

## ANALYSIS OF DETERMINANTS AFFECTING THE EXPORT VOLUME OF INDONESIAN EDIBLE BIRD'S NESTS TO KEY DESTINATION COUNTRIES

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**Abstract.** International trade is the activity of buying and selling goods or services carried out by one country to another country in order to meet the needs in that country. The non-oil and gas export commodity in Indonesia that is currently developing, especially in the livestock sector, is the export of Indonesian swallow's nests. Problems related to the state of Indonesia's export volume tend to fluctuate, this is very important to note in order to determine the determinants that influence the increase and decrease in the volume of Indonesian swallow's nest exports to the destination country. This study aims to analyze the simultaneous and partial effects of inflation in the main destination countries for Indonesian swallow's nest exports, Gross Domestic Product in the main destination countries for Indonesian swallow's nest exports, and the USD exchange rate on the volume of Indonesian swallow's nest exports to the main destination countries. The data used is secondary data from 2012-2023 in the four main destination countries of Hong Kong, Canada, Thailand, and Singapore. The data analysis technique used in this study is panel data regression with the Fixed Effect Model (FEM) regression model. The results of the study found that inflation, GDP, and the USD exchange rate simultaneously have a significant effect on the volume of Indonesian swallow's nest exports to the main destination countries. Partially, inflation has a negative and significant effect on the volume of Indonesian swallow nest exports, while the GDP and USD exchange rates have a positive but insignificant effect on the volume of Indonesian swallow nest exports to the main destination countries. Based on the results of the study, it is expected that Indonesian swallow nest producers can produce products that suit consumer tastes in order to increase the volume of Indonesian swallow nest exports to the main destination countries.

**Keywords:** Export, Inflation, Gross Domestic Product, USD Exchange Rate

### INTRODUCTION

The bird's nest industry has been around for centuries, especially in Asian countries such as Indonesia, Malaysia, Thailand, and Vietnam. These countries are the main producers of bird's nest. High demand from markets such as China, Hong Kong, and Singapore has driven high growth in bird's nest exports, especially in Indonesia. The existence of bird's nest export activities certainly has an impact on the economic growth of Indonesia. The following is a table related to the development of the volume of Indonesian bird's nest exports to the main destination countries in 2019-2023.

**Table 1. Development of Indonesian Bird's Nest Export Volume to Main Destination Countries 2019-2023**

Main Destination Countries	Export Volume (Tons)				
	2019	2020	2021	2022	2023
Hong Kong	644.1	897.2	989.9	734.4	630.9
China	129.1	263.5	228.8	290	401.7
Singapore	75.4	68.8	80	45.2	36
United States of America	47	20.4	66.2	31	18.9
Vietnamese	329.9	27.2	71.3	236.3	213.2
Canada	2	1.8	2.3	2.4	2
Taiwan	5.6	12.9	20.6	9.2	9.1
Thailand	1.1	2.4	1.8	0.5	0.2
Japan	0.1	0.3	0.1	0.1	0.3
Cambodia	0	0	0	0	0
Other	24.5	18	44.5	66.8	22.9
<b>Amount</b>	<b>1,258.80</b>	<b>1,312.50</b>	<b>1,505.50</b>	<b>1,415.90</b>	<b>1,335.2</b>

Source: Central Bureau of Statistics, 2024

Bird's nest is widely sought after by the public because it is beneficial for body health and has a unique taste and chewy texture. Bird's nest is also used in the cosmetics industry and traditional medicine. Bird's nest is known to have a lot of nutritional content such as protein, carbohydrates, fat, minerals, water content, calcium, phosphorus, and iron. High demand makes bird's nest have a strong demand in the international market, especially in Asian countries such as China, Hong Kong, and Singapore. Bird's nest is considered a luxury food ingredient because of its limited supply and high selling price. High demand and limited supply have caused the price of bird's nest to increase significantly.

Indonesia exports Indonesian swallow nests to several countries including: Hong Kong, China, Vietnam, the United States, Singapore, Malaysia, Canada, Thailand, Japan, Cambodia, and several other countries (Central Bureau of Statistics, 2024). This study uses four main destination countries for Indonesian swallow nest exports in 2012-2023, namely Hong Kong, Canada, Singapore, and Thailand because these four countries are the largest importers of Indonesian swallow nests and the amount of public consumption of Indonesian swallow nests is quite high, although Hong Kong is the main destination country for Indonesian swallow nest exports every year due to its high export volume, many other countries also import Indonesian swallow nests to be used as medicinal

ingredients, food ingredients, or for beauty. In addition, in Singapore, swallow nests have cultural value and are considered a luxury gift, where swallow nests are often considered a luxury gift, especially during holidays such as Chinese New Year. This reflects social status and high appreciation for the recipient. The following is a table regarding the development of the volume of Indonesian swallow's nest exports based on the four main destination countries in 2019-2023.

**Table 2. Development of Indonesian Bird's Nest Export Volume to Four Main Destination Countries 2019-2023**

Year	Export Volume (Tons)			
	Hong Kong	Canada	Singapore	Thailand
2019	644.1	2.0	75.4	1.1
2020	897.2	1.8	68.8	2.4
2021	989.9	3.2	80.0	1.8
2022	734.4	2.4	45.2	0.5
2023	630.9	2	36	0.2
<b>Total</b>	<b>3.96.5</b>	<b>11.4</b>	<b>305.4</b>	<b>6</b>

Source: Central Bureau of Statistics, 2024

Indonesia exports swallow nests to several countries such as Hong Kong, Canada, Singapore, and Thailand. Table 2 shows that Hong Kong, Canada, Singapore, and Thailand are the countries exporting Indonesian swallow nests which have export volumes that tend to fluctuate in the last five years due to regulations related to swallow nest exports, low production and quality of swallow nests and the occurrence of COVID-19 cases throughout the world which caused global economic disruption. In 2023, the export volume of Indonesian swallow nests in Hong Kong was very low, namely 630.9 tons and the highest export volume of Indonesian swallow nests occurred in 2021, namely 989.9 tons. In 2020, the export volume of Indonesian swallow nests in Canada was very low, namely 1.8 tons and experienced an increase in the export volume of Indonesian swallow nests in 2021, namely 3.2 tons. For Singapore, the highest export volume of Indonesian swallow's nest occurred in 2021 at 80 tons and the lowest occurred in 2023 at 36 tons. For Thailand, the highest export volume of Indonesian swallow's nest occurred in 2020 at 2.4 tons and the lowest volume of Indonesian swallow's nest occurred in 2023 at 0.2 tons.

According to Abdul Aziz (2015) in his research related to analyzing the Heckscher-Ohlin theory in international trade conducted by Malaysia to its six main export destination countries, it states that there are several factors that influence

a country's exports, namely GDP, GDP per capita, inflation rate, unemployment rate, trade openness, total population, and exchange rate between the destination country and the country of origin. Inflation is one of the factors that influences exports in Indonesia. According to Sadono Sukirno (2016) inflation is the process of increasing prices prevailing in an economy. Inflation is a tool to determine the economic condition of a country where inflation makes the economy sluggish because the price of goods and basic necessities continues to increase. When the price of goods increases, it will have an impact on people's purchasing power which will decrease. As a result of increasing inflation, the cost of producing export goods will increasingly high so that exporters are less than optimal in production which results in the competitiveness of export goods becoming increasingly reduced. According to Maggi (2015) the most important thing in all economic activities in this world is achieving prosperity for the community, but in order to achieve this there are obstacles that will certainly be faced by the country, one of which is inflation. The inflation rate of each country tends to fluctuate and each country in the world has a different inflation rate. The inflation rate of the main destination countries for Indonesian swallow's nest exports in 2019-2023 is as follows.

**Table 3. Development of Inflation Rates in Destination Countries for Indonesian Swallow Nest Exports 2019 - 2023**

Year	Inflation rate (%)			
	Hong Kong	Canada	Singapore	Thailand
2019	2.88	1.94	0.56	0.70
2020	0.25	0.71	-0.18	-0.84
2021	1.56	3.39	2.30	1.23
2022	1.88	6.80	6.12	6.07
2023	2.09	3.87	4.82	1.22
<b>Total</b>	<b>8.66</b>	<b>16.17</b>	<b>13.62</b>	<b>8.38</b>

Source: World Bank, 2024

Table 3 shows the condition that inflation that occurred in the main destination countries for swallow's nest exports in 2019 to 2023 experienced significant fluctuations. High inflation in a country can affect the volume of exports of a commodity. In 2019, Hong Kong experienced a high inflation rate of 2.88% and experienced a decrease in the inflation rate of 0.25% in 2020. In 2020, Canada experienced a decrease in the inflation rate of 0.71% and experienced the highest increase in inflation in 2022 of 6.80. Singapore experienced a low inflation rate in 2020 of -0.18% and experienced high inflation in 2022 of 6.12%, while Thailand in

2019 experienced a decrease in the inflation rate of -0.84% and experienced the highest inflation rate in 2022 of 6.07%.

Among the four countries, Singapore and Thailand both experienced deflation, namely a period in which prices generally decrease and the value of money increases. Singapore and Thailand both experienced deflation in 2020 by -0.18% and -0.85%. The deflation that occurred was caused by decreasing demand for goods and services and the impact of the COVID-19 virus that hit the world, and was caused by weak oil prices. The rise and fall of inflation can be caused by various factors, namely increasing production costs for a product, the impact of war or natural disasters, an increase in demand for goods and services, including the amount of money in circulation. Differences in inflation rates in each country will affect the country's economic activities, especially the volume of exports to a country.

