Export Model of Four or More Wheeled Vehicles in Indonesia

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Abstract

In the case of Indonesia, manufacturers from abroad have collaborated with Indonesia by building their own factories so that this is expected to help economic development in the country , but this doesn't happen in 2020. In the contrary, since the Pandemic of Covid-19, the automotive industry, one of which is four-wheeled vehicles or cars, experienced a significant decline in exports. Therefore, the purpose of this research is to find out and analyze how the ratio of exports of four or more wheeled vehicles from Indonesia to the main destination countries, especially in the Southeast Asia region and to discover and analyze the effect of the exchange rate, population and gross domestic product on the Indonesian exports of four or more wheeled vehicles to main destination countries, especially in the Southeast Asian region. The methods used in this study are descriptive analysis using export ratio and quantitative analysis using panel data regression. The results showed that based on the ratio of exports of four or more wheeled vehicles from Indonesia to the four main destination countries in Southeast Asia, the largest was the Philippines with an average of 0.25, followed by Thailand with an average of 0.11 followed by Vietnam with an average of 0.25. an average of 0.049 and finally Malaysia, which is an average of 0.041. The regression results show that the population and exchange rate variables have a significant positive effect while GDP has no significant effect on Indonesia's exports of four or more wheeled vehicles to the four main destination countries in Southeast Asia.

Key words : Export, exchange rate, economic growth, population.

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INTRODUCTION

Indonesia is a country that has the largest population or population in the world (Asian Development Bank, 2020), in 2019 the population of Indonesia is 268.1 million people with a large population, so Indonesia is a country that has a fairly high consumption. With the increasing development of infrastructure such as roads and inter-island land connectivity which has developed rapidly, the need for transportation of the population is also increasing. Indonesia's need for transportation equipment cannot be met by domestic producers, so to meet this need, Indonesia imports motorized vehicles, especially non-motorcycles, including cars and similar vehicles.

However, many automotive manufacturers from abroad have collaborated with Indonesia by building their own factories so that this is expected to help economic development in the country with the emergence of car factories or four-wheeled vehicles or more so that production can increase so that Indonesia can carry out car exports to other countries.

Since the Covid-19 outbreak that hit the world, including Indonesia, which caused a weakening of economic activity, including trade performance, this did not happen to the domestic market, but also to foreign markets. The automotive industry, one of which is four-wheeled vehicles or cars, also experienced a significant decline in exports compared to 2019, based on data from the Association of Indonesian Motor Vehicle Industries (GAIKINDO), the national car exports of intact vehicles were only 206,685 units for the January-November 2020 period. a decrease of 32.6%, namely in the 2019 period car exports reached 306,901 units.

In Indonesia, automotive manufacturers that export to other countries include Toyota, Hyundai, Mitsubishi, Daihatsu, Suzuki, Isuzu and Wuling. And of the 6 main destination countries, most of Indonesia's exports are mostly in the Southeast Asian region, so that Southeast Asia is considered as the main destination country for exports of four or more wheeled vehicles, with the highest exports being to the Philippines. Among these car manufacturers, Toyota managed to freeze sales of 78,912 units. when compared to the previous year, there was a 29% decrease because previously in 2019 Toyota managed to export 112,538 units.

Apart from the Philippines, there are still several main destination countries for car exports from Indonesia which are ranked in the top six as the main export destination countries and are located in the Southeast Asian region, namely Thailand, Malaysia, and Vietnam, these four countries are the main destination countries in the Southeast Asian region for the export of cars or other four-wheeled vehicles or more.

In classical theory, international trade is of course based on international trade theories based on literature studies in international economics books (Haryadi, 2007; Nopirin, 2003) in international trade theories, including starting from classical period. Absolute benefit or absolute advantage, Smith's rationale encourages countries to specialize in producing goods that have absolute advantages. This theory is based more on the magnitude of the real variable, not monetary in the sense that this theory is something that is measured by the amount of labor allocated in producing goods. According to Smith, trade will arise because each country has a different absolute advantage, the assumption is only two countries and two commodities and each country has an absolute advantage and the production factor used is only labor, absolute advantage or absolute advantage is obtained when the country is efficient lower production costs in producing goods which is reflected in a more efficient

allocation of labor. However, this theory fails if in the case of only one country that has an absolute advantage while the other does not, this failure is tried to be perfected by other classical economic figures namely JSMill and David Ricardo with the theory of comparative advantage and comparative advantage, in this theory it prioritizes a comparison of the efficiency or productivity of each item in each country so that what is sought is not an absolute advantage but a comparison of the advantages of each item in each country which is reflected in the efficiency of at least the allocation of labor or productivity.

The classical theory has many weaknesses, one of which is that it only considers labor as the only factor of production, so that it fails to show the difference in factors of production between countries. In modern theory, other production factors appear, namely capital or capital production factors. One of the famous modern theories is Hecksher and Ohlin's theory or the HO model. In this theory, a country that has many or abundant production factors will produce goods according to the available production factors. On the other hand, if the factor of production of the goods is scarce then it will not be produced, it is better to buy it from other countries that do have these advantages.

Export is the activity of selling goods or services from within the country to abroad, the concept of export is widely found in international economics books (Haryadi, 2007; Nopirin, 2003), international trade theories have explained the emergence of international trade because each country has its own advantages. So that it has a specialization in selling goods and services, the strength of natural and human resources that are able to create a production surplus so that domestic needs are met, then the country will then sell the excess production abroad. The increase in a country's exports depends on the market situation or the economic condition of the export destination country because it affects the demand for goods and services. Very decisive. Sezgin (2020) in his article analyzing Turkish exports during the Covid-19 pandemic "An Analysis on Turkish Exports During Covid-19 Pandemic: Electronic Turkish Studies" found that as a result of the outbreak, exports of automotive and textiles, which can be considered as drivers of the Turkish economy, fell respectively by 53% and 45%, respectively, while exports of fresh fruits and vegetables increased by 14%. Investigations of the concentration of trade and the intensity of export technology revealed that the share of high and medium-high-tech products across the export basket declined and Turkey's dependence in particular on automotive and textile exports plummeted during the Covid-19 crisis. Siddique & Singh (2021) in their article I dentifying markets and developing export promotion strategy for woollen textiles from India. shows that the driving countries for India's wool textile exports are Australia, Bahrain, Brazil, Saudi Arabia, Senegal, South Africa, Senegal, and the United Arab Emirates. It found that wool textile export projections from 2018-2022 were constant for Australia, Bahrain, Brazil, and Senegal, but increased at an increasing rate for Saudi Arabia, Sri Lanka, South Africa, and the United Arab Emirates. Thus, this suggests that India needs to gain a competitive advantage to diversify and grow in the markets identified for export and subsequently enter new markets from other countries and increase its level of exports in the future. Kuswantoro & Rosianawati (2016) with their research found that in the short term the Rupiah exchange rate and GDP have a positive and significant effect while in the long term all three have a significant positive effect on

Indonesia's non-oil and gas imports. Darman (2017) found that the export variable had a significant positive effect on GDP while imports and the consumer price index had a significant negative effect on GDP. Putu et al. (2018) in the Journal of Agribusiness and Rural Development Research UMY Yogyakarta, with the research title "The Influence of Macroeconomic Variables on the Distribution of Imports and Exports with the Letter of Credit Payment" method found results with macroeconomic variables namely exchange rate, inflation and bank Indonesia, all of these macro variables have a significant effect on LC exports while only inflation has no effect on LC imports. Fatmawati (2015) with her research tries to analyze the effect of foreign trade and debt on GDP, the result is that exports have a significant positive effect on GDP, imports have a significant negative effect on GDP, foreign debt has no significant effect (Yusuf & Widyastutuik, 2007) analyzed the effect of export and import of food commodities and trade liberalization on Indonesia's trade balance. The results showed that all of these variables had a significant negative effect on the trade balance. Therefore, based on the background, this study's purpose are to discover and analyze how the ratio of exports of four or more wheeled vehicles from Indonesia to the main destination countries, especially in the Southeast Asia region and to find out and analyze the effect of the exchange rate, population and gross domestic product on the Indonesian exports of four or more wheeled vehicles to main destination countries, especially in the Southeast Asian region.

METHOD

To answer the problems in this study, we used 2 methods, namely descriptive Analysis and Quantitative Analysis. To answer the first problem, analyzing the comparison of imports of motorized vehicles from each country to the total imports of motorized vehicles as a whole, the following formula is used:

$$X_{ij} = X_i/X_j \times 100\% \tag{1}$$

Where:

X_{ij} = Comparison of exports of four or more wheeled vehicles from the i main destination country to the total exports of four or more wheeled vehicles to all the main destination countries j.

X_i = Export value of four or more wheeled vehicles to the main destination country to i.

X_j = Total export value of four or more wheeled vehicles as a whole.

i = The main export destination country for four or more wheeled vehicles in Southeast Asia (Philippines, Thailand, Malaysia, Vietnam).

To answer the second problem, namely to analyze the effect of exchange rates, gross domestic product and population on exports of four or more wheeled vehicles to these four countries, multiple regression analysis of panel data is used with the following equation:

$$X_{it} = \beta_{oit} + \beta_1 K_{it} + \beta_2 PDB_{it} + \beta_3 P_{it} + \varepsilon_{it} \tag{2}$$

Where:

X = Export value of four or more wheeled vehicles.

K = Exchange rate.

PDB = Gross domestic product.

JP = Total population.

β_o = Constant.

$\beta_{1,2,3}$ = Coefficient of independent variable.

i = Cross section 4 ASEAN countries.

t = Time series 2012-2019.

ε = Error term.

RESULTS AND DISCUSSION

The ratio of exports of four or more wheeled vehicles from Indonesia to the four main destination Southeast Asian countries. The First country is Philippine. To obsrve and analyze the development of Indonesia's exports

to the Philippines can be seen in the following table:

Table 1. Export of Indonesian Four-Wheeled Vehicles to Philippines

Year	Export Value (Million USD)	Ratio
2012	362.4	0.142
2013	379.6	0.151
2014	573.2	0.196
2015	526.4	0.195
2016	1130.8	0.390
2017	1277.8	0.362
2018	1192.5	0.320
2019	1203.7	0.279
Average	**830.8**	**0.254**

Source: BPS (Data Processed)

Based on the data in Table 1. The above shows that the export value of Indonesian four-wheeled vehicles to the main destination countries in Southeast Asia begins with the Philippines, where the data tends to show an increase from year to year with an average export value of 830.8 million US Dollars, when viewed from the ratio to The total export value also shows a continuous increase from year to year with the average ratio during the 2012 to 2019 period being 0.254, meaning that 25.4% of Indonesia's export value of four or more wheels comes from the Philippines.

Table 2. Export of Indonesian Four-Wheeled Vehicles to Thailand

Year	Export Value (Million USD)	Ratio
2012	475.5	0.186
2013	415.6	0.166
2014	385.2	0.131
2015	191.3	0.070
2016	252.3	0.087
2017	265.7	0.075
2018	307.7	0.082
2019	533.6	0.124
Average	**353.36**	**0.115**

Source: BPS (Data Processed)

Based on the data in Table 2. The above shows that the export value of Indonesian four-wheeled vehicles to the next main destination country in Southeast Asia is Thailand, where the data tends to fluctuate from year to year with an average export value of 353.36 million United States Dollars, when viewed from the ratio to the total export value also shows a continuous fluctuation from year to year with an average ratio during the period 2012 to 2019 of 0.115, meaning that 11.5% of Indonesia's export value of four-wheeled vehicles or more comes from Thailand.

Table 3. Export of Indonesian Four-Wheeled Vehicles to Vietnam

Year	Export Value (Million USD)	Ratio
2012	17.8	0.006
2013	32.8	0.013
2014	31.8	0.010
2015	50.6	0.018
2016	102.1	0.035
2017	297	0.084
2018	336.4	0.090
2019	587.3	0.136
Average	**181.97**	**0.049**

Source: BPS (Data Processed)

Based on the data in Table 3. The above shows that the export value of Indonesian four-wheeled vehicles to the next main destination country in Southeast Asia is Vietnam, whose data tends to fluctuate from year to year with an average export value of 181.97 million United States Dollars, when viewed from the ratio to the total export value also shows a continuous fluctuation from year to year with an average ratio during the period 2012 to 2019 of 0.049, meaning that 4.9% of the export value of Indonesian four-wheeled vehicles or more comes from Vietnam.

Table 4. Export of Indonesia Four-Wheeled Vehicles to Malaysia

Year	Export Value (Million USD)	Ratio
2012	182.9	0.071
2013	111.6	0.044
2014	83.7	0.028
2015	74	0.027
2016	121.7	0.042
2017	171.6	0.048
2018	151.9	0.040
2019	110.6	0.025
Average	**126**	**0.041**

Source: BPS (Data Processed)

Based on the data in Table 4. The above shows that the export value of Indonesian four-wheeled vehicles to the next main destination country in Southeast Asia is Malaysia, whose data tends to fluctuate from year to year with an average export value of 126 million US Dollars, when viewed from the ratio to the total value. Exports also showed continued fluctuations from year to year with an average ratio during the period 2012 to 2019 of 0.041, meaning that 4.1% of Indonesia's export value of four or more wheeled vehicles came from Malaysia.

After calculating the Ratios, the following is the regression result. But firsti, chou test is used to choose which is the best between the common model and the fixed model, the results can be seen in the following table:

Table 5. Chou Test Result

Redundant Fixed Effects Tests
Pool: PANEL
Test cross-section fixed effects

Effects Test	Statistics	df	Prob.
Cross-section F	28.43106	(3.25)	0.00000
Cross-section Chi-square	47.496521	3	0.0000

Source: Eviews 9.0

Based on the results of the Chou test, it can be seen that the probability value is close to zero or significant, so it can be concluded that the best model is the fixed model.

Table 6. Hausman Test Result

Correlated Random Effects - Hausman Test
Pool: PANEL
Test cross-section random effects

Test Summary	Chi-Sq. Statistics	Chi-Sq. df	Prob.
Random cross-section	85.293181	3	0.0000

Source: Eviews 9.0

Based on the results of the Chou test, it can be seen that the probability value is close to zero or significant, so it can be concluded that the best model is the fixed model. Based on the test results for selecting the best panel model, the best model is the fixed effect model, so that the regression results using the fixed effects model can be seen in the following table.

