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# Implementation of anti-dumping duties on iron and steel products: Effects on the Indonesian economy

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**Abstract**
This research aims to empirically study the impact of Indonesia's anti-dumping measures on the performance of related imported products in 2011. Using the GTAP-E model, the region is divided into 9 regions and the industrial sector is grouped into 2 industries. Empirical results indicate that the imposition of a 20% Anti-Dumping Duty (BMAD) is ineffective in restricting trade from targeted countries. The GDP of non-targeted countries increased, but international trade balances correlated negatively with each BMAD imposition. Additionally, domestic prices in Indonesia appear to be high due to the implementation of BMAD, which has resulted in increased prices of iron and steel in the domestic market.

Keywords: Anti Dumping, Iron and Steel, GTAP-E

**Abstrak**
Penelitian ini secara empiris mengkaji dampak penerapan Bea masuk anti-dumping (BMAD) terhadap kinerja produk impor besi dan baja Indonesia pada tahun 2011. Menggunakan model simulasi GTAP-E, dengan 9 wilayah dan 2 sektor industri yaitu besi dan baja serta sektor lainnya. Temuan empiris menunjukkan bahwa penerapan BMAD sebesar 20% tidak efektif dalam membatasi perdagangan dari negara-negara yang menjadi target seperti China. PDB negara non-target mengalami peningkatan termasuk Indonesia. Namun, neraca perdagangan internasional berkorelasi negatif kecuali Indonesia dan Thailand. Selain itu, harga domestik di Indonesia cenderung tinggi akibat implementasi BMAD, yang mengakibatkan kenaikan harga besi dan baja di pasar domestik

Kata kunci: Anti Dumping, Besi dan Baja, GTAP-E

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## 1. Introduction

The establishment of the World Trade Organization (WTO) aims to create free trade and encourage international trade flows between countries by setting tariffs and import restrictions to protect the exchange of goods and services. The inability to control international trade freedom has resulted in an increase import volume, causing a surplus of imported goods in the domestic market, which affects the prices of goods and services domestically. This situation also impacts domestic products. Therefore, the increase in import volume poses a challenge and competition for domestic market participants. Bown & Crowley (2016) indicate that the protection of international trade is crucial, especially through the use of anti-dumping schemes to control the flow of imports and exports.

Dumping refers to practice of selling certain types of goods at a lower price in the destination country than in the country of origin. Conversely, anti-dumping measures

aim to mitigate the financial losses caused by dumping practices (Felbermayr & Sandkamp, 2020). According to Bown & Crowley (2007) and Baran (2015) the implementation of anti-dumping measures against one country can create externalities for other countries in the form of product surges. This occurs because countries affected by anti-dumping policies redirect their markets to other countries, where marginal revenue is relatively higher.

Sandkamp (2020) states that anti-dumping duties can affect both the price and quantity of imports. Anti-dumping duties lead to an increase in the exporter's producer prices, and while the import prices in countries with non-market economy status remain unchanged, the quantity of imports decreases. Lee et al. (2013) found that anti-dumping measures lead to higher import prices in the country of origin, prompting importing countries to reduce quotas. Hazem & Zaki (2020) found that anti-dumping actions cause import prices to rise and import quantities to fall, with a more significant decrease in import quantities. Additionally, anti-dumping measures reduce imports from countries under investigation and encourage a shift of imports to countries not targeted by these measures.

Without international trade protection, market players, particularly entrepreneurs, may incur losses. Therefore, strengthening anti-dumping measures can safeguard domestic businesses, fostering positive economic activities that contribute to economic growth (Primadhany et al., 2024). This assertion is supported by Silberberger et al. (2022), who found that companies advocate for anti-dumping measures to enhance international trade, given the country's participation in the global market. International trade aims to promote a country's economic growth, making the impact of anti-dumping on economic growth a compelling topic for researchers.

The Indonesian government has implemented anti-dumping measures on imported iron and steel products from the People's Republic of China (PRC), India, Russia, Kazakhstan, Belarus, Taiwan, and Thailand. These anti-dumping measures on iron and steel imports are undertaken to protect domestic products, as Indonesia is one of the largest iron and steel producers in Southeast Asia.

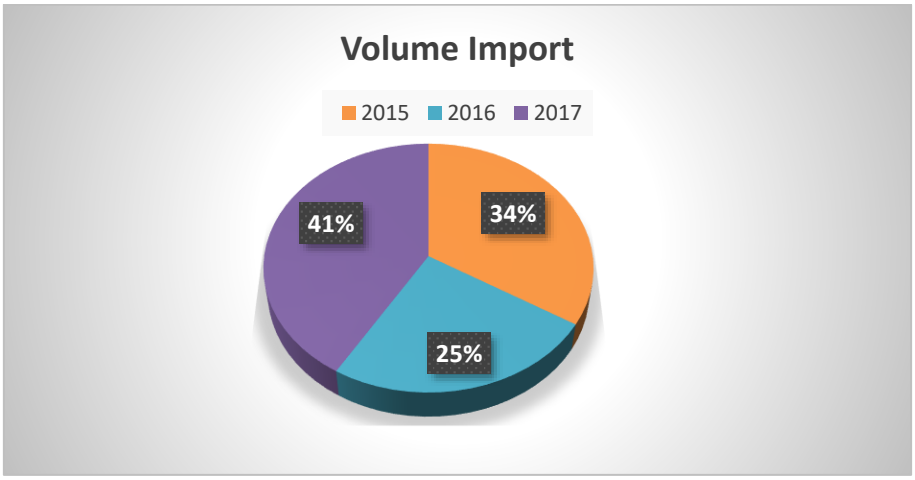


Figure 1. Import volume of iron and steel in 2015-2017
Source: (Statistik Perdagangan Luar Negeri Indonesia Impor 2017 Jilid 1, 2017)

According to a report by the Central Bureau of Statistics (2017) from 2015-2017, iron and steel imports experienced fluctuations but showed a general increase. In 2015, Indonesia imported iron and steel at a rate of 35%, which then decreased to 25% in 2016. However, in 2017, it sharply increased to 41%, nearly half of the domestic demand. This impacted domestic iron and steel production, with producers experiencing a decline in prices due to the influx of imported iron and steel in the domestic market. Therefore, the Minister of Finance of the Republic of Indonesia has determined the imposition of anti-dumping import duty on the import of iron and steel products through regulations of the finance minister number 169/PMK.011/2013.

Table 1. Share of import origin in 2013-2017 (net weight of 000 tons)

| Country | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Tiongkok | 465.8 | 407.7 | 239.7 | 175.9 | 195.7 |
| Jepang | 151.0 | 129.6 | 73.6 | 55.9 | 152.2 |
| Singapura | 92.6 | 86.3 | 35.8 | 28.8 | 29.0 |
| Amerika Serikat | 13.1 | 5.8 | 1.2 | 2.2 | 1.8 |
| Korea Selatan | 68.2 | 59.5 | 2.1 | 10.7 | 28.4 |
| Thailand | 15.2 | 11.1 | 20.3 | 2.4 | 4.7 |
| Jerman | 263.6 | 20.6 | 2.9 | 5.2 | 21.8 |
| Italia | 28.1 | 38.9 | 17.5 | 10.1 | 9.9 |
| India | 3.6 | 4.4 | 17.5 | 1.9 | 3.4 |
| Perancis | 37.4 | 7.6 | 3.7 | 0.6 | 1.1 |
| Taiwan | - | 115.8 | - | - | - |
| Rest of World | 90.3 | 887.3 | 29.2 | 32.1 | 94.3 |

Source: (Statistik Perdagangan Luar Negeri Indonesia Impor 2017 Jilid 1, 2017)

Based on the 2017 report, China and Japan were the largest importers of iron and steel, with import volumes recorded at 195,700 tons from China and 152,200 tons from Japan. In contrast, the lowest volume was recorded at 1,100 tons from France (Statistik Perdagangan Luar Negeri Indonesia Impor 2017 Jilid 1, 2017). The substantial import volumes from other countries pose a challenge to the development of domestic iron and steel products. This situation affects the production and export of iron and steel, necessitating an analysis of whether the implementation of anti-dumping duties impacts Indonesia's economic growth. Anti-dumping duties are implemented by the government to protect domestic iron and steel producers and to establish these products as leading exports in global trade.

Several studies conducted in various countries on the impact of anti-dumping duties by Mahajan et al. (2021) found that India imposes anti-dumping duties on 155 imported commodities from China to protect its domestic industry China's dumping practices have harmed India's domestic industry. The imposition of anti-dumping duties by India on various imported products from China has had a positive and effective impact in reducing import volumes. Yamashita & Yamauchi (2020), observed the impact of anti-dumping duties on several imported commodities, including iron, using the Difference in Difference method. They found that before the Japanese government implemented anti-dumping duties on products from the US and China, the iron and other industries experienced a decline in exports due to the proliferation of imported products from both

countries. However, after the implementation of anti-dumping duties, iron and other commodities experienced an increase in exports and a decrease in import volumes. Dang & La (2021) found through panel analysis that anti-dumping measures in Vietnam have a positive impact on domestic steel prices for producers, but negatively affect downstream companies that rely on steel as a raw material due to higher prices.

Based on these reports, this study aims to analyze the simulated impact of a 20% import duty on iron and steel products through Indonesia's gross domestic product Unlike previous research by Mahajan et al. (2021), Yamashita & Yamauchi (2020), and Dang & La (2021) which used OLS, DiD, and panel data impact evaluation methods, this study utilizes the Global Trade Analysis Project (GTAP-E) database, which integrates global trade data across various sectors and commodities.

## 2. Literature Review

The research methods in a scientific journal encompass a range of essential aspects. These include the research design, which describes the type of research conducted; the population and sample explained in the context of the studied population and how the sample was selected; the instruments and data collection detailing the tools and techniques used to gather data; procedures that outline the steps in conducting the research; data analysis, involving statistical techniques and software used.

International trade is the buying and selling transactions conducted by the residents of one country with the residents of another country based on mutual agreement. According to Krugman & Obstfeld (2009), there are two reasons that drive a country to engage in international trade. First, there are differences between countries, allowing them to always have the opportunity to benefit from these differences. Second, countries engage in trade with each other in order to achieve economies of scale in production. International trade between countries can occur due to competitive advantages and specialization in both products and prices. Tariff policies and import restrictions are applied in international trade to protect the flow of goods and services from other countries. The purpose is to protect domestic products and services (Maiti, 2018).

Anti-dumping is one of the schemes to restrict international trade, especially import limitations. Explicitly, the impact of Anti-Dumping identifies the impact of trade restrictions and the impact of trade diversion, particularly related to the import of goods covered by anti-dumping cases (Lee et al., 2013). Prusa (2021) examined the effectiveness of anti-dumping protection using US anti-dumping data from the period 1978-1993. The analysis shows evidence that anti-dumping has led to significant trade diversion from accused dumping countries to non-accused dumping countries. Additionally, it was also found that the higher the anti-dumping tariff imposed, the greater the trade diversion. This is due to the magnitude of import diversion (Prusa, 2021). According to Konings et al. (2001), the diversion of antidumping imports by the European Union (EU) is an indicator of the effectiveness of anti-dumping policies in protecting domestic industries from imported products. In the investigation of Dumping practices, three interrelated non-primary factors are considered: the existence of

Dumping practices itself, the occurrence of harm, and the causal relationship between harm and the Dumping actions themselves.

Using the data from the US Antidumping petitions against agricultural commodities during the period 1990-2002, Malhotra et al. (2008) conducted an analysis to determine whether the imposition of antidumping tariffs hindered imports of these products or led to a diversion of imports from other sources. The research findings indicate that anti-dumping tariffs have a significant impact on agricultural product imports from countries accused of dumping, as stated in the anti-dumping petitions. Additionally, there was also evidence of trade diversion from countries not specifically mentioned in the anti-dumping petitions, although the impact was relatively small. Research concludes that antidumping measures are effective in protecting US agricultural producers if anti-dumping petitions are granted and anti-dumping tariffs are imposed. Unlike previous studies that focused on anti-dumping cases in the US, Ganguli (2008) conducted an empirical study on the impact of antidumping in India. The data used covered India's anti-dumping cases from 1992 to 2002, using aggregated HS 6-digit data. The research findings indicate that anti-dumping has a significant impact on the accused country. While diverting trade to non anti-dumping countries may reduce profits for domestic industries in India, overall anti-dumping policies help control unwanted imports.

## 3. Research Method

The data used in this study are secondary data sourced from the Global Trade Analysis Project (GTAP) Database version 9A. GTAP is a database and software used for quantitative analysis of international policy issues**.** GTAP was developed by the Center for Global Trade Analysis in 1992 at Purdue University, USA (Walmsley & Aguiar, 2012). Of the 140 regions/countries in the GTAP database, these regions are mapped into 9 areas: China, India, Kazakhstan, Belarus, Thailand, Taiwan, Russia, Indonesia, and the rest of the world. Additionally, for detailed aggregation, the 57 commodities in the GTAP database are categorized into 2 sectors based on industry: specific to iron and steel data, and other services.

### Research Models

In Figure 2, it can be observed that Pe and Qe represent the prices and quantities at the equilibrium point established in the domestic market (without international trade) and before the entry of dumping products from abroad ($I_n$). In general equilibrium analysis, consumers are assumed to have a homogeneous utility function. Individuals determine their consumption levels based on their income and the prices of goods. Income levels are subsequently calculated based on ownership of production factors (such as labor, capital, etc.) (Nicholson, 2005). The dumping of iron and steel products from abroad creates a new supply curve (Sln), leading domestic producers to produce at $Q_1$. The new equilibrium indicates that the price of the dumping product (Pln) is lower than the equilibrium price prior to dumping (Pe). Since iron and steel products are needed by domestic consumers, a quantity of imports equal to $Q_1$-$Q_2$ is introduced, which domestic producers are unwilling to produce.

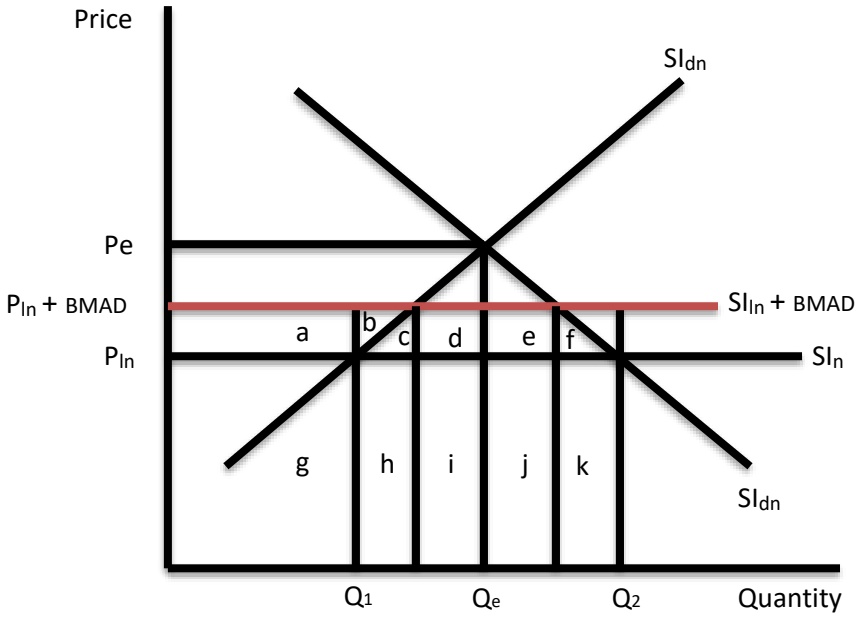


Figure 2. The impact of dumping on iron and steel products in Indonesia
Source: Krugman & Obstfeld (2009)

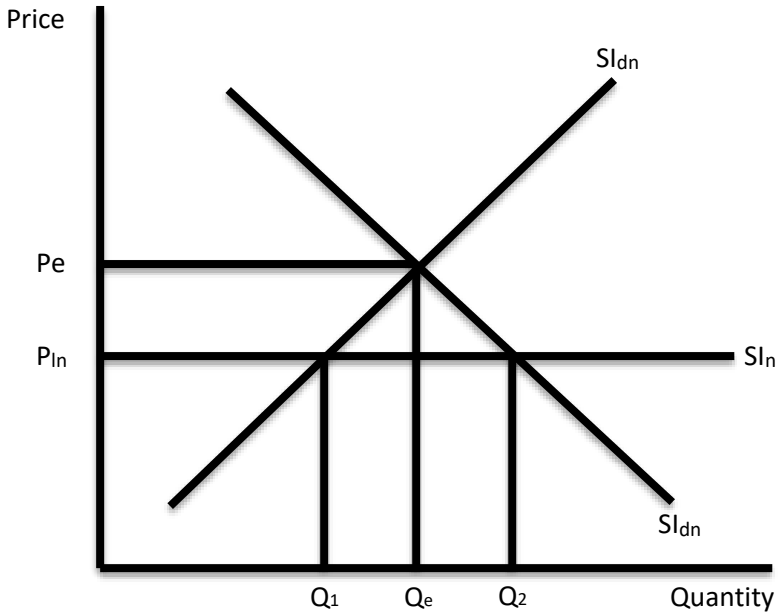


Figure 3. The impact of BMAD imposition on imported iron and steel products in Indonesia
Source: Krugman & Obstfeld (2009)

Following the implementation of Anti-Dumping measures in the form of Anti-Dumping Import Duty (BMAD) on iron and steel products, the supply curve has shifted upwards as depicted in the Figure 3. BMAD acts as an additional tariff on imported products, effectively increasing the production costs for exporters and resulting in higher selling prices. Domestic producers, who previously earned income represented by the G area, now experience enhanced profitability due to the imposition of BMAD. Conversely, foreign producers subjected to anti-dumping tariffs see a reduction in

income, from the original h + i + j + k to i + j. The BMAD has led to an increase in the selling price of foreign iron and steel products (In) in the Indonesian market, thereby decreasing the demand for these imported products from $Q_1$-$Q_2$ to $Q_3$-$Q_4$. Meanwhile, the government, which collects the BMAD, receives revenue amounting to d + e

From this illustration, it can be concluded that the imposition of additional import tariffs (BMAD) is a government action that can protect domestic producers from financial losses due to the influx of dumped imported products. Domestic producers are thus able to secure profits (income exceeding previous levels) by selling their products at competitive prices (normal price).

## 4. Results and Discussion

### *4.1 Results*

The Indonesian government has imposed anti-dumping import duties (BMAD) through regulations issued by the Minister of Finance No PMK010/2019 on imported iron and steel products from the countries of the PRC, India, Russia, Kazakhstan, Belarus, Taiwan, and Thailand. BMAD is applied in response to complaints from domestic iron and steel companies and manufacturers. Prior to the simulation of a 20% anti-dumping import duty, the GDP growth rate for each country averaged 1% from iron and steel trade. The simulation of a 20% anti-dumping import duty has led to an increase in GDP for Indonesia (table 2). This indicates the Indonesian government's efforts to protect domestic iron and steel products. The influx of iron and steel goods from other countries can lead to intense competition in the sale of iron and steel products.

Table 2. Impact anti-dumping import duties on Economic Growth (%)

| Pgdp | Before the imposition of tariffs 20% | After the imposition of tariffs 20% |
|---|---|---|
| China | 1.00 | 1.06 |
| India | 1.00 | 1.07 |
| Kazakhstan | 1.00 | 0.99 |
| Belaruisa | 1.00 | 1.02 |
| Thailand | 1.00 | 1.04 |
| Taiwan | 1.00 | 1.02 |
| Rusia | 1.00 | 1.01 |
| Indonesia | 1.00 | 1.10 |
| Rest of World | 1.00 | 1.05 |

Source: GTAP model simulation result, processed (2019)

Most of the prices for imported iron and steel are cheaper compared to domestic prices, which makes it difficult for domestic products to compete with imported ones. India has the second largest GDP growth rate at an average of 1.06%, followed by China (PRC) 1.06%, Rest of World 1.05%, Thailand 1.04%, Belarus and Taiwan 1.02%, Russia 1.01%, and Kazakhstan at 0.99%. Despite having the highest percentage of GDP in Indonesia, the 20% BMAD (anti-dumping duty) is not very effective in restricting trade from targeted countries. The Indonesian government regulations are still too lax, making it difficult to control imports of iron and steel products from other countries,

especially China. The regulations actually loosen importation. According to (Pratiwi, 2014), iron and steel are material commodities for the manufacturing sector so that domestic demand is quite large, which results in the opening of import faucets. Domestic steel and iron production has not been able to meet domestic demand. Import restrictions and anti-dumping import duties imposition are not enough to restore the condition of the steel and iron industry in Indonesia.

The implementation of anti-dumping import duties not only affects Indonesia's GDP, but also influences the trade balance and pricing of iron and steel products. Based on a simulation model (table 3), the impact of a 20% anti-dumping import duty on the trade balance (export-import) imposed by Indonesia has resulted in positive effects for both Indonesia and Thailand, with an increase in the trade balance of 13521.24 million US dollars and 248.73 million US dollars.

Table 3. Impact of Anti-Dumping Import Duties on Trade Balance (US dollar)

| Country | Trade Balance |
|---|---|
| China | -1745.04 |
| India | -325.54 |
| Kazakhstan | -48.18 |
| Belarusia | -11.45 |
| Thailand | 248.73 |
| Taiwan | -49.98 |
| Rusia | -495.93 |
| Indonesia | 13521.24 |
| Rest of World | -11093.86 |

Source: GTAP model simulation result, processed (2019)

The negative impact on other countries is as follows China at -1745.04 million US dollars, India -325.54 million US dollars, Kazakhstan -48.18 million US dollars, Belarus -11.45 million US dollars, Taiwan -49,98 million US dollars, and Russia -495.93 million US dollars. This indicates that BMAD is an effective policy in responding to domestic producers' concerns due to the proliferation of imported iron and steel products. Domestic producers' competitiveness will strengthen due to price restrictions and import duties. Consequently, it will create price competition in both domestic and global markets. The imposition of anti-dumping duties increases the prices of imported products that are subject to tariffs, which typically reduces import volume (Kang & Ramizo, 2020). With the decrease in imports due to the application of anti-dumping duties, while exports remain stable or even increase, the trade balance of the country tends to improve. This is because the difference between export and import values becomes more positive (Aggarwal, 2010).

The next results found that the determination of anti-dumping import duty of 20% had an impact on the increase in iron and steel prices on the supply side. The price supply increased by 4.08% in Indonesia, and the price supply in Russia remained unchanged. Meanwhile, other countries such as China, India, Kazakhstan, Belarus, Thailand, Taiwan, Rest of World, and India experienced a decrease in offer prices which indicated that the implementation of anti-dumping import duties had a negative impact on the country of origin of imported steel and iron products (table 4).

Table 4. Impact of anti-dumping import duties on price supply

| Country | Price Supply |
|---|---|
| China | -0.03 |
| India | -0.01 |
| Kazakhstan | -0.01 |
| Belarusia | -0.01 |
| Thailand | -0.15 |
| Taiwan | -0.00 |
| Rusia | 0.00 |
| Indonesia | 4.08 |
| Rest of World | -0.01 |

Source: GTAP model simulation result, processed (2019)

Meanwhile, Indonesia, which tends to be an importing country, gets an increasing offer price. A country subjected to dumping will benefit from lower prices. Consumers in the importing country will experience a larger consumer surplus due to having access to a greater supply of goods at reduced prices (Prusa & Vermulst, 2020).

In a market distorted by dumping practices, product prices can become very low and detrimental to local producers. Anti-dumping import duties help restore prices to a more reasonable level, reflecting actual production costs. By implementing anti-dumping import duties, imported product prices become more balanced and aligned with production costs. This helps ensure that the supply of goods in the domestic market relies not only on cheap imports but also on sustainable and stable local production. This price stability is crucial for maintaining market equilibrium and avoiding price fluctuations that harm consumers and producers (Shadikhodjaev, 2019). By reducing the import of dumped goods, the demand for domestically produced goods increases. This not only reduces dependence on imported goods but also encourages export growth when domestic products become more competitive in the international market. As a result, the trade balance can improve.

### *4.2 Discussion*

GTAP database simulation shows that the application of 20% anti-dumping duties on imported iron and steel products case studies in Indonesia, China, India, Kazakhstan, Belarus, Thailand, Taiwan, Russia, and the rest of the world have a positive impact on increasing economic growth as proxied by gross domestic product. Indonesia experienced high growth compared to other countries, namely 1.10% after the implementation of 20% anti-dumping duties. Followed by India (1.07%), China (1.06), and Thailand at 1.04%. The four countries represent 3 regions in Southeast Asia (Indonesia, Thailand), East Asia (China), and South Asia (India). Anti-dumping duties have a greater impact on Southeast Asian countries even though they are not the main contributors to global steel and iron production. The anti-dumping duty policy aims to protect the domestic iron and steel industry, because China and India are the first and second largest producers in the world, so the Indonesian government needs to protect imported iron and steel from China and India. Several companies in Southeast Asia have also formed associations, Indonesia and Thailand are members of the SEAISI association which oversees the iron and steel industry in Southeast Asia, including

recommending the government to firmly apply anti-dumping to imported iron and steel products from the world's largest producing countries.

The Indonesian government's action to apply anti-dumping substantially provides market power to the domestic iron and steel industry to dominate the market. This will encourage productivity and competitive price competition between imported goods and domestic iron and steel production. Competitive price competition also encourages an increase in the volume of iron and steel product exports from Indonesia in the global market. Thus, contributing to the increase in GDP in Indonesia and other countries. In addition, the intensity of iron and steel industry production will affect the balance of trade as measured by the net result, namely exports-imports.

The second result of this study found that the application of anti-dumping import duties of 20% affected the performance of the trade balance, especially in Indonesia and Thailand which experienced a positive trade balance of 13521.24 million USD and 248.73 USD. A positive trade balance indicates that the volume of iron and steel exports is greater than imports in Indonesia and Thailand, so that export revenues are higher. This is because both countries are members of the steel industry association which continues to encourage the government to protect domestic industries and encourage the production of export-quality.

Indonesia and Thailand have a homogeneous anti-dumping policy based on recommendations from the SEAISI association which oversees the entire iron and steel industry in Southeast Asia. Meanwhile, other countries experience a negative trade balance because the implementation of anti-dumping has caused the volume of iron and steel exports in the country of origin to decline. Anti-dumping duties on iron and steel products, especially for Indonesia, have a positive impact on increasing price supply by 4.08%, while other countries experience a decrease in price supply. The decreasing supply price is a response from other countries such as China and India to export iron and steel at cheaper prices because these countries have excess supply of iron and steel products.

The positive supply price in Indonesia will be responded to by domestic producers to produce more iron and steel as export goods and to meet domestic needs. However, the increasing price of iron and steel supply has an impact on other industries, especially the manufacturing industry that uses iron and steel as raw materials, the increasingly expensive price will make the manufacturing industry sluggish due to the price of raw materials also increasing. So that in the end they prefer to use imported iron and steel. In this condition, it becomes a double-edged sword, on the other hand the imposition of anti-dumping import fees has an impact on economic growth and improves the trading country but the price of iron and steel supply is increasingly expensive for Indonesian products. Thus the implementation of anti-dumping policies must be implemented carefully and need to pay attention to the supply and demand side of iron and steel products. The increase in supply prices is certainly influenced by the uncertainty that occurs in the global market and the position of the Indonesian iron

and steel industry which needs to be strengthened with massive efforts to encourage production, competitive price competition and efficiency.

## 5. Conclusion

The implementation of a 20% anti-dumping import duty on iron and steel products has positive effects on the domestic economy by increasing GDP, improving the trade balance, and stabilizing supply prices This protection allows the domestic industry to compete more fairly, reduce dependence on imports, and create a more stable and sustainable market environment.

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