If inflation in a country continues to increase, it will cause an increase in the price of goods in the country so that the price of domestic goods is much more expensive than the price of goods from abroad so that people tend to import goods. Inflation tends to increase imports (Pratama, 2014). If foreign-produced goods and services are of better quality or cheaper, there will be a tendency to import (Batubara, 2015). If the increase occurs excessively, it will reduce the enthusiasm for production and consumption and risk triggering hyperinflation and reducing the volume of a country's exports (Akbar, 2014)

High inflation rates will cause the exchange rate to weaken. If inflation increases, the price of goods in the country will increase, rising prices mean a decrease in the value of the currency. If inflation increases due to prices, it will be accompanied by a decrease in production caused by an increase in production costs, which will reduce the amount of exports (Silaban and Nurlina, 2022). Inflation can reduce competitiveness and eventually cause a decline in exports (Silviana, 2016). However, in 2019, Hong Kong experienced an increase in inflation followed by an increase in the volume of Indonesian swallow's nest exports, this also happened in other countries in a certain year, so there was a discrepancy with the results of the study conducted by Silviana.

Another factor that influences the volume of swallow's nest exports is gross domestic product (GDP). GDP is one of the indicators to measure the economic condition of a country. According to McEachern Gross Domestic Product (GDP) (2014), gross domestic product / GDP means measuring the market value of final goods and services produced by resources within a country during a certain period of time, usually one year. GDP can also be used to study the economy over time or to compare several economies at a time. In addition, GDP also measures two things at the same time: the total income of everyone in the economy and the total spending of the country to buy goods and services produced by the economy. According to Mankiw (2016), the reason GDP can measure total income

and expenditure is because for an economy as a whole, income will be the same as expenditure. The following is a table of GDP developments in the main destination countries for Indonesian swallow's nest exports in 2019-2023.

**Table 4. GDP Development of Main Destination Countries for Indonesian Swallow Nest Exports in 2019-2023**

Year	GDP (Billion US\$)			
	Hong Kong	Canada	Singapore	Thailand
2019	3.63	1.74	3.76	5.43
2020	3.44	1.65	3.49	5.00
2021	3.68	2.00	4.31	5.06
2022	3.58	2.16	4.98	4.95
2023	3.82	2.14	5.01	5.14
<b>Total</b>	<b>18.15</b>	<b>9.69</b>	<b>21.55</b>	<b>25.58</b>

Source: World Bank, 2024

Table 4 shows the development of gross domestic product (GDP) of the four main destination countries for Indonesian swallow's nest exports in 2019-2023. In general, the GDP of the four main destination countries for Indonesian swallow's nest exports, namely Hong Kong, Canada, Singapore and Thailand in 2019-2023 experienced fluctuations, this occurred due to the impact of the United States-China trade tensions and weakening global demand. In 2020, Hong Kong's GDP decreased by USD 3.44 billion and increased in 2023 by USD 3.82 billion. Canada's GDP decreased by USD 1.65 billion in 2020 and experienced the highest increase in 2022 by USD 2.16 billion. In 2020, Singapore's GDP decreased by USD 3.49 billion and in 2023 it increased by USD 5.01 billion, while Thailand's GDP increased by USD 5.43 billion and in 2022 it decreased by USD 4.95 billion.

The increase in national income (GDP) will increase the purchasing power of the community to import on the one hand, on the other hand the increase in national income will also increase the ability of the community to carry out the production process which can ultimately be exported to other countries (Adi, 2017). This study is in line with the study conducted by Yuniarti (2016) which states that exporter GDP and importer GDP have a positive and significant influence on exports, However, in 2022, Canada's GDP increased, but this was not followed by an increase in the volume of Indonesian swallow's nest exports. This also happened in other countries in certain years, so there was a discrepancy with the results of previous research conducted by Yuniarti.

The next factor that affects the volume of swallow's nest exports is the USD exchange rate. The exchange rate is one of the important factors that affects

exports (Dolatti, 2015). According to Mankiw (2016), the increase or decrease in export value is influenced by several economic factors, consisting of consumer tastes for production goods, prices of goods abroad or domestically, the exchange rate that will determine the amount of domestic needed to buy a certain amount of foreign currency, the cost of bringing goods from one country to another and government policies towards international trade. The role of exports in a country is very important because it is the driving force of the national economy. International trade, both export and import activities, is related to payments so that foreign currency is needed as a legal tender or can be known as the exchange rate (Arize, 2017). Exchange rate fluctuations are one of the macroeconomic variables that affect the increase or decrease in export activity, capital flows or investment and international trade (Shane et al., 2018).

Exchange rate or exchange rate is the exchange rate between two countries agreed upon by the residents of both countries to trade with each other. The exchange rate factor is one of the indicators determining the export-import of commodities. A country's exports are determined by international prices, domestic prices, the balance of world supply and demand, and changes in the exchange rate of a country's currency with other countries. If a country's currency weakens, this can have positive and negative sides for the country's economy and the national business world.

This study uses the US dollar exchange rate, because the US dollar exchange rate is the international standard currency rate whose value is relatively stable and is a strong currency and can be easily traded and can be accepted by anyone as payment for their transactions (Latief, 2019). When the exchange rate of the main destination country experiences currency appreciation, it will have an impact on the price of imported products becoming cheaper than the price before the appreciation occurred, causing demand for imported goods to increase (Firdaus, 2018). Previous research conducted by Ayuningsih and Setiawina (2014) stated that the US dollar exchange rate had a positive and significant effect on Indonesian cinnamon exports, where if the US dollar exchange rate increased, the export volume would also increase.

**Table 5. Development of USD Exchange Rates for Main Destination Countries for Indonesian Swallow Nest Exports in 2019-2023**

Year	Exchange Rate (US\$)			
	Hong Kong	Canada	Singapore	Thailand
2019	7.83	1.32	1.36	31.04
2020	7.75	1.34	1.37	31.29

2021	7.77	1.25	1.34	31.97
2022	7.83	1.30	1.37	35.06
2023	7.82	1.34	1.34	34.80
<b>Total</b>	<b>39.00</b>	<b>6.55</b>	<b>6.78</b>	<b>164.16</b>

Source: World Bank, 2024

Table 5 shows that the highest exchange rate in Hong Kong occurred in 2019 and 2022, which was US\$ 7.83 and the lowest occurred in 2020, which was US\$ 7.75. In 2020 and 2023, the highest exchange rate in Canada reached US\$ 1.34, while the lowest exchange rate occurred in 2021, which was US\$ 1.25. The lowest exchange rate in Singapore occurred in 2021 and 2023, which was US\$ 1.34 and increased in 2020 and 2022 by US\$ 1.37. The lowest exchange rate in Thailand occurred in 2019, which was US\$ 31.04 and experienced a significant increase in 2022 by US\$ 35.06. The difference in the exchange rate of the destination countries for Indonesian swallow's nest exports occurs due to trade between countries related to payments between countries with different currencies, this causes problems with fluctuating foreign exchange rates. In addition to the high level of trade activity between countries, fluctuations in the exchange rates of a number of foreign countries can be caused by improvements in the United States economy which raises concerns about further cuts to the Federal Reserve's stimulus program. In 2022, the exchange rate of Hong Kong increased but was not followed by an increase in the volume of Indonesian swallow's nest exports, this also happened in other countries in certain years, so there was a discrepancy with the results of previous research conducted by Ayuningsih and Setiawina (2014).

Based on the background and problems described above, it is necessary to conduct a study related to "Analysis of Determinants Affecting the Volume of Indonesian Swallow's Nest Exports to Main Destination Countries".

## RESEARCH METHODS

Based on its characteristics, this research is included in associative research. According to Sugiyono (2014) associative research is a formulation of a research problem that is in the nature of asking about the relationship between two or more variables. This research uses an associative method that aims to see the causal relationship (cause and effect) between the independent variable and the dependent variable and used to discuss quantitative data, namely data in the form of numbers. In this study, the influence of inflation ( $X_1$ ), Gross Domestic Product (GDP) ( $X_2$ ), and the USD exchange rate ( $X_3$ ) on the volume of Indonesian swallow's nest exports to the main destination countries ( $Y$ ) will be examined.

The locations chosen as the locations for this research include Hong Kong, Canada, Singapore, and Thailand. The selection of these four countries is because the volume of swallow's nest exports exported to foreign markets falls into the category of the main destination countries for Indonesian swallow's nest exports



(Central Bureau of Statistics, 2024). The volume of swallow's nest exports in these four countries has fluctuated. The high volume of Indonesian swallow's nest exports to Hong Kong, Canada, Singapore, and Thailand is because swallow's nest has health and beauty value, so it is widely sought after for consumption or use as an ingredient in the traditional medicine industry, the existence of cultural values and luxurious gifts such as at the Chinese New Year celebration which reflects social status and high appreciation for the recipient of the gift, these factors are what cause high market demand in these countries. In addition, the factors that cause the high volume of Indonesian swallow's nest exports to Hong Kong, Canada, Singapore, and Thailand are because there are regulations that support the export of Indonesian swallow's nest to the main destination countries and the trust of the community in the health benefits of swallow's nest also drives demand in these four countries for Indonesian swallow's nest. The data used comes from the Central Statistics Agency (BPS) and the World Bank.

The data analysis technique used in this study is descriptive statistical analysis technique. According to Ghazali (2015), descriptive statistics are statistics used to analyze data by providing a description or description of data seen from the average, maximum, minimum, standard deviation values. The purpose of this descriptive study is to create a description, picture, or painting systematically, factually, and accurately regarding the facts, characteristics and relationships between the phenomena being investigated (Mohammad Nasir, 2019).

## RESULTS AND DISCUSSION

### Results of Analysis of Research Data

#### Statistical Analysis Results

**Table 6. Results of Descriptive Statistical Tests**

	VOL_Y	INF_X1	GDP_X2	COURSE_X3
Mean	164.4229	2.007885	3.360838	10.80569
Median	24.85000	1.739126	3.441000	4.566648
Maximum	989.9000	6.802801	5.439770	35.29638
Minimum	0.200000	-0.900425	1.527990	0.999365
Std. Dev.	260.7250	1.809469	1.138815	13.16770
Observations	48	48	48	48

Based on Table 6, the number of observations conducted in this study is 48 data which is a combination of 4 countries with a time span of 2012-2023 (12 years). From the results of the descriptive statistical analysis of all observations can be explained as follows:

1. **Dependent Variable of Indonesian Bird's Nest Export Volume**  
The volume of Indonesian swallow nest exports to the main destination country (Y) is the dependent variable. In this study, the unit used for export volume is tons. The export volume has a minimum value of 0.2, which comes from Thailand in 2023. The maximum value is 989.9 which comes from Hong Kong in 2021. The average (mean) and median values are 164.4 and 24.85 with a standard deviation value of 260.72.
2. **Independent Variable Inflation**  
Inflation (X1) is an independent variable. In this study, the unit used in inflation is percent (%) and the data used is annual data. Inflation has a minimum value of -0.9 which comes from Thailand in 2015. The maximum value is 6.80 which comes from Canada in 2022. The average (mean) and median values are 2.00 and 1.73 with a standard deviation value of 1.80.
3. **Independent Variable Gross Domestic Product (GDP)**  
GDP (X2) is an independent variable. In this study, the unit used in GDP is billion USD and uses annual data. GDP has a minimum value of 1.52 which comes from Canada in 2016. The maximum value is 5.43 which comes from Thailand in 2019. The average (mean) and median values are 3.36 and 3.44 with a standard deviation value of 1.13.
4. **Independent Variable USD Exchange Rate**  
Exchange rateUSD (X4) is an independent variable. In this study, the unit used for the USD exchange rate is the dollar. The USD exchange rate has a minimum value of 0.99, which came from Canada in 2012. The maximum value was 35.29, which came from Thailand in 2016. The average (mean) and median values were 10.80 and 4.56, with a standard deviation value of 13.16.

### **Panel Data Regression Analysis Model Selection**

#### **a. Chow Test**

**Table 7. Chow Test Results**

<b>Effects Test</b>	<b>Statistics</b>	<b>df</b>	<b>Prob.</b>
Cross-section F	56.395828	(3.41)	0.0000
Cross-section Chi-square	78.452537	3	0.0000

Chow test is a test conducted to select a good approach between Fixed Effect Model (FEM) and Common Effect Model (CEM) (Ghozali and Ratmono, 2015). Based on the results of the data processing above, it can be seen that the output produced is 0.0000 and less than 0.05 ( $0.0000 < 0.05$ ) so that the model used is the Fixed Effect Model (FEM). Because the selected model is FEM, it is continued with the Hausman Test.

## b. Hausman test

**Table 8. Hausman Test Results**

Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob.
Random cross section	169,187484	3	0.0000

The Hausman test is a technique that aims to choose whether the model used is the Fixed Effect Model (FEM) or the Random Effect Model (REM) (Ghazali and Ratmono, 2015). Based on the results of the data processing above, it can be seen that the output produced is 0.0000 and less than 0.05, ( $0.0000 < 0.05$ ) so that the model used is the Fixed Effect Model (FEM). Because the selected model is FEM, it is finished and not continued with the Lagrange Multiplier test. Thus, the best model selected in this study is the Fixed Effect Model (FEM).

### **Classical Assumption Test**

After determining the right model to use in the panel data regression equation, the right model is the Fixed Effect Model (FEM). Panel data allows for more complex learning about the behavior in the model so that panel data testing does not require classical assumption tests (Gujarati, 2014). However, according to Basuki and Prawoto (2017), the classical assumption test used in linear regression with the Ordinary Least Squared (OLS) approach includes Linearity, Autocorrelation, Heteroscedasticity, Multicollinearity and Normality tests, however, not all classical assumption tests must be carried out on every linear regression model with the OLS approach.

1. Linearity testing is almost never performed on every linear regression model because it is assumed that the model is linear. If it has to be done, it is only to see the extent of the linearity (Basuki and Prawoto, 2017).
2. The normality test is basically not a requirement for BLUE (Best Linear Unbias Estimator) and some opinions do not require this requirement as something that must be met (Basuki and Prawoto, 2017).
3. Autocorrelation only occurs in time series data. Autocorrelation testing on data that is not time series (cross section or panel) will be in vain (Basuki and Prawoto, 2017).
4. Multicollinearity needs to be done when linear regression uses more than one independent variable. If there is only one independent variable, then multicollinearity is impossible (Basuki and Prawoto, 2017).
5. Heteroscedasticity usually occurs in cross-section data, where panel data is closer to the characteristics of cross-section data than time series (Basuki and Prawoto, 2017).

From the explanation above, it can be concluded that in panel data regression, not all classical assumption tests in the OLS method are used, only

multicollinearity and heteroscedasticity are needed (Basuki and Prawoto, 2017).

#### a. Multicollinearity Test

**Table 9. Multicollinearity Test Results**

	X1	X2	X3
X1	1,000000	-0.059005	-0.172087
X2	-0.059005	1,000000	0.681762
X3	-0.172087	0.681762	1,000000

Based on table 9 above, it can be seen that there is no correlation coefficient that is more than 0.90. All independent variables in the results of the multicollinearity test in the table above show that there are no independent variables whose values exceed 0.90. This means that in this study there is no multicollinearity problem.

