# Impact Of The Russia-Ukraine War On The Indonesian Economy Based On Data On Indonesian Imports From Ukraine And The European Union In 2010-2020

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## Abstract:

This study aims to examine the impact of the Russo-Ukrainian war based on data on Indonesian wheat imports from Ukraine and Indonesian Export-Import data with the European Union which have the potential to be disrupted due to the ongoing Russia-Ukraine war. The World Bank and the Indonesian Central Bureau of Statistics have provided this data as a secondary source for 2010 to 2020. The variables we use are GDP as the dependent variable, Wheat Imports From Ukraine, Imports From the European Union, and Exports to the European Union as independent variables. The results show that the Indonesian economy, which is represented by the GDP variable, is influenced by the other three variables. So, economically, the war between Ukraine and Russia has had an impact on the Indonesian economy, especially in imports of wheat, as well as imports and exports between Indonesia and the European Union which also has an impact on the Indonesian economy.

**Keyword:** Wheat Imports, GDP, Ukraine, indonesian.

**JEL Classification: F17, F51, O13.**

## 1. Introduction

The war that occurred between Russia and Ukraine also had an impact on Indonesia (Zain, 2022). The war had a fairly serious impact on Indonesia. This is because of the effects of globalization (Liadze, Macchiarelli, Mortimer-Lee, & Juanino, 2022). As a result of globalization, the positive effect received by Indonesia is being able to enjoy technology that is as good as other countries and world-class education. While the negative effects of globalization, if something happens in other parts of the world, it will quickly have an impact on Indonesia (Yasar & Rejesus, 2020 ; Viphindrartin & Bawono,2021).

The impact of the Russo-Ukrainian war that was most felt for Indonesia was in the export sector. Due to the war, Russia will be subject to a trade embargo, so that Indonesia cannot export to Russia, and exports to the European Union will also be disrupted (VOI, 2022). Ukraine also has close trade relations with Indonesia, even though the country is a non-traditional trading partner. Indonesia is one of the main importers of wheat in the world (Biloskurskyy, Verstiak, & Vinnychuk, 2019). In addition, the impact of the Russia-Ukraine war on Indonesia will also increase inflation, and logistics costs will be much more expensive. Basic needs will also increase and people's purchasing power will be lower. Wheat commodity prices will also increase. Indonesia imports wheat from Ukraine which is used as the main ingredient in making bread and instant noodles. Ukraine is Indonesia's largest supplier of wheat. On the other hand, for Ukraine, Indonesia is the second-largest wheat export destination in the world after Egypt. The increase in wheat prices sooner or later will have an impact on consumers in Indonesia, considering that wheat is a raw material for food products such as instant noodles and flour (Okhrimenko, Tuan, & Lezhen, 2020).

Russia's action against Ukraine has shaken the world economy. The war undeniably also affected Indonesia. It turned out that there was an impact of the Russo-Ukrainian war on Indonesia. Russia's action against Ukraine has shaken the world economy (Tooze,2022). The war undeniably also affected Indonesia. It turned out that there was an impact of the Russo-Ukrainian war on Indonesia (Zain, 2022).

This study aims to examine the impact of the Russia-Ukraine war based on data on Indonesian wheat imports from Ukraine and Indonesian Export-Import data with the European Union which have the potential to be disrupted due to the ongoing Russia-Ukraine war.

## 2. Research Method

## 2.1. Data source and collection

This study uses secondary data sourced from the Central Statistics Agency of the Republic of Indonesia (BPS RI) and World Bank data. With the description of the variables presented in table 1.

Table 1. Description Of The Variables

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Description Of The Variables | Unit of Analysis | Source |
| GDP | GDP is the total production of all goods and services in Indonesia for one year and is an indication of the Indonesian economy | million USD | World Bank |
| Wheat Imports from Ukraina | Wheat Imports from Ukraine is the value of Indonesian wheat imports to Ukraine in million USD | million USD | BPS RI |
| Import From European Union | Import From European Union Is Indonesia's total imports to the European Union in million USD | million USD | BPS RI |
| Export to European Union | Export to European Union Is Indonesia's total Export to the European Union in million USD | million USD | BPS RI |

## 2.2. Analysis Method

The World Bank and the Indonesian Central Statistics Agency have provided this data as a secondary source for 2010 to 2020. The following variables will be analyzed using ARMA. The variable we use is GDP as the dependent variable, Wheat Imports From Ukraine, Import From European Union, and Export to European Union as independent variables. We use the following econometric model:

GDPt = β0+ β1WIFUt-1 + β2IFEUt-1 + β3ETEUt-1 + et

Where,

GDP : Gross Domestic Product

WIFU : Wheat Imports From Ukraina

IFEU : Import From European Union

ETEU : Export to European Union

e : Error term

t : Time series

## 3. Result and Discussion

According to the study's variables, descriptive data are shown in Table 1.

Table 1. Descriptive statistics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | GDP | WIFU | IFEU | ETEU |
| Mean | 9.45E+11 | 1289126. | 12205.74 | 16458.86 |
| Median | 9.18E+11 | 664056.2 | 12500.90 | 16763.70 |
| Maximum | 1.12E+12 | 2991812. | 14150.00 | 20508.90 |
| Minimum | 7.55E+11 | 3038.300 | 9862.500 | 14363.80 |
| Std. Dev. | 1.04E+11 | 1263987. | 1510.572 | 1855.687 |
| Skewness | 0.012626 | 0.248675 | -0.211697 | 0.709717 |
| Kurtosis | 2.404008 | 1.284460 | 1.803759 | 3.054226 |
|  |  |  |  |  |
| Jarque-Bera | 0.163095 | 1.462281 | 0.738034 | 0.924794 |
| Probability | 0.921689 | 0.481360 | 0.691414 | 0.629772 |
|  |  |  |  |  |
| Sum | 1.04E+13 | 14180384 | 134263.1 | 181047.5 |
| Sum Sq. Dev. | 1.08E+23 | 1.60E+13 | 22818282 | 34435726 |
|  |  |  |  |  |
| Observations | 11 | 11 | 11 | 11 |

The results of descriptive statistics are expressed in terms of mean, min, max, and Std Dev. GDP Mean 9.45E+11, GDP Min 7.55E+11, GDP Max 1.12E+12, GDP Std Dev 1.04E+11. WIFU mean 1289126, WIFU Min 3038,300, WIFU Max 2991812, WIFU Std Dev 1263987. IFEU mean 12205.74, IFEU min 9862,500, IFEU max 14150.00, IFEU Std Dev 1510,572. ETEU mean 16458.86, ETEU min 14363.80, ETEU max 20508.90, ETEU Std Dev 1855,687. GDP is Indonesia's gross domestic product, WIFU is wheat imports from Ukraine, IFEU is imported from the European Union, and ETEU is exported to the European Union.

Before using the ARMA model to estimate values, a stationary test should be performed. Augmented Dickey-Fuller (ADF) can detect whether the series is not stationary by evaluating the error component, which contains the possibility of autocorrelation if the series is not stationary. Here are the results:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Unit Root | Include in the examination Equation | Statistics for the ADF Test | 5% Critical Value | Description |
| Gross Domestic Product (GDP) | Level | Intercept | -1.754468 | 0.3783 |  |
| First Diff | Intercept | -2.771642 | 0.0999 |  |
| Second Diff | Intercept | -2.805522 | 0.0494 | Stationer |
| Wheat Imports From Ukraina (WIFU) | Level | Intercept | -0.444360 | 0.8649 |  |
| First Diff | Intercept | -3.922564 | 0.0197 | Stationer |
| Import From European Union (IFEU) | Level | Intercept | -4.794134 | 0.0062 | Stationer |
| Export to European Union (ETEU) | Level | Intercept | -1.465912 | 0.5083 |  |
| First Diff | Intercept | -3.153640 | 0.0624 |  |
| Second Diff | Intercept | -3.930163 | 0.0267 | Stationer |

Table 2. ADF's Unit Root Test on GDP, WIFU, IFEU, and ETEU.

IFEU data is stationary in the original data with a critical value of 0.0062, WIFU data is stationary at the first difference with a critical value of 0.0197, while GDP and ETEU data are stationary at the second difference with critical values of 0.0494 and 0.0267, respectively. From here we can directly do the ARMA test.

Tabel 3. ARMA analisys

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| WIFU | 81160.75 | 13879.37 | 5.847581 | 0.0006 |
| IFEU | 27730649 | 9438113. | 2.938156 | 0.0218 |
| ETEU | 5844697. | 10421161 | 0.560849 | 0.5924 |
| C | 4.06E+11 | 1.68E+11 | 2.409591 | 0.0468 |
|  |  |  |  |  |
| R-squared | 0.899739 | Mean dependent var | | 9.45E+11 |
| Adjusted R-squared | 0.856770 | S.D. dependent var | | 1.04E+11 |
| S.E. of regression | 3.94E+10 | Akaike info criterion | | 51.90713 |
| Sum squared resid | 1.09E+22 | Schwarz criterion | | 52.05182 |
| Log likelihood | -281.4892 | Hannan-Quinn criter. | | 51.81593 |
| F-statistic | 20.93926 | Durbin-Watson stat | | 1.966887 |
| Prob(F-statistic) | 0.000713 |  |  |  |

The Adjusted R-squared value and the R-Bar-squared value of the ARMA model are relatively high, with averages ranging from 0.85 and 0.89. The Adjusted R-squared value of 0.85 indicates that each of the independent variables in the specified ARMA model, namely imports of wheat from Ukraine, imports from the European Union, and exports to the European Union can explain 85% of the variance of the dependent variable of economic growth (in terms of this is represented by GDP). This is an indication that this research model is good enough to be analyzed.

WIFU has an effect on GDP with a coefficient of 81160.75, IFEU also has an effect on GDP with a coefficient of 27730649, and ETEU has an effect on GDP with a coefficient of 5844697.

## Conclusion

From the results of the ARMA test above, we can conclude that WIFU (Wheat Imports from Ukraine) has an effect on GDP, IFEU (Imports from the European Union) also has an effect on GDP, and ETEU (Exports to the European Union) has an effect on GDP. The Indonesian economy, which is represented by the GDP variable, is influenced by the other three variables. So, economically, the war between Ukraine and Russia has had an impact on the Indonesian economy, especially in imports of wheat, as well as imports and exports between Indonesia and the European Union which have an impact on the Indonesian economy.

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