

ANALYSIS OF FACTORS AFFECTING THE EXPORT OF BATIK IN INDONESIA

**Dwi Joko Siswanto^{1*}, Erlyn Shukma Dewi², Ickhsanto Wahyudi³,
Tantri Yanuar Rahmat Syah⁴**

The National Military Academy of Indonesia, Central Java, Indonesia¹

Universitas Esa Unggul, Jakarta, Indonesia^{2,3,4}

Email: dwijoko_akmil@manajemenhan.akmil.ac.id*

ARTICLE INFO

Date received : October 29,
2022
Revision date : November 15,
2022
Date received : November 27,
2022

Keywords:

Batik; export; GDP; Indonesia

ABSTRACT

This study aims to determine whether the exchange rate, GDP, and inflation affect Batik exports in Indonesia. The data used in this study are secondary time series data from 2010-2020. The data used were obtained from the Ministry of Industry, the Central Bureau of Statistics, and Bank Indonesia. This type of research is associative research using quantitative methods. The test is carried out using the help of statistical software Eviews 10. The analysis method used is descriptive statistics, classical assumption test, multiple linear regression analysis, and hypothesis testing. The results showed that the Exchange Rate variable has a positive but insignificant effect on Indonesian Batik Exports. The GDP variable has a negative and significant effect on Indonesian Batik Exports. The Inflation variable has a positive and significant effect on Indonesian Batik Exports for the period 2010-2020. Exchange Rate, GDP, and Inflation simultaneously have a significant effect on Indonesian Batik Exports. The coefficient of determination is 0.551197, which means that the independent variables exchange rate, GDP, and inflation affect 55.11% of the dependent variable Batik exports in Indonesia.

INTRODUCTION

International trade is a trading activity carried out by two or more countries to meet their needs. Due to different natural resources and geographical factors, not every country can meet its own needs, so international trade is required to meet all of its needs. International trade has an important impact on boosting a country's economy through export activities that increase its foreign exchange. The manufacturing sector supports Indonesia's foreign exchange, 80% of all non-oil and gas exports each year.

Batik is a painterly cloth specially made by writing or moving the wax on the fabric and then processing the processing in a specific way. Batik comes from the Javanese language, which consists of 2 words, namely "mbat", which means repeated hanging or throwing, and "tik", which means point. Making batik means repeatedly throwing dots on a wide cloth to create beautiful patterns (Musman & Arini, 2011). Batik is a World Heritage Site in Indonesia. UNESCO recognized it as Humanitarian Heritage for Oral and Non-Physical Culture (Masterpieces of Oral and Intangible Heritage of Humanity) on October 2, 200) (UNESCO, 2009). Currently, batik is not limited to traditional art, it has become a modern industry, and

even batik has become one of the fashion trends. It creates opportunities for local producers to meet the global market (Atthariq, 2020).

The main reason for the decline in textile exports over the past six years is the stagnation in the industry over the past eleven years. According to the Indonesian Textile Association, this stagnation occurred both qualitatively and quantitatively. Several causes have weakened export performance in recent years, including the genuine appreciation of the rupiah, rising wages, inadequate production, poor quality of logistics services and an uncertain business climate.

The batik industry plays an essential role in the national economic growth. This sector, which is dominated by small and medium-sized industries, can contribute significantly to the state's foreign exchange through exports. One of them is the export of Indonesian batik to the USA, which has been going on since 1999, especially after it was recognized by UNESCO. The export of batik to the USA has increased. It is therefore not surprising that the United States is considered to be the main contributor to trade (Nurrovikoh, 2019).

The national batik industry has a comparative and competitive position in the international market. Indonesia is the market leader and controls the world market for batik. The riskiest challenge for the batik industry in Indonesia is the weakening of the rupiah against the dollar. It will affect the batik marketing process as raw materials or auxiliary materials have increased. The sales price of batik will also rise significantly indirectly, which will lead to less public buying interest.

International trade is a process of buying and selling goods and services between two or more countries that benefit from these activities. Differences in natural resources, human resources, technology, geographical conditions, etc., make a country unable to meet all of the needs of its people. Therefore, each country must trade with other countries to meet the requirements for products that cannot be domestically manufactured (Atthariq, 2020).