#### b. Heteroscedasticity Test

**Table 10. Heteroscedasticity Test Results**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	184.2732	140.5308	1.311266	0.1971
X1	5.456210	5.555102	0.982198	0.3318
X2	-9.680793	20.02823	-0.483357	0.6314
X3	-8.401058	11.27836	-0.744883	0.4606

The heteroscedasticity test in this study was conducted using the Glejser test. In this study, based on the results of the heteroscedasticity test that had been carried out, it was found that the probability value of each variable was greater than the real level of five percent, this indicates that the estimation model does not have symptoms of heteroscedasticity.

#### Hypothesis Testing

##### a. Simultaneous Test (F Statistic Test)

**Table 11. F Test Results (Simultaneous Test)**

F Test Results (Simultaneous Test)	
R-squared	0.821459
Adjusted R-squared	0.795331
F-statistic	31.43984
Prob(F-statistic)	0.0000

Based on table 11 of the results of the F test (Simultaneous Test), it can be

seen that the probability value of the F-statistic is smaller than the real level of five percent ( $0.000000 < 0.05$ ), so that the variables of inflation ( $X_1$ ), GDP ( $X_2$ ), and the USD exchange rate ( $X_3$ ), together (simultaneously) have an effect on the volume of Indonesian swallow's nest exports to the main destination country ( $Y$ ).

#### b. Partial Test (t-Test)

**Table 12. T-Test Results (Partial Test)**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-23.11928	258.2469	-0.089524	0.9291
$X_1$	-23.44489	10.20835	-2.296638	0.0268
$X_2$	59.91257	36.80496	1.627840	0.1112
$X_3$	3.078043	20.72571	0.148513	0.8827

Based on the table above, the regression equation obtained can be seen as follows:

$$Y = -23.11928 - 23.44489X_1 + 59.91257X_2 + 3.078043X_3 + e \quad (4.1)$$

The regression equation above can be concluded as follows:

1. Based on the regression equation above, the constant coefficient value is -23.11928, meaning that if inflation, GDP, and the USD exchange rate are equal to zero (0), then the export volume of Indonesian swallow's nests will decrease by 23.11928 tons. The results of research by Diaz and Noor (2020) show that the constant is negative, where if the independent variables, namely tangible, reliability, responsiveness, assurance, and empathy, are 0 (0), then the customer satisfaction value is negative. Based on research by Nurhidayati and Kartika (2018:73), it is stated that negative constants are not a problem and can be ignored as long as the regression model meets the assumptions, as long as the slope value is not 0 (zero), then the constant with a negative value can be ignored.
2. Based on the regression equation above, the inflation variable has a coefficient of -23.44489  $X_1$ , so inflation is negatively related to the volume of Indonesian swallow nest exports to the main destination countries. This means that for every one percent increase in inflation, the export volume will decrease by 23.44489 tons and vice versa, and using the assumption that other variables are constant.
3. Based on the regression equation above, the GDP variable has a coefficient of 59.91257  $X_2$ , so GDP is positively related to export volume. Indonesian swallow nests to the main destination countries. This means that for every additional GDP of one billion USD, the export volume will increase by 59.91257 tons and vice versa, and using the assumption that other variables are constant.
4. Based on the regression equation above, the USD exchange rate variable has a coefficient of 3.078043  $X_3$ , so the USD exchange rate is positively related to the

volume of Indonesian swallow nest exports to the main destination countries. This means that for every one USD increase in the USD exchange rate, the export volume will increase by 3.078043 tons and vice versa, and using the assumption that other variables are constant.

When viewed from the significance value per variable based on the probability value of T (pvalue), then the independent variables that have a significant partial effect on the dependent variable above are inflation (X1) which has a negative and significant effect on the volume of Indonesian swallow's nest exports to the main destination countries, while GDP (X2) and the USD exchange rate (X3) have a positive but insignificant effect on the volume of Indonesian swallow's nest exports to the main destination countries. The probability value of inflation (X1) is  $0.0268 < 0.05$ , the GDP variable (X2) is  $0.1112 > 0.05$ , and the USD exchange rate variable (X3) is  $0.8827 > 0.05$ .

Based on these results, it shows that the inflation variable (X1) has a partial significant effect on the volume of Indonesian swallow nest exports to the main destination countries. The GDP variable (X2) and the USD exchange rate (X3) do not have a partial significant effect on the volume of Indonesian swallow nest exports to the main destination countries because the T probability value (p-value) is higher than the five percent significance level.

**c. Coefficient of Determination Test**

**Table 13. Results of the Determination Coefficient Test (R2)**

<b>Results of the Determination Coefficient Test (R2)</b>	
R-squared	0.821459
Adjusted R-squared	0.795331
F-statistic	31.43984
Prob(F-statistic)	0.0000

Based on the table above, the Adjusted R-square value is 0.795331. This value shows that the inflation variables (X1), GDP (X2), and USD exchange rate (X3) as a whole are able to explain the dependent variable of the volume of Indonesian swallow's nest exports to the main destination countries by 79.53%.

**Discussion of Research Results**

**The Simultaneous Effect of Inflation, Gross Domestic Product, and USD Exchange Rate on the Volume of Indonesian Bird's Nest Exports to the Main Destination Countries**

The variables of inflation, Gross Domestic Product, and USD exchange rate on the volume of Indonesian swallow nest exports to the main destination countries produce an F-statistic probability value of  $0.000000 < 0.05$ . Thus, the relationship between inflation, Gross Domestic Product, and USD exchange rate

together (simultaneously) is proven to have a significant effect on the volume of Indonesian swallow nest exports to the main destination countries. In addition, the results of the adjusted R-square determination coefficient test show that all independent variables have an effect of 79.53% on the dependent variable (export volume). So H1 is accepted, meaning that the variables of inflation, GDP, and USD exchange rate simultaneously have a significant effect on the volume of Indonesian swallow nest exports to the main destination countries.

### **The Impact of Inflation on the Volume of Indonesian Bird's Nest Exports to Major Destination Countries**

According to Silviana (2016), inflation is a process of increasing general prices of goods continuously during a certain period, so that the inflation rate can weaken the trade balance. The impact of inflation in a country will affect income and exports. This is because inflation will encourage a weakening of competitiveness and ultimately cause a decline in exports of a commodity. In a state of inflation, competitiveness for export goods is reduced because the price of export commodities becomes very expensive, so that demand for a commodity will decrease. If inflation increases due to prices, it will be accompanied by a decrease in production caused by an increase in production costs, which will reduce the amount of exports of a commodity. High inflation in the destination country of exports can cause consumer purchasing power to decrease because the price of goods and services in that country increases while consumer income remains the same (there is no increase in income during inflation). The impact of low consumer income causes consumers to prioritize basic needs, so that demand for imported goods will decrease and cause consumers to choose substitute goods from other countries that are more competitive in terms of price.

Inflation has a major impact on export and import activities (Sari & Rauf, 2018). Based on the results of the study, it shows that the inflation variable ( $X_1$ ) has a negative and significant effect on the volume of Indonesian swallow nest exports to the main destination countries. This fact is proven through the results of the partial test which shows that the probability value of the inflation variable is  $0.0268 < 0.05$  and the coefficient value is -23.44489. This shows that the volume of Indonesian swallow nest exports can be affected by inflation, namely accepting H1 and in accordance with the research hypothesis. Regression coefficient of the inflation variable ( $X_1$ ) of -23.44489, which means that assuming other variables are constant, a 1 percent increase in inflation ( $X_1$ ) will reduce the volume of Indonesian swallow's nest exports to the main destination countries by 23.44489 tons.

According to Keynes, inflation is an increase in the average price level (Mankiw, 2016). The inflation data used is 2012-2023 which was obtained from the official World Bank website in percent units. The results of this study indicate that if inflation falls by one percent, the volume of Indonesian swallow's nest exports will increase by 23.44489 tons. The results of this study are also supported by

previous research conducted by Adiyasa (2019) which states that rising or falling inflation affects the volume and value of coffee exports. Excessive inflation will cause losses to the economy as a whole, where if prices rise but the availability of goods does not increase, this can affect export activities. The increase in the price of swallow's nests will trigger a decrease in Indonesian swallow's nest exports to the main destination countries especially the four main destination countries.

High inflation rates will cause the weakening of the currency exchange rate. If inflation increases, the price of goods in the country will increase, rising prices are the same as falling currency values. Research conducted by Indrajaya and Herniati (2022) explains that inflation partially has a negative and significant effect on the value of Indonesian pearl exports to Japan in 2000-2019. In addition, the results of research conducted by Putra and Sutrisna (2017) explain that inflation has a negative value on exports in Indonesia. This indicates that high inflation in the destination country of exports can cause consumer purchasing power to decrease for imported goods (goods from the exporting country).

Based on the research results that inflation has a negative relationship with exports, this tendency is caused by the effect of inflation, namely inflation causes prices in the destination country to be more expensive because high inflation in the destination country will have an impact on decreasing people's purchasing power, therefore inflation tends to cause demand for foreign exchange to increase and inflation causes prices of imported goods to become more expensive, so that inflation tends to reduce exports from Indonesia which causes the supply of foreign exchange to decrease, so the price of foreign exchange will increase (Sukirno, 2016).

### **The Influence of Gross Domestic Product on the Volume of Indonesian Bird's Nest Exports to the Main Destination Countries**

According to Sukirno (2015), the definition of GDP is the total value of all goods and services produced in a region within a certain period of time (usually per year). When a country's Gross Domestic Product is high, it will affect high demand due to increased purchasing power of the community. According to (Mankiw, 2016) in Keynesian Theory, consumption by one person in the economy will become income for other people in the same economy, so that if someone spends their money, then someone can help increase the income of others. An increase in GDP in a country can increase people's purchasing power for imported products, so that an increase in the GDP of the importing country causes an increase in people's needs and not all people's needs can be met by their own country (Wibisono and Nuraini, 2022). The increase in consumer income from the destination country of exports can indicate that the high ability of consumers to buy goods and services from the exporting country (Eka Sudarusman, 2020).