Based on the regression results, it turns out that the results of the exchange rate variable and population have a significant positive effect while GDP does not have a significant effect, this can theoretically be explained if the currency of the main export destination country has depreciated causing the price of imported vehicles to be more expensive, including imported vehicles from other countries whose prices are higher. More expensive such as from the United States, Europe and Japan when compared to the price of imported cars from Indonesia, of course cheaper, so this causes four-wheeled vehicles or more from Indonesia to be an option when depreciation occurs.

Fasano-Filho et. al. (2018), the success of exports may be due to specialization in industries that make intensive use of the country's relatively abundant productive factors. If we look at the population variable which has a significant positive effect, it can be explained theoretically that one that affects demand is the population, including if exports are viewed from the point of view of demand, it means the population of the export destination country, an increase in population will cause an increase in consumption and community needs including the need for equipment. Transportation of four or more wheeled vehicles, so that this increasing need will

encourage the country to import four or more wheeled vehicles from Indonesia. Beleska-spasova (2009) in his research resources and managerial capabilities, knowledge, planning and technology were found to have a significant positive influence on export success, while in another study (Cizkowicz et al., 2013) found that regional export performance positively depends on labor productivity, the share of foreign companies in employment, and the education level of the population. While the regression results also show that the GDP variable does not have a significant effect on the demand or import of four-wheeled vehicles or more from Indonesia, this shows that Indonesia's export destination country has the ability that is not too dependent on its GDP so that the fluctuations in GDP have no impact on exports of four-wheeled vehicles. or more Indonesia to the destination country. This result is different (Kiani et al., 2018) whose research shows that distance has a negative impact on exports and GDP as well as (Ahmed & Said, 2012), imply that government policies aimed at encouraging the organic growth of small enterprises may be useful in increasing export growth in the future. Meanwhile in another study similar to (Narayan & Bhattacharya, 2019) emphasizing per capita income in increasing export competitiveness.

Table 7. Fixed Effect Model Regression Result

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-10.51654	2.505899	-4.196711	0.0003
GDP?	-4.22E-07	6.28E-07	-0.672352	0.5075
EXCHANGE RATE?	0.001438	0.000374	3.848381	0.0007
JP?	0.115773	0.029765	3.889517	0.0007
Fixed Effects (Cross)				
_VIE—C	-25,79368			
_THA—C	8.402171			
_MAL—C	12.17552			
_PHI—C	5.215996			
Effects Specification				
R-squared	0.932463	Mean dependent var		5.435336
Adjusted R-squared	0.916254	SD dependent var		1.096633
SE of regression	0.317354	Akaike info criterion		0.733043
Sum squared resid	2.517840	Schwarz criterion		1.053672
Likelihood logs	-4.728683	Hannan-Quinn Criter.		0.839322
F-statistics	57.52759	Durbin-Watson stat		1.399372
Prob(F-statistic)	0.000000			

Source: Eviews 9.0

In increasing Indonesia's exports of four or more wheeled vehicles to major destination countries in Southeast Asia, appropriate policies are needed so that the impact can be felt by increasing exports. Sezgin (2020) in his research on exports in Turkey found Turkey's dependence on automotive exports, Siddique & Singh (2021) in his research on exports in India this shows that India needs to gain competitive advantage to diversify and grow in the markets identified for export and subsequently enter new markets from various other countries and increase its export levels in the future. Huang et al. (2008) find Chinese exports are collaboration with foreign investors and intense domestic competition, while (Roper & Love, 2006) find labor skills work through research and development in improving the skills of workers can improve export performance.

CONCLUSION

Based on the problems and research objectives, the conclusions in this study are as follows: 1) Based on the comparison ratio of exports of four or more wheeled vehicles from Indonesia to the four main destination countries in Southeast Asia, the largest is the Philippines with an average of 0.25, followed by Thailand with an average of 0.11 followed by Vietnam with an average - an average of 0.049 and finally Malaysia, which is an average of 0.041. 2) Based on the regression results, it shows that the variables of population and exchange rate have a significant positive effect while GDP does not have a significant effect on exports of four or more wheeled vehicles from Indonesia to the four main destination countries in Southeast Asia.

The suggestions or recommendations given to the empirical findings in this study are as follows: 1) For the government to continue to maintain good relations with the four main destination countries for the export of four or more wheeled vehicles, Indonesia and strive to overcome all export barriers properly so that the export value can continue to increase. 2) For manufacturers of four or more wheeled vehicles, Indonesia continues to innovate in producing quality four or more wheeled vehicles and relatively affordable prices.

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