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The Effect of The Policy of Imposition of Import Duties on The Import of Indonesian Ceramic Tiles

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safeguard duty;
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ABSTRACT
Indonesia's current account balance has frequently shown instability, largely influenced by macroeconomic variables such as inflation, exchange rate, and interest rates. This instability has implications for the country's financial resilience and trade competitiveness. This study aims to analyze the partial and simultaneous effects of inflation, exchange rate, and interest rates on Indonesia's current account balance using quarterly time series data. The research adopts a quantitative approach utilizing Error Correction Model (ECM) analysis, which allows for the identification of both short-run and long-run relationships among variables. The study finds that inflation and interest rate variables have significant partial effects on the current account, while the exchange rate shows less impact individually. However, when examined simultaneously, all three variables influence the current account significantly. These findings highlight the importance of coordinated macroeconomic policy, especially in managing inflationary pressure and monetary policy responses to safeguard external balance. The results provide valuable insights for policymakers aiming to stabilize Indonesia's external sector and formulate sustainable economic policies amidst global economic uncertainty.

INTRODUCTION

This page should begin with the Introduction of your article and follow by the rest of your paper State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results. Widespread trade liberalization has created various dynamics in international trade, including for Indonesia as a member of the World Trade Organization (WTO). One of the most important efforts to promote global trade liberalization was through the Doha Round, which began in 2001 (Coelli et al., 2022; Himics et al., 2018; Jannils, 2021; Kunimitsu et al., 2020; Zeng et al., 2020). This round aims to reduce international trade barriers, such as tariffs, subsidies, and quotas, particularly in the agricultural and industrial sectors. However, to date, the Doha Round talks have not reached a final agreement, mainly due to differences in interests. Developed countries, such as the European Union, the United States,

Canada, and Japan, have different views than developing countries such as India, Brazil, China, and South Africa.

Trade liberalization is believed to encourage economic growth, both through the efficiency of resource allocation and through the long-term benefits of international trade (Mohsen et al., 2017; Odebode & Aras, 2020; Wu & Zeng, 2021). However, in practice, trade liberalization often creates distortions in the market. Countries with abundant resources and advanced technology tend to dominate the international market. This causes importing countries to have difficulty maintaining the competitiveness of their domestic products. For example, technological developments in countries that previously relied on imports now allow them to meet their own domestic needs.

Although this situation looks advantageous, new challenges arise when domestic products are difficult to compete with cheaper imported products, have better quality, and are supported by superior after-sales service. This condition strengthens the dominance of foreign products in the domestic market. To face the challenge of import dominance, the WTO gives its member countries the authority to protect domestic industries through a policy known as the Temporary Trade Barrier (TTB). Temporary Trade Barriers are instruments provided by the WTO for member countries to deal with trade imbalances, such as anti-dumping and anti-subsidy cases, or even to protect balanced trade through safeguards policies (Ministry of Trade of the Republic of Indonesia, 2023). In Indonesia, one of the temporary trade barrier instruments that is often applied is the safeguard measures policy, or known as the safeguard measures import duty (BMTP).

BMTP is a protection measure taken by a country in an "emergency" under the WTO Agreement on Security. This policy aims to prevent or reduce serious losses to the domestic industry due to the surge in imports. The steps taken can be in the form of the imposition of additional tariffs, import quota restrictions, or other trade barriers. Since its introduction through the WTO Agreement, the implementation of safeguard measures in international trade has continued to develop. This policy provides an opportunity for WTO member countries to protect their domestic industries from the negative impact of import surges, especially when local products are not yet able to compete with cheaper or higher-quality imported goods. As an illustration, the trend of BMTP implementation globally since 1995 shows that there are two main categories, namely the number of initiations and the number of ratified BMTP policies.

The impact of trade liberalization on the ceramic tile industry in Indonesia, which faces major challenges due to the dominance of imported products from countries such as China, India, and Vietnam. Trade liberalization, while aimed at improving the efficiency of the global economy, often creates market distortