no relationship between the two variables. The larger the correlation coefficient value, the stronger the relationship between the two variables.

Correlation

The relationship between the independent variables Log EXP and Log IND and the dependent variable Log Y shows a linear relationship. The uniformity and variability in the data for one variable were approximately the same as all the data for the other variables indicating homoskedasticity. The bivariate correlation was implemented between industrial, export, and economic growth. The output is in the form of a table below.

Table 5: Results of Pearson correlation analysis

Variables	Log IND	LogEXP	LogY		
(n = 35)					
Log IND	1	0.989**	0.989**		
Log EXP	0.989**	1	0.988**		
LogY	0.989**	0.988**	1		

The results in Table 5 show that all the independent variables have a significant relationship with the dependent variables. This result also indicates a positive relationship, meaning that

any positive change in the dependent variable will result in a positive change in the dependent variable. LogIND and LogEXP have a strong relationship with LogY. This is evident from the previous study in the literature review that there is a significant relationship.

Discussion

The finding of this research has appeared that all relationships are significant. Next is an explanation for each variable's correlation to their hypothesis.

Implications and Conclusion Implications

Model analysis in this study shows that although export growth has a positive effect on GDP growth. Similarly, an increase in manufacturing exports is due to foreign investment, unless it is linked to "forward and backward linkage" with domestic economic relations. Here researchers want to suggest some aspects that policymaker in Malaysia. Maintain and develop external and faster policy-oriented policies through the process of economic liberalization. Consider reviewing free trade zones and foreign direct investment to encourage the types of investments that will provide more excellent links with the domestic economy and enhance technology transfer and skills. Encouraging export-oriented industries in the best sector can take advantage of Malaysia's comparative advantage. Negotiate and approve the licensing of foreign investment projects directly on the basis that these projects can establish a network for the domestic economy.

Conclusion

Industrial exports have served the country well, as it has shown to be an effective strategy in bringing about rapid economic changes. Empirical evidence shows that outstanding performance in the Malaysian economy, especially the ability to achieve high levels of growth, is mostly driven by the excellent performance of the manufacturing sector. Export manufacturing has shown excellent performance, namely export of manufactured goods now make up over 50 percent of the country's total exports, providing further evidence that the manufacturing sector is a significant stimulus and engine of the overall economy. The industrial sector, especially manufacturing, is expected to play a more significant role. The continued success of the industrial export strategy depends on how the country deals with some key issues.

Export Promotion Council, recognizing this new challenge and has set up an autonomous institution called the Trade and Malaysia Development Corporation (MTDC) supported by a fund called the Export Promotion Fund (EPF). The establishment of the corporation is necessary due to the development of export promotions and high levels of professionalism, the needs of trained and experienced staff, and specialized support institutions. The establishment of the MTDC assists in shaping the country's future by defining export promotion strategies and action programs covering markets and products, developing various services based on exporting needs, working with other institutions providing export promotion services, and trade promotion assistance channels from national agencies and international. The MTDC also serves as a resource for the government to detect changes in early warning signals internationally and trends affecting Malaysian trade. With this, the future of Malaysia's export performance is bright and will continue to grow.

From the results, it can be concluded that the industrial and export sectors are essential contributors to Malaysia's economic growth. Generally, through impersonal research, it is found that both the government and the private sector commit positively to expanding the export-based industrial sector. This existence can see this of several agencies such as MITI, MIDA, and others.

Theoretical and Contextual Contribution

This research contributes in terms of theoretical and contextual perception. This research specifically seeks to ensure the practice of industrialization, exports, and the relationship of Malaysian economic growth. This research is expected to expand knowledge and theory on how the two main elements: industrialization and exports, lead to Malaysia's economic growth. Indeed, current research demonstrates the significance of Malaysia's economic development in terms of the industrial sector and exports. This investigation contributes to a remarkable understanding of the variables associated with the recognition of recent advances. The research, in particular, describes the Economics model. Furthermore, the incorporation of complexity into the model contributes to the general understanding that complexity is an important determinant of Malaysia's economic development.

The industrial sector is the backbone of the country's economy. The growth of the industry is highly dependent on productivity growth. The challenge of global competition is that the industry needs to achieve excellent performance to move towards a technology-oriented industry with high value-added in the future. The results obtained in this study show that export and industrial importance to economic growth. Indirectly it implies that steps need to be taken to improve the structure of the existing industries to increase productivity, increase exports and contribute to economic growth. This research will make significant contributions to Malaysia's economic development. Malaysia's vision is to become a developed country by 2030.

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