The Effect of Export, Import, and Investment on the Manufacturing Industry Output in Indonesia

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Abstract

One of the benefits of Indonesia establishing unions with ASEAN countries was reinforcing the competitiveness of national manufacturing industries since the ASEAN was still the primary destination for Indonesia's exports. The study aimed to analyze the effect of exports, imports, domestic investment, and foreign investment on the output of the manufacturing industry in Indonesia. The research sample was the economic condition in Indonesia in the last five years, during the 2016-2020 period. The analysis technique used was multiple linear regression. The results showed that only imports have a positive and significant effect on the output of the manufacturing industry. Domestic and foreign investment and exports did not significantly affect the manufacturing industry's outcome. The imports enforce the manufacturing industry output, but it has an insignificant contribution to the resilience of the national industry. Reducing imports prevented a trade balance deficit, especially in trade cooperation with China and Singapore.

Keywords: export, import, investment, manufacturing industry output.

INTRODUCTION

Indonesia has experienced a declining economic condition in the last five years. By the second quarter of 2020, Indonesia has experienced minus economic growth. The manufacturing industry acts as a developmental benchmark to enforce economic growth, expected to be a leading sector for the others. The manufacturing industry can produce substantial spillover effects on other industries through its advantages, such as capital accumulation, scale economy,

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and technological progress (Yang, Sun, Zhang, & Wang, 2021). Its contributions to the national economy are far-reaching and broad, including the gross domestic product (GDP), exports, high-paying jobs, meaningful return on investment, technology, innovation, science, and engineering (Wang, 2018). For this reason, the manufacturing system can be seen as a combination of humans, machinery, and equipment bounded by a common material and information flow (Caggiano, 2019).

Based on industrial outputs, Indonesia successfully improves its manufacturing industrial development rate annually. The Indonesian manufacturing sectors could produce an increasing number of products from 2016 until 2019. But it must experience a decline in 2020 due to the effects of the Covid-19 pandemic. The manufacturing sector still contributed the highest percentage of GDP (19.88%) in 2019. However, there seems to be reducing performance from time to time. The declining GDP provided by the Manufacturing sector in the last five years is the problem in this research.

A decrease in the value added to the industry accompanied the increase in the manufacturing industry output caused by increasing imports thus though the industrial product increased, added value decreased because the import activities were too high, causing the trade balance to experience a higher deficit. Even so, integrating into the global economy, import activities have become significant for firms with reduced trade restrictions, improved international trade infrastructure, and global integration (Wang & Salas, 2020). Imports can also affect the deficit of a country (Mikulic & Lovrincevic, 2018). Hence, the degree of import dependency and its evolution over time are important issues for developing countries, especially those that run current account deficits (Erduman, Eren, & Gul, 2020).

Another problem is the effect of the Covid-2019 pandemic that has hit the nation since the second quarter of 2020. At this time, the GDP in 2020 has decreased by -2.07 percent. The three sectors experienced the most significant decline, namely transportation (-15.04 percent), accommodation (-10.22 percent), and corporate services (-5.44 percent). The manufacturing industry also contracted its GDP contribution by -2.93 percent.

The import and export performance can also influence the rapid development of the manufacturing industry. Import means purchasing goods and services from foreign countries through specific cooperation agreements between two or more parties, while export is defined as other countries purchasing domestic products. In addition to exports and imports, investment can also affect the manufacturing industries' both private and government investment

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development. The investment was the engine of economic growth (Wang, Xu, Qin, & Skare, 2021). On the other hand, the impact of investments that focus on real-world changes in terms of solving social challenges (Busch, et al., 2021). A private investment means the investment made by the national private sector, namely Domestic Direct Investment (DDI) or the investment made by foreign private one or Foreign Direct Investment (FDI). FDI is an investment whose capital sources come from foreign countries, while DDI is from the domestic market. Foreign direct investment is an investment made by an entity (usually a company) incorporated in a home country in the business interests of a host country, in the form of either establishing new business operations or acquiring a controlling interest in existing business assets (Hintosova, 2021).

This research aims to: (1) analyze the effect of export on the manufacturing industry output; (2) analyze the effect of imports on the manufacturing industry output; (3) analyze the effect of domestic investment on the manufacturing industry output, and; (4) analyze the effect of foreign investment on the manufacturing industry output.

1. LITERATURE REVIEW

2.1 Investment

Generally, investment means any economic activity aims to earn maximum profits in the future. It can be divided into financial and non-financial. Sukirno (2013:121) explained the term as expenditure to buy capital goods and production tools to increase the ability to produce goods and services. Investment is purchasing activities to increase production capability in economic theory.

According to Law number 25 of 2007, the investment includes all types of investment activities done by domestic and foreign investments to conduct business within the territory of the Republic of Indonesia and is divided into two parts, Domestic Direct Investment (DDI) and Foreign Direct Investment (FDI). DDI aims to conduct businesses in the territory of the Republic of Indonesia carried out by domestic investors using domestic capital. Meanwhile, FDI is to do business in the Republic of Indonesia carried out by foreign investors, whether using foreign investment entirely or partially supported by the domestic one.

2.2 Export and Import

Export means selling goods and services that are produced domestically to other countries. If a country opens international trade and becomes an exporter of a good, it will earn profits, but the domestic consumers will experience losses. Import means purchasing goods from other countries to meet domestic needs. No

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country can be completely independent, and each country has its typical characteristics in their natural resources, climate, geography, demography, and economic and social structure. The differences lead to differences in the commodities produced, the required composition of the required costs, and the quality and quantity of the products.

The opening of international trade will benefit the related entirely because the profits will be higher than the losses (Mankiw, 2006). Export-import activities had been started when many economists formulated the concept of free trade. It would encourage consumption and profits. Adam Smith formulated the first idea that was later developed by David Ricardo. As stated by David Ricardo, international trade was mainly driven by differences in comparative advantages in producing a product. In the theory of comparative advantage, although one country has an absolute advantage over two types of goods or commodities, there will be still international trade. It may happen if the country specializes in goods or services with lower opportunity costs than others.

Import activities are crucial for a country to meet its people's needs, while they can also harm the development of domestic industries. It is necessary to establish specific import rules to protect domestic products to prevent this problem, such as the imposition of import duties, import quotas, foreign exchange control, import substitution, and devaluation.

2.3 Manufacturing Industry

Central Bureau of Statistics/BPS (2021) shows that the manufacturing sector is grouped as the processing industry, whose activities include changing basic materials mechanically, chemically, or by hand to become finished/semi-finished goods. In other words, this sector tries to change less-valuable goods into higher-priced ones and is closer to the end-user. The manufacturing activities consist of industrial services and assembly works. Acemoglu (2012) stated that the manufacturing industry reflects the entrepreneurship spirit in a country. Meanwhile, entrepreneurship is often viewed as a key input in economic growth. The entrepreneurial spirit is modelled as risk tolerance and develops non-monotonously in the development process. There is a positive selection that supports the entrepreneurial spirit in the early stages of development because risk tolerance means being more productive, which in turn contributes to knowledge and growth processes.

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2.4 Research Model

The research model described the logic flow construct in systematically examining empirical beliefs. The research model is presented in Figure 1.

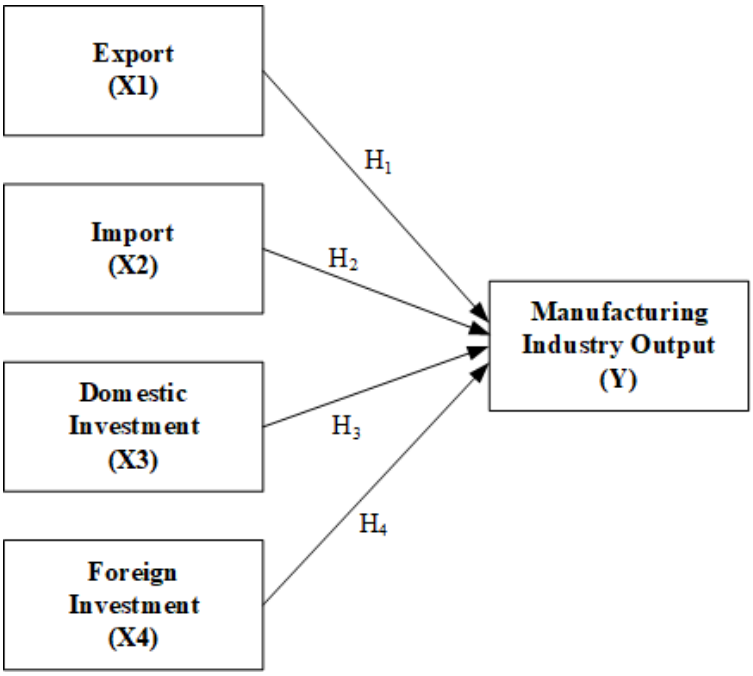

Figure 1 Research model

2. METHOD

It is explanatory research with the type of causal research. The research sample is the economic condition in Indonesia in the last five years, during the 2016-2020 period, with monthly units of analysis starting from January 2016 to December 2020, so there will be 60 units.

The data are collected using the documentation technique by collecting data from documents or stored records such as transcripts, books, newspapers, etcetera. The documentation starts with recording the data on economic and trade reports published by BPS from 2016 to 2020. The data on economic and trade reports were published on official state-owned websites. They were www.bps.go.id, www.bi.go.id, www.bkpm.go.id, and www.beacukai.go.id

The research hypotheses will be examined using an inferential statistical approach. The hypotheses' test used the Multiple Regression Analysis, supported by IBM-SPSS Statistic software.

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3. RESULT AND DISCUSSION

4.1 Descriptive Statistics

The DDI value performs better from 2016 to 2020, increasing by 91.2 percent. This shows the extraordinary role of DDI as an investment protector, which still increases despite the global economic recession in 2018 and the Covid-19 pandemic in 2020. A similar thing also happens in the FDI as an increase of 8.4 percent. The pattern is slightly different from DDI after 2018 when FDI could not maintain its performance due to the impact of the global economic recession.

The export activities during 2016-2020 show good performance. The export value was approximately 1.941.15 trillion n 2016, increasing to Rp. 2.389.27 trillion in 2020. There was an increase of 23.1 percent within five years. The highest export values were in 2017 and 2018, with export values of Rp 2,271.11 trillion and Rp 2,577.84 trillion, respectively. However, in the following two years, the export values again experienced a slight decline.

The import activities perform unstable conditions from 2016 to 2020. In 2016, the import values reached 1,814.08 trillion, increasing to Rp. 2.072.25 trillion in 2020. There was an increase of 14.2 percent within five years. The highest increase in import value occurred in 2018, with an import value of Rp.2,704.83 trillion. The extreme decline happened in 2020, with the value of Rp. 2,072.25 trillion, or a decrease of 15 percent.

The manufacturing industry had a good time from 2016 to 2019. The manufacturing industry output reached 5,216.11 trillion in 2016, increasing to Rp. 6.864.90 trillion in 2019. There was an increase of 31.6 percent within four years. In 2020, the manufacturing industry did not run very well in terms of industrial output, decreasing to Rp. 5.068.35 trillion, or a decrease of 26.2 percent.

4.2 Linear Regression Analysis

Linear regression analysis is one of the parametric statistical techniques, whose parameter estimation results are BLUE (Best Linear Unbiased Estimator) if it meets the assumptions. The linear regression analysis assumptions are homoscedasticity, normally distributed, non-multicollinearity, and non-autocorrelation.

Detection of heteroskedasticity is carried out with the Glejser test, that is, by regressing a free variable with a residual absolute value. If the significance value of the free variable is more than 5 percent, then it is concluded that heteroskedasticity does not occur. The results of the Glejser test showed that the

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significance value for each free variable was more than 5%, so the regression model is free of heteroskedasticity.

Normality detection is performed with the Normal P-P Plot Graph by looking at the distribution of data (points) on the diagonal axis of the normal graph. The basis for decision-making is that if the data spread around the diagonal line and follows the direction of the diagonal line, then the regression model meets the assumption of normality. P-P Normal Plot The figure in the appendix shows that the data plot spreads around a straight diagonal line and follows the direction of the diagonal line, which indicates that the residual regression model is normally distributed or the assumption of normality is met. The normality test was also corroborated by the Kolmogorov-Smirnov test resulted in a significance value of 0.200 (greater than 5%), so the residual in the regression model was normally distributed.

Multicollinearity shows a perfect linear relationship between free variables in the regression model. A good regression model does not show symptoms of multicollinearity. The presence or absence of multicollinearity detection is by looking at the variance inflation factor (VIF) value of each independent variable against the dependent variable. If the VIF value is not more than ten and the tolerance value is not less than 0.10, then the model can be said to be free from multicollinearity. The results of the multicollinearity test show that the VIF values for each free variable are 4.79, 3.66, 1.42, and 1.28 (less than 10). So the regression model is also free of multicollinearity.

The autocorrelation test is used to determine whether there is a correlation between residual in one observation and other observations in the regression model. A regression model is declared free of autocorrelation if Durbin Watson's values are within dU to 4-dU (1.73 to 2.27). The result of the calculation of the Durbin Watson value is 1.832. This value is in the range of 1.73 to 2.27, so in the regression model, no autocorrelation occurs.

4.3 **Hypotheses Testing**

The next step is to perform a linear regression analysis to determine the significance of the effect of exports, imports, domestic investment, and foreign investment on the output of the manufacturing industry, the results of which are presented in Table 1.

Table 1. Results of Multiple Regression Analysis

Independent Variables	B	SE	t	Sig.	Decision

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Export Value	-0.985	0.781	-1.261	0.213$^{n.s}$	H_1 rejected
Import Value	2.382	0.488	4.879	0.000*	H_2 accepted
Domestic Direct Investment	-0.282	1.662	-0.170	0.866$^{n.s}$	H_3 rejected
Foreign Direct Investment	-3.942	6.036	-0.653	0.516$^{n.s}$	H_4 rejected
Adjusted R-squared = 0.430 F statistic = 12.137 Sig. F = 0.000 * : significant at the 0.05 level n.s. : not significant at the 0.05 level					

The results of hypotheses testing using multiple regression analysis show that:

(1) Export performance does not significantly affect the manufacturing industry output. Lee (2011) showed that exports could influence manufacturing industry output only in developed countries and some developing countries that export technological goods. Meanwhile, in most developing and underdeveloped countries, the exports will not majorly impact the manufacturing industry output because they commonly sell raw materials.

(2) Import performance positively and significantly influences the manufacturing industry output. The result is similar to Islam, Hye, and Shahbaz (2012) and Sokolov-Mladenović, et al. (2016) that imports are significant for sustainable industries in developing countries.

(3) Domestic direct investment and foreign direct investment do not significantly affect the manufacturing industry output. This is not consistent with Doytch and Uctum (2011) that stated that the growth effect of FDI on the manufacturing industry will stimulate manufacturing production activities. Sunde (2017) also explained that foreign direct investment would enforce the manufacturing industry.

From the research findings, improving the manufacturing industry was based on the following implications:

a. The current export performance still does not significantly influence the manufacturing industry output.

b. Improving the manufacturing industry output by improving the import

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performance. Preferable import performance will increase production volume because 74.6 percent of imported goods are raw materials and auxiliary goods. The increased production volume will increase manufacturing outputs. However, its contribution to GDP will not be as robust as before. Minimize the import activities as best as possible to prevent a trade deficit and achieve a surplus trade balance. A surplus trade balance will strengthen the resilience of the national manufacturing industry.

c. The manufacturing industry output can not be increased by increasing the value of the private investment, both domestic and foreign investment, yet domestic investment must be a priority and well-maintained. It should be higher and firmer than foreign investment. A solid domestic investment is significant to achieving investment independence in the future.

4. SUMMARY

5.1 Conclusions

Based on the research objectives, findings, and discussions described in the previous sections, it can be concluded that:

1. Export performance does not significantly affect the manufacturing industry's output. The better export performance will not lead to better manufacturing industry output.
2. Import performance positively and significantly influences the manufacturing industry's output. Better import performance will increase the output of the manufacturing industry.
3. Domestic investment does not significantly affect the manufacturing industry's output.
4. Foreign investment does not significantly affect the manufacturing industry's output.

5.2 Suggestions

Based on the conclusions above, the researchers provide some following suggestions to the policymakers:

1. The government through BKPM (investment board) must always support and encourage national investment through FDI and DDI.
2. Current export activities still do not strongly influence the manufacturing industry's output because most of Indonesia's export commodities are natural resources. In the future, the exports of raw materials should be reduced step by step so domestic industries can have more added value.
3. The import performance enforces the manufacturing industry output, but it has

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an insignificant contribution to the added value. Indonesia imports large raw materials for domestic demands. Raw materials must be from domestic industries to prevent a deficit in the trade balance, especially for establishing trade cooperation with China and Singapore.

5.3 Limitations of Research

The research was unable to explain the influence of the variables in a vivid manner. The limitation of this research is that the level of goodness of the regression model is still weak. It is necessary to conduct continuous research by adding fiscal policy in customs as a moderator variable because these policies can strengthen or weaken exports and imports to the output of the national manufacturing industry.

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