The Gross Domestic Product ( $X_2$ ) variable of the importing country has a probability value of  $0.1112 > 0.05$  and a calculated  $t$  value of  $1.627840 < t$



table 1, 680 so it can be concluded that  $H_0$  is accepted and  $H_1$  is rejected, meaning that the Gross Domestic Product ( $X_2$ ) of the importing country has a positive but insignificant effect on the volume of Indonesian swallow's nest exports to the main destination country ( $Y$ ). This insignificance can be caused by consumer tastes from each of the main destination countries for Indonesian swallow's nest exports, then the destination countries tend to choose to use substitute goods from countries that are closer and of course at more affordable prices, besides that this insignificance is also caused by fluctuations in foreign exchange rates, which means that if the currency of the exporting country is stronger than the currency of the importing country, the price of export products will be more expensive in the main destination country for exports (importing country), so that it can reduce demand for Indonesian swallow's nests. The regression coefficient of the Gross Domestic Product ( $X_2$ ) variable is 59.91257, which means that assuming other variables are constant, an increase of 1 US\$ GDP of the importing country will increase the volume of Indonesian swallow's nest exports to the main destination country by 59.91257 tons.

#### **The Impact of the USD Exchange Rate on the Volume of Indonesian Bird's Nest Exports to the Main Destination Countries**

According to Mankiw (2016), the economic factors that influence exports are consumer tastes, prices, exchange rates, consumer income and government policies towards international trade. The exchange rate is the price of a currency from a country measured or expressed in another currency (Krugman, 2014). Foreign exchange rates have a direct relationship with export volume. If the US dollar exchange rate increases, the export volume will also increase (Sukirno, 2016). In the supply theory described by Rahardja and Manurung (2014), it is explained that the exchange rate is greatly influenced by changes in the value of currencies between two countries. Demand and supply for foreign currency will form the exchange rate of the domestic currency against the currency of another country at a certain level (Sasmita and Setiawina, 2022). In the international exchange rate, depreciation or appreciation of the currency will affect export and import activities. If the exchange rate depreciates, namely the weakening of the domestic exchange rate against foreign currencies, it will cause exports to increase and imports to decrease. If the currency of the countries that are Indonesia's export destinations weakens against the USD, while the Rupiah also weakens, then Indonesian products become relatively cheaper for those countries. This increases the price competitiveness of Indonesian products in the global market, thus encouraging increased demand for exports. So, foreign exchange rates have a positive relationship with exports. Many countries conduct international trade using the USD as the transaction currency. If the USD exchange rate in other countries weakens, their purchasing power for products priced in USD can increase, including Indonesian swallow's nest products. If the US dollar

exchange rate increases, exports will also increase (Sukirno, 2016).

The USD exchange rate variable ( $X_3$ ) has a probability value of  $0.8827 > 0.05$  and a tcount value of  $0.148513 < t_{table} 1.680$  so it can be concluded that  $H_0$  is accepted and  $H_1$  is rejected, meaning that the USD exchange rate ( $X_3$ ) has a positive but insignificant effect on the volume of Indonesian swallow's nest exports to the main destination country ( $Y$ ), meaning that the rise and fall of the USD exchange rate does not affect the volume of Indonesian swallow's nest exports to the main destination country. This insignificance occurs due to factors outside the USD exchange rate such as consumer tastes for Indonesian swallow's nests, product quality from Indonesian swallow's nests, trade relations between exporting countries and the main destination countries for Indonesian swallow's nest exports, and even global economic conditions. The results of this study are supported by the results of research conducted by Thuy & Thuy (2019) and Kang & Dagli (2018) which state that the USD exchange rate has no effect on exports. The regression coefficient of the USD exchange rate variable ( $X_3$ ) is  $3.078043$ , which means that assuming other variables are constant, a 1 US\$ increase in the exchange rate of the importing country will increase the export volume of Indonesian swallow's nests to the main destination country by  $3.078043$  tons. The results of this study are supported by research conducted by Irawan (2019) which states that the exchange rate has a positive but insignificant effect on the volume of Indonesian exports of marine and fisheries commodities by province (2012-2014 period). So it can be said that an increase in the USD exchange rate of a country is able to describe the purchasing power of the destination country for swallow's nest commodities imported from other countries, if the USD exchange rate of the export destination country is high, it will result in an increase in the volume of swallow's nests to be imported, but this is not significant which means that the USD exchange rate in the destination country of export can increase the volume of Indonesian swallow's nest exports to that country but the increase that will be obtained is not significant.

## CONCLUSION

Based on the research results that have been explained previously, the conclusions that can be drawn are as follows:

1. Inflation, GDP and the USD exchange rate simultaneously affect the volume of Indonesian swallow's nest exports to the main destination countries.
2. Inflation ( $X_1$ ) partially has a negative and significant effect on the volume of Indonesian swallow nest exports to the main destination countries. Gross Domestic Product ( $X_2$ ) partially has a positive but insignificant effect on the volume of Indonesian swallow nest exports to the main destination countries, and the USD exchange rate ( $X_3$ ) partially has a positive but insignificant effect on the volume of Indonesian swallow nest exports to the main destination countries.

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