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Analysis of Import and Export Activities in the Oil and Gas and Non-Oil and Gas Sectors and Their Impact on the Trade Balance in Foreign Trade in 2021 – 2024

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Abstract

Foreign trade plays a crucial role in accelerating Indonesia's economic growth after the pandemic. The purpose of this study is to examine trends in the development of export and import values in the oil and gas (O&G) and non- oil and gas (Non-O&G) industries from 2021 to 2024. Furthermore, this study attempts to identify factors causing changes in the trade balance. Quantitative descriptive research was conducted using secondary data from the Central Statistics Agency (BPS) periodic reports. Data analysis shows that the oil and gas industry has experienced a chronic deficit annually. This is due to a decline in domestic crude oil production capacity and a high dependence on fuel imports. In 2022, the largest oil and gas deficit reached US$24,419.1 million, caused by the surge in global energy prices. Conversely, the non-oil and gas sector saved the economy by posting a massive surplus. The phenomenon of soaring commodity prices for coal and palm oil in 2022 peaked at US$78,670.4 million. The strong performance of non-oil and gas exports has proven capable of covering the oil and gas sector deficit, so Indonesia's overall trade balance remains in the positive zone.

Keywords Foreign Trade, Exports, Imports, Oil and Gas, Non-Oil and Gas, Trade Balance

INTRODUCTION

Foreign trade is one of the main pillars supporting a country's economic growth because it enables countries to overcome domestic resource limitations, increase capital accumulation, and improve production efficiency. Through export and import activities, countries are able to expand market access, strengthen industrial competitiveness, encourage technology transfer, and create employment opportunities that contribute to sustainable economic development. For Indonesia, foreign trade plays a strategic role in accelerating

industrialization and increasing national productivity by diversifying export products, creating higher value-added commodities, and strengthening competitiveness in the global market (Adelia Restiani Aprilia et al., 2025). Consequently, the performance of exports and imports has become one of the primary indicators used to evaluate the resilience and competitiveness of the Indonesian economy amid increasingly dynamic global economic conditions.

The recovery of the global economy following the COVID-19 pandemic has significantly influenced Indonesia's foreign trade performance during the 2021–2024 period. The non-oil and gas sector has become the primary driver of export growth, supported by rising global demand for manufactured goods and natural resource-based commodities. At the same time, non-oil and gas imports have been dominated by raw materials and capital goods required to reactivate domestic manufacturing industries, indicating the recovery of industrial production activities (Nisa et al., 2025). In contrast, the oil and gas sector has faced persistent structural challenges. Declining domestic production capacity has limited Indonesia's ability to benefit from increasing global energy prices, while geopolitical tensions and supply chain disruptions have substantially increased the value of oil and gas imports. As a result, the oil and gas trade balance has consistently recorded a deficit, offsetting part of the surplus generated by the non-oil and gas sector (Edy Soesanto et al., 2024).

From the perspective of international trade theory, the pattern of Indonesia's foreign trade can be explained through several classical approaches. Adam Smith's theory of absolute advantage argues that countries should specialize in producing goods that can be manufactured more efficiently than other countries (S. A. Salsabila et al., 2025). David Ricardo further developed this concept through the theory of comparative advantage, emphasizing that countries benefit from specializing in products with the lowest opportunity cost, thereby maximizing mutual gains from trade (Abdan Sifa et al., 2024). Meanwhile, the Heckscher–Ohlin theory explains that international trade is driven by differences in factor endowments, whereby countries export products that intensively use abundant production factors and import products requiring relatively scarce factors (Bakara et al., 2024). These theories provide a strong conceptual foundation for understanding why Indonesia's non-oil and gas exports continue to dominate international trade while the oil and gas sector remains dependent on imported energy resources.

The performance of exports and imports directly determines the condition of a country's trade balance, which reflects the difference between export earnings and import expenditures. A trade surplus occurs when export values exceed imports, indicating positive foreign exchange earnings and stronger external economic performance. Conversely, a trade deficit reflects higher import expenditures than export revenues, potentially creating pressure on the balance of payments and macroeconomic stability (Puri & Ima Amaliah, 2021). Therefore, analyzing trade balance dynamics is essential for evaluating the effectiveness of trade policies and identifying sectors that contribute positively or negatively to national economic performance.

Previous studies have consistently highlighted the differing contributions of the oil and gas and non-oil and gas sectors to Indonesia's foreign trade. Research by Salsabila (2021) showed that during the 2013–2019 period, oil and gas exports continuously declined, whereas non-oil and gas exports exhibited greater volatility but remained dominant in terms of export volume. Latif et al. (2022) demonstrated that fluctuations in export and import values significantly affected Indonesia's trade balance, with the country experiencing a sharp export recovery in 2021 following the relaxation of COVID-19 restrictions and strengthened international cooperation. Similarly, Kurniati (2024) found that the non-oil and gas sector consistently served as the principal contributor to Indonesia's trade surplus, while the oil and gas sector continued to record annual deficits due to high dependence on imported energy despite improvements in export performance after the pandemic.

Although previous studies have provided valuable insights into Indonesia's export and import performance, most of them focus either on the pre-pandemic period or only the early stages of post-pandemic recovery. Furthermore, limited attention has been given to comparing the simultaneous development of oil and gas and non-oil and gas trade during the 2021–2024 period, when global economic recovery, geopolitical conflicts, commodity price volatility, and supply chain disruptions occurred simultaneously. These changing global conditions require updated empirical evidence to better understand how each sector contributes to Indonesia's foreign trade performance and overall trade balance.

Based on these considerations, this study aims to analyze the development trends of export and import values in Indonesia's oil and gas and non-oil and gas sectors during the 2021–2024 period and to identify the factors influencing their fluctuations. Using secondary

data published by Statistics Indonesia (Badan Pusat Statistik/BPS), this research examines the contribution of both sectors to Indonesia's trade balance and evaluates their role in supporting national economic recovery. The findings are expected to provide useful insights for policymakers, academics, and other stakeholders in formulating more effective trade and industrial policies to strengthen Indonesia's competitiveness in the global economy.

METODE

This study employed a quantitative descriptive approach to analyze the development of Indonesia's foreign trade performance in the oil and gas and non-oil and gas sectors during the 2021–2024 period. A quantitative descriptive approach was selected because it enables researchers to systematically describe trends and patterns based on numerical data without testing causal relationships. The analysis focused on identifying changes in export and import values in both sectors and examining their contribution to Indonesia's trade balance over the study period.

The study relied exclusively on secondary data obtained from the official publications of Statistics Indonesia (Badan Pusat Statistik/BPS). The dataset consisted of annual cumulative export and import values classified into the oil and gas (migas) and non-oil and gas (non-migas) sectors from 2021 to 2024. All trade values were reported in million United States dollars (US$ million). Data were collected through documentation techniques by downloading statistical reports published by BPS, followed by data verification and organization into tabular and graphical formats to facilitate descriptive analysis.

Table 1. Export and Import Values of the Oil and Gas and Non-Oil and Gas Sectors, 2021–2024

Year	Oil and Gas Sector		Non-Oil and Gas Sector	
	Exports	Imports	Exports	Imports
2021	12,247.4	25,259.2	219,462.7	170,694.1
2022	15,998.2	40,417.3	276,188.5	197,518.1
2023	15,921.9	35,831.0	243,605.9	187,276.5
2024	15,876.9	36,276.8	250,652.3	198,922.8

Source: Statistics Indonesia (BPS, 2026).

The collected data were analyzed using trade balance analysis by calculating the difference between export and import values for each sector and each year of observation. A

positive difference indicated a trade surplus, whereas a negative difference represented a trade deficit. Furthermore, descriptive trend analysis was conducted to evaluate the movement of exports and imports throughout the study period and to compare the performance of the oil and gas and non-oil and gas sectors. The findings were then interpreted to explain the contribution of each sector to Indonesia's overall trade balance and to identify factors influencing fluctuations in foreign trade performance during the post-pandemic economic recovery.

FINDINGS AND DISCUSSION

Analysis of Export-Import Trends in the Oil and Gas Sector

Based on annual statistical reports published by the Central Statistics Agency (BPS), Indonesia's oil and gas (migas) trade experienced notable fluctuations during the 2021–2024 period. Both export and import values changed in response to global energy prices, domestic fuel demand, and national production capacity. The trade values are presented in million US dollars (US$). The value of Indonesia's oil and gas exports demonstrated relatively stable performance after experiencing a substantial increase in 2022. In 2021, oil and gas exports were valued at US$12,247.40 million. The export value increased significantly in 2022 to US$15,998.20 million, representing a 30.6% growth compared to the previous year. This increase was driven by the post-pandemic recovery of the global economy, which stimulated international energy demand, along with a sharp rise in world oil prices. At the same time, the normalization of domestic economic activities increased fuel consumption, contributing to higher export values (Central Statistics Agency, 2023). In 2023, oil and gas exports remained relatively stable at US$15,921.90 million, despite declining

global crude oil prices. This stability indicates that export performance was maintained even though international market conditions weakened, while domestic fuel consumption remained relatively high (Central Statistics Agency, 2024). In 2024, export value declined slightly by 0.28% to US$15,875.90 million. This modest decrease reflects the limited availability of exportable oil and gas resources due to the aging of Indonesia's oil fields, which has gradually reduced national production capacity and constrained export growth (Central Statistics Agency, 2025).

In contrast, Indonesia's oil and gas imports exhibited a much stronger and more volatile growth pattern than exports. In 2021, the import value was recorded at US$25,529.20 million. A year later, imports increased dramatically by 59.49%, reaching US$40,717.30 million in 2022. This sharp increase was mainly caused by soaring international crude oil prices and Indonesia's heavy dependence on imported petroleum products to satisfy domestic fuel demand, which exceeded national production capacity (Bank Indonesia, 2023). In 2023, the value of oil and gas imports declined by 12% to US$35,381.00 million. The decrease was largely attributable to lower global crude oil prices, which reduced Indonesia's import expenditure despite continued demand for imported energy (Central Statistics Agency, 2024). However, in 2024, imports increased moderately by approximately 1.24% to US$36,276.80 million. This growth reflected stable domestic economic expansion, rising fuel consumption driven by transportation and industrial activities, and Indonesia's continued reliance on importing refined petroleum products rather than processing sufficient quantities of domestically produced crude oil (Ministry of Trade of the Republic of Indonesia, 2024a).

Overall, the development of Indonesia's oil and gas trade during the 2021–2024 period indicates that export performance remained relatively stable but showed limited growth due to production constraints, whereas imports remained substantially higher and were strongly influenced by domestic energy demand and fluctuations in global oil prices. These findings highlight Indonesia's continuing dependence on imported petroleum products and emphasize the importance of strengthening domestic energy production and refining capacity to improve the country's energy security and trade balance.

Analysis of Export-Import Trends in the Non-Oil and Gas Sector

Based on annual statistical reports published by the Central Statistics Agency (BPS), Indonesia's non-oil and gas trade experienced significant fluctuations during the 2021–2024 period, reflecting changes in global economic conditions, commodity prices, and domestic economic recovery. The value of Indonesia's non-oil and gas exports showed a strong upward trend in 2022 following a substantial increase from US$219,462.20 million in 2021 to US$276,188.50 million, representing a growth of 25.8%. This remarkable increase was primarily driven by the post-pandemic recovery of global industries and geopolitical conflicts that led to higher international prices for Indonesia's major export commodities, including coal, palm oil, and iron and steel products (Central Statistics Agency, 2023). However, export performance weakened in 2023, declining by 11.8% to US$243,605.90 million. The decrease was mainly attributed to falling global prices of key commodities, particularly coal and nickel, which significantly reduced Indonesia's foreign exchange earnings from non-oil and gas exports (Central Statistics Agency, 2024). In 2024, export performance recovered moderately, increasing by 2.89% to US$250,652.30 million. This improvement was largely supported by renewed demand from Indonesia's major trading partners, especially China, which stimulated the recovery of non-oil and gas export activities (Central Statistics Agency, 2025).

Similarly, the value of Indonesia's non-oil and gas imports experienced dynamic changes during the same period. In 2022, imports increased from US$170,694.10 million in 2021 to US$197,518.10 million, representing a growth of 15.7%. This increase reflected Indonesia's economic recovery following the COVID-19 pandemic, which boosted domestic industrial production and increased demand for raw materials, intermediate goods, and capital equipment, particularly machinery

for the manufacturing sector (Ministry of Trade of the Republic of Indonesia, 2021). Nevertheless, import values declined by 5% in 2023, reaching US$187,276.50 million. This reduction was associated with lower international logistics costs, declining global raw material prices, and more cautious inventory management by domestic manufacturers amid concerns over global inflation and economic slowdown (Ministry of Trade of the Republic of Indonesia, 2024b). In 2024, imports rebounded, increasing by 6.2% to US$198,922.80 million. The recovery was supported by stable domestic economic growth and stronger household consumption, which increased demand for imported consumer goods, raw materials, and intermediate inputs required to support national production and market needs (Bank Indonesia, 2025).

Overall, the development of Indonesia's non-oil and gas trade during the 2021–2024 period demonstrates the country's sensitivity to global economic dynamics. While export performance was strongly influenced by international commodity prices and external demand, import growth reflected domestic economic recovery, industrial expansion, and consumer demand. These trends highlight the importance of maintaining export competitiveness while strengthening domestic industrial capacity to ensure sustainable trade performance.

Analysis of the Trade Balance

The following is a detailed calculation of the trade balance of export and import activities from the oil and gas and non-oil and gas sectors in each year (unit value of US$ million):

Table 2. Total Trade Balance in Oil and Gas and Non-Oil and Non-Oil and Gas Sectors

Year	Trade Balance		Total Trade Balance
	Oil and Gas Sector	Non-Oil and Gas Sector	
2021	-13.281,8	48.768,6	35.486,8
2022	-24.419,1	78.670,4	54.251,3
2023	-19.909,1	56.329,4	36.420,3
2024	-20.399,9	51.729,5	31.329,6

Based on the table above, it shows that import and export activities in the oil and gas sector experience a chronic deficit every year. The highest deficit figure occurred in 2022 reaching US$ 24,419.1. This is due to a decline in domestic crude oil production due to aging crude oil fields and the post-pandemic dependence on fuel oil (BBM) imports which made crude oil prices soar due to the geopolitical conflict between Russia and Ukraine.

Then, in the non-oil and gas sector, it scored a massive surplus throughout 2021 to 2024 so that it can still help the economy. This is strengthened by the three main frameworks, namely the Theory of Absolute Excellence (Adam Smith), the Theory of Comparative Advantage (David Ricardo), and the Heckscher-Ohlin Theory (H-O) in which Indonesia benefits from the surge in commodity prices such as coal and palm oil which makes the export value in 2022 quite high because it has a fairly good climate compared to other countries so that it is managed at low cost and quite efficiently. However, the price of these commodities began to return to normal in the following period, resulting in a decrease in the value of the surplus plus a decrease in demand from major partner countries. Indonesia's industrial, mining, and non-oil and gas plantation export capabilities are much stronger than the oil and gas deficit. This makes them able to reduce the deficit and keep the total trade balance in the positive zone. This is despite the fact that foreign exchange expenditure to import oil is very high.

CONCLUSIONS

Based on the results of data analysis, it can be concluded that Indonesia's trade balance as a whole managed to maintain a positive trend and was in the surplus zone during the 2021–2024 period. This is due to the strong performance of Non-Oil and Gas exports, which have consistently been the main drivers of surpluses due to superior commodities such as palm oil and coal, which have an absolute advantage in foreign markets. But on the other hand, the structural challenge faced by Indonesia is the oil and gas sector deficit which continues to increase every year. This deficit is caused by the aging condition of the national oil field, which reduces domestic production capacity while people's fuel consumption continues to increase after the pandemic. As a result, state money is spent on importing crude oil and fuel from other countries, especially when energy prices are soaring around the world.

To adjust the trade balance, the government acted immediately to accelerate the energy transition to renewable energy sources. This will help suppress imports of fuel oil and gas in the long run. In addition, to make Indonesia able to process its own crude oil instead of importing finished fuel, aggressive investments must be made in improving domestic refinery technology. In addition, for the Non-Oil and Gas sector, industrial downstream programs should be continuously expanded to include plantation and other mining commodities, as this will reduce the country's dependence on fluctuations in raw commodity prices around the world.

This study has a limitation, namely that it only focuses on macroeconomic descriptive analysis of the aggregate export-import data of oil and gas and non-oil and gas commodities in a relatively short span of time. Therefore, it is recommended that researchers further use more in-depth economic mathematical formulas to calculate the impact of global inflation and the rupiah exchange rate on Indonesian trade. In addition, researchers can then observe more specific types of goods, for example by focusing on products from palm oil or nickel mills. Finally, it is crucial to study how global conflicts and wars can affect Indonesia's new export destinations.

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