Krugman and Obstfeld (2012) explain why countries trade because they have different potential resources. Each country has a comparative advantage in that it can produce goods at a lower cost than other countries. This means that one country can produce goods to a greater extent than other countries in order to achieve economies of scale.

Absolute Advantage Theory (Adam Smith) is based on non-monetary actual quantities/variables, often known as pure international trade theory. Pure here means that this theory focuses on essential variables such as the value of an object as measured by the labor required to produce goods (Smith et al., 2013). The more labor used, the higher the item's value (Nopirin, 2000). In this case, the item in question is batik.

The Theory of Comparative Advantage (David Ricardo) holds that a country produces an item with the most significant comparative advantage and then exports it, and imports goods with a relative disadvantage, namely an item that can be made cheaper and imports goods that cost a lot if made from money alone. The theory is that the value of an item is determined by the amount of work that goes into delivering the item (Siddiqui, 2018).

The Heckscher-Ohlin theory explains that a country will trade with other countries if the country has a different taste, which is characterized by different economic conditions of the countries. For example, industrialized countries will trade with developing countries. This is due to the differences in resources and the different factors of production between industrialized and developing countries (Klein, 1996).

The exchange rate is a comparison between currency values between different countries. The international trade of each country often uses the US dollar currency. The exchange rate can have a positive effect on exports. A positive effect occurs when the strengthening of the exchange rate can increase exports. The exchange rate can affect the price of an exported commodity, so the cost of the exported commodity increases when the rupiah's exchange rate

against the dollar increases. The depreciating rupiah exchange rate has made Indonesian export products relatively cheaper compared to products from other countries. By exporting products, it will help the government collect foreign exchange. Mankiw (2012) explains that when the price of an item rises, the number of goods demanded will decrease, and when the price falls, the number of goods required will increase (Putri et al., 2016).

GDP per capita is a proxy for people's purchasing power. GDP per capita has a positive effect on the exports of exporting countries. It is in line with research conducted by (Carolina & Aminata, 2019), which explains that the higher the per capita income of a country, the capacity to trade with other countries will increase. Important factor to see the safety factor in consumer demand (Siswanto, 2019).

Inflation according to (Putra, 2016), The positive effect of inflation is that a country's exports can increase because the capital from debt or credit used to produce goods and services increases. When high inflation encourages credit, the credit is repaid with money of a lower value.

Batik is the process of writing an image or decoration on any medium using batik wax as a color barrier. When making batik, batik wax is applied to the cloth to prevent the dye from being absorbed during the dyeing process. Nevertheless, familiar people recognize batik as a cloth with distinctive patterns and motifs. In other words, ordinary people recognize batik as a motif, not a fabric-making technique. Batik creates a fine work of art that expresses itself on fabrics for clothing, sarongs, long scarves, and other decorative materials (Moerniwati, n.d.).

Another challenge are countries that produce batik, such as China, Malaysia, Singapore, whose batik products are circulating on the Indonesian market. The opening of opportunities for batik imports by the Indonesian government has unsettled local batik producers. Manufacturers fear that import prices will be lower than domestic products. Imported products from China are known to be competitors that local batik manufacturers complain about. Imported products from China are only rolling with batik motifs that are applied. In contrast to the original Indonesian batik cloth, which requires a process in its manufacture. The majority of people will choose imported batik because it is cheaper than local and interferes with the sale of local batik products.

Hence, an effective and efficient marketing strategy is required to win the competition in this industry. The marketing strategy is a comprehensive, integrated, and unified plan in marketing that guides the activities to be carried out to achieve the marketing objectives (Nurrovikoh, 2019). Batik entrepreneurs need to develop innovative and creative products in order to design batik motifs and processes in the implementation of the marketing strategy. Innovation in various motifs, patterns, and colors is one of the most critical innovations in the batik industry. The discovery of natural dyes in the manufacture of batik is one of the environmentally-friendly innovations and can add value to the product. It has become a trigger for the government to develop a marketing strategy for Indonesian batik, such as sourcing exhibitions at home and abroad.

After observing the above problems and based on various considerations, the author is interested in taking the title in writing this thesis, Analysis of Factors Affecting the Export of Batik in Indonesia.

METHOD

The methodology used is a quantitative approach. The type of data used is secondary data obtained from the official website of the Department of Industry, Central Bureau of Statistics, and Bank Indonesia as data for the period 2010-2020. The population in this study is all data on the exchange rate of the Indonesian rupiah against the US dollar, gross domestic

product (GDP), and inflation. Now the sample has become part of the number and characteristics of the population. This study uses one dependent variable (batik exports) and three independent variables (exchange rate, gross domestic product (GDP), and inflation). In addition, to analyze research data based on descriptive statistics, the classic assumption test, multiple linear regression, and the hypothesis test with the data processing software Eviews 10.

The money demand theory holds that public money demand is determined by some economic variables, including economic growth, interest rates, and price levels. According to the theory of money demand, the price level or the inflation rate only changes if the money supply does not correspond to the demand amount of an economy. If the amount of money in circulation is greater than the amount of money required or required by the audience, the price level rises and inflation occurs.

Countries with lower inflation rates than in previous years or those that are improving have relatively stable economic conditions. Low inflation will affect the prices of any good or service produced by a government. The conclusion is that the lower the rate of inflation, the better, since a low rate of inflation translates into lower production costs. On the other hand, an increase in GDP will increase people's ability to carry out the production process that can be exported to other countries.

H1: The exchange rate is thought to have a positive relationship with the Indonesian batik's export value.

H2: The GDP is thought to have a positive relationship with the export value of the Indonesian batik.

H3: Inflation is thought to have a positive relationship with the export value of Indonesian batik

RESULTS AND DISCUSSION

A. Results

1. Descriptive Statistics

Table 1
Descriptive Statistics Test Results

	Mean	Maximum	Minimum	Std. Dev.
BATIK EXPORT	139.9945	340.0000	21.54000	114.9293
EXCHANGE RATE	12329.45	14481.00	8991.000	2097.513
GDP	9002510.	10949038	6864133.	1408419
INFLATION	4.481818	8.380000	1.680000	2.320534

Source: Processed Eviews 10, 2020

- a) Based on the descriptive test results in table 4.1 above, it can be seen that the average batik export variable is worth 139.9945, the maximum value is 340.0000, and the minimum value is 21.54000 with (std deviation) of 114.9293.
- b) The Exchange Rate is the ratio between the value of the rupiah and foreign currencies. Exchange rates are used to represent the exchange rate from one currency to another. Table 4.1 shows that during the 2010-2020 period, the Rupiah exchange rate had the lowest (minimum) value of 8991,000, while the highest (maximum) value was 14481.00. The average value during the 2010-2020 period is 12329.45 with (std deviation) of 2097,513.
- c) The GDP rate has a mean value of 9002510, a maximum value of 10949038, a minimum value of 6864133, and a standard deviation value of 1408419.
- d) Inflation shows a minimum value of 1.680000 and a maximum of 8.380000 with a standard deviation of 2.320534. In contrast, the mean or average is 4.481818,

meaning that from all samples, the average inflation that occurs in Indonesia is 4.481818. This inflation rate is classified as mild inflation because it is still below 10%.

2. Normality Test

To determine whether the data is normally distributed or not, it is done by comparing the calculated probability value of Jarque Bera with an alpha level of 5%. Suppose the JB probability value is more significant than 0.05. In that case, it can be concluded that the residuals are normally distributed. If the JB probability value is less than 0.05, it can be supposed that the residuals are not normally distributed. Based on the calculations' results, the probability value of JB 0.702 is more significant than 0.05, meaning that the data from the variables in this study have been normally distributed (Gozali, 2009).

3. Multicollinearity Test

The multicollinearity test is tested by looking at the Variance Inflation Factor (VIF) value. It can be said that there is no multicollinearity in the regression method if the VIF value is <10. The objective of the multicollinearity test is to test whether the regression model finds a correlation between independent variables. Based on the calculations' results, the VIF value for the Exchange Rate variable of 2.48, the GDP variable of 2.63, and the inflation variable of 1.12. The VIF Exchange Rate, GDP, and Inflation values are less than 10, and it can be concluded that the data does not occur multicollinearity among the independent variables.

4. Heteroscedasticity Test

Heteroscedasticity is used to test the difference in residual variance from one observation period to another. A good regression model is a homoscedasticity or heteroscedasticity that does not occur. To detect the presence or absence of heteroscedasticity can be done by using the Glejser test. The conclusion is If Prob. Chi-Square <0.05, then there is a symptom of heteroscedasticity, on the contrary, if Prob. Chi-Square > 0.05, then there are no symptoms of heteroscedasticity. Based on the calculations' results, there are no symptoms of heteroscedasticity because 0.1527 > 0.05.

5. Autocorrelation Test

The autocorrelation test aims to test whether in the linear regression model there is a correlation between confounding error in period t and confounding error in period t-1 (previous). A good regression model should not be correlated or free from autocorrelation. One way to detect the presence or absence of autocorrelation on EViews is using the Breusch-Godfrey LM Test. If Prob. Chi-Square <0.05, then autocorrelation symptoms occur. Otherwise, if Prob. Chi-Square > 0.05, so there is no autocorrelation symptom. Based on the results of the calculations shows that it can be seen that the Prob. Chi-Square of 0.3869 is greater than the alpha level of 0.05, so it can be concluded that there is no autocorrelation.

6. Multiple Linear Regression Analysis

**Table 2
Multiple Linear Regression**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	36.00050	190.9257	0.188558	0.8558
EXCHANGE_RATE	0.032009	0.021918	1.460401	0.1876
GDP	-4.70E-05	1.89E-05	-2.491491	0.0415
INFLATION	29.58532	8.462347	3.496113	0.0100
R-squared	0.551197	Mean dependent var		139.9945

Adjusted R-squared	0.358854	SD dependent var	114.9293
SE of regression	92.02577	Akaike info criterion	12.15730
Sum squared resid	59281.20	Schwarz criterion	12.30199
Log likelihood	-62.86516	Hannan-Quinn criter.	12.06610
F-statistic	2.865687	Durbin-Watson stat	1.632301
Prob(F-statistic)	0.113556	Wald F-statistic	9.343379
Prob(Wald F-statistic)	0.007630		

Multiple regression analysis is used to determine the effect of the dependent variable in influencing the independent variable simultaneously or partially. The multiple regression equation is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

The values in the Coefficient Variable Column X1 (Exchange Rate), X2 (GDP) and X3 (Inflation) are the values of β_1 , β_2 , and β_3 respectively. Meanwhile, Variable C (constant) is the value of α . So that the regression equation in this example can be structured as follows:

$$Y = 36.00050 + 0.032009 (X_1) - 4.70E-05 (X_2) + 29.58532 (X_3) + e$$

From the regression equation above, it can be concluded that:

$\alpha = 36,00050$, meaning that if the exchange rate, GDP, and inflation are 0, Batik Export is 36,00050.

$\beta_1 = 0.032009$, assuming a fixed GDP and inflation, then every 1% increase in the Exchange Rate will increase Batik Export by 0.032009%.

$\beta_2 = -4.70E-05$, meaning that assuming a fixed Exchange Rate and Inflation, then every 1% increase in GDP will reduce Batik Export by 4.70E-05%.

$\beta_3 = 29.58532$, meaning that by taking a fixed Exchange Rate and GDP, then every 1% increase in inflation will increase Batik Export by 29.58532%.

7. Hypothesis Testing

a) Test Statistic F (Simultaneous)

The F test is used to determine how much influence the exchange rate (USD / IDR), GDP, and inflation have on Batik Export during the period 2010 to 2020 simultaneously or together. The p-value decision-making is as follows: If $p\text{-value} > \alpha$, then H_0 is accepted, and H_a is rejected. If the $p\text{-value} < \alpha$, then H_0 is rejected, and H_a is accepted. (determined by researchers and in economic and business research, generally using $\alpha = 5\%$). Based on the calculations' results, the Prob (F-statistic) value of 0.007 is smaller than 0.05, so it can be concluded that H_0 is rejected and H_a is accepted. This means that Exchange Rate, GDP, and Inflation simultaneously have a significant effect on Export Batik.

b) Test Statistic T (Partial)

A partial test is used to partially test the effect of the independent variable on the dependent variable. The decision-making criteria are: If $p\text{-value} > \alpha$, then H_0 is accepted, and H_a is rejected. If the $p\text{-value} < \alpha$, then H_0 is rejected, and H_a is accepted. (determined by researchers and in economic and business research, generally using $\alpha = 5\%$).

Based on the calculations' results, the prob value from the independent variable EXCHANGE RATE of 0.1876, the prob value of the independent variable GDP is 0.0415, and the prob value from the independent variable INFLATION of 0.0100. This shows that the two independent variables, namely the independent variable GDP and the independent variable INFLATION, are smaller than 0.05. It has a significant effect on the dependent variable BATIK EXPORT at 5% alpha. While the independent variable EXCHANGE RATE is more effective than 0.05, it does not significantly impact BATIK EXPORT's dependent variable at 5% alpha. Or in other words, EXCHANGE RATE can significantly impact BATIK EXPORT at the confidence level <95%.

c) Test of Determination Coefficient (R2)

The coefficient of determination (regression) determines how much X contributes to the fluctuation of Y. The greater the R2 value the better the regression formed. Based on the calculation results, the R2 value is 0.551197, meaning that the variation of all independent variables (Exchange Rate, GDP, and Inflation) can affect the variables entered (Batik Exports) by 55.11%. Simultaneously, the rest is 44.89% (100% -55.11%) by other variables outside the research.

B. Discussion

Based on examinations with Software Eviews 10, it can be concluded that the results obtained in this study are typically distributed data and are free from the symptoms of classic assumptions. Hypothesis testing is performed with a robust standard error, also known as HAC (Heteroscedasticity-Autocorrelation Consistent) (Agung Priyo Utomo). It was done to obtain a regression model between the rupiah exchange rate, Gross Domestic Product (GDP), and Inflation on the export of batik, free from outliers. Furthermore, the hypothesis test results show that Exchange Rate, GDP, and Inflation simultaneously significantly affect Export Batik.

Partially GDP and significantly affect batik exports; the GDP variable has a negative and significant effect on Indonesian Batik Exports. It shows that if the GDP level rises, Indonesian Batik exports will decline. It shows that if the Indonesian GDP rises, Indonesian tends to buy more batik daily, so Batik export decline due to local market consumption; however, this needs more deeply elaboration.

Based on testing the third hypothesis partially, inflation significantly affects batik exports, and the inflation variable has a positive and significant effect on Indonesian Batik exports. Its shows that if the inflation rate rises, Indonesian Batik exports will increase. Inflation means the price of batik is high, so not interesting for a local buyer to consume, so the producer of batik better-found buyers abroad

The exchange rate has no significant effect. These results are consistent with previous research (Putri et al., 2016), which uses exchange rate variables. His study concluded that the exchange rate had a positive and insignificant effect on Indonesian exports. Based on the results of testing the first hypothesis partially, the Exchange Rate variable has a positive but insignificant effect on Indonesian Batik Exports. It shows that if the Exchange Rate increases, the Indonesian Batik Exports will increase insignificantly. This result shows that at a particular time when the study was conducted, the exchange rate was stable, not volatile, which can explain why the exchange rate has no significant effect on batik export.

CONCLUSION

Based on the results of testing the first hypothesis partially, the exchange Rate variable has a positive but insignificant effect on Indonesian Batik Exports. It shows that if the exchange

rate increases, the Indonesian batik exports will increase insignificantly. Based on testing the second hypothesis partially, the GDP variable has a negative and significant effect on Indonesian batik exports. Based on testing the third hypothesis partially, the inflation variable has a positive and significant effect on Indonesian Batik exports. It shows that if the inflation rate rises, Indonesian Batik exports will increase. Inflation means the price of batik is high the not interesting for local consumption, so the producer of batik better found buyer abroad. The F test results show that the Exchange Rate, Gross Domestic Product (GDP), and Inflation simultaneously significantly affect Indonesian Batik Exports.

REFERENCES

- Atthariq, M. F. (2020). *Analisis Faktor–Faktor Yang Memengaruhi Ekspor Batik Indonesia. September 2020*. [Google Scholar](#)
- Carolina, L. T., & Aminata, J. (2019). Analisis Daya Saing dan Faktor yang Mempengaruhi Ekspor Batu Bara. *Diponegoro Journal of Economics*, 1, 9–21. [Google Scholar](#)
- Gozali, I. (2009). *Aplikasi Analisis Multivariate dengan SPSS*. BP Undip. [Google Scholar](#)
- Klein, M. W. (1996). The Heckscher-Ohlin model in theory and practice. In *Journal of International Economics* (Vol. 41, Issues 1–2). [https://doi.org/10.1016/s0022-1996\(96\)01424-9](https://doi.org/10.1016/s0022-1996(96)01424-9) [Google Scholar](#)
- Krugman, P. R., & Obstfeld, M. (2012). International Economics: theory and Policy: theory and Policy. In *World Student Series*. Raja Grafindo Persada. [Google Scholar](#)
- Mankiw, N. G. (2012). *Principles of Microeconomics* (5 ed, Vol. 148). South-Western Cengage Learning. [Google Scholar](#)
- Moerniwati, E. D. A. (n.d.). Studi Batik Tulis (Kasus di Perusahaan Batik Ismoyo Dukuh Butuh Desa Gedongan Kecamatan Plupuh Kabupaten Sragen). *Jurnal UNs*, 30–41. [Google Scholar](#)
- Musman, A., & Arini, A. B. (2011). *Batik: warisan adiluhung nusantara* (1st ed., Vol. 1). Yogyakarta: G-Media. [Google Scholar](#)
- Nopirin. (2000). *Ekonomi Moneter* (4th ed.). BPFE UGM
- Nurrovikoh, D. (2019). *Strategi pemasaran batik dalam menghadapi persaingan bisnis global dengan pendekatan analisis swot pada alya batik trenggalek skripsi*. [Google Scholar](#)
- Putra, R. E. K. A. (2016). Pengaruh inflasi dan nilai tukar rupiah terhadap pendapatan penjualan pt cahaya metal indo perkasa. *Jurnal Equilibria*, 1–22. [Google Scholar](#)
- Putri, R., Suhadak, S., & Sulasmiyati, S. (2016). Pengaruh Inflasi Dan Nilai Tukar Terhadap Ekspor Indonesia Komoditi Tekstil Dan Elektronika Ke Korea Selatan (Studi Sebelum dan Setelah ASEAN Korea Free Trade Agreement Tahun 2011). *Jurnal Administrasi Bisnis S1 Universitas Brawijaya*, 35(1), 127–136. [Google Scholar](#)
- Siddiqui, K. (2018). David Ricardo's Comparative Advantage and Developing Countries: Myth and Reality Kalim Siddiqui 1 In International Critical Thought, Vol 8, issue 3. *International Critical Thought*, 8(3), 426–452. [Google Scholar](#)

Siswanto, DJ, T. (2019). National Security Of Investment Climate: A Case Study In The South Sulawesi Region Of Indonesia. *RJOAS*, 1(85), January 2019, 1(January), 163–172. <https://doi.org/10.18551/rjoas.2019-01.19> [Google Scholar](#)

Smith, A., Cannan, E., & Stigler, G. J. (2013). An Inquiry into the Nature and Causes of the Wealth of Nations. *Readings in Economic Sociology, Chicago : University of Chicago Press, 1976*, 6–17. <https://doi.org/10.1002/9780470755679.ch1> [Google Scholar](#)

UNESCO. (2009). *Indonesian Batik*. United Nations Educational, Scientific and Cultural Organization. <https://doi.org/10.1017/S0020818300009991>

Copyright holder:

Dwi Joko Siswanto, Erlyn Shukma Dewi, Ickhsanto Wahyudi,
Tantri Yanuar Rahmat Syah (2022)

First publication right:

Journal of Social Science

This article is licensed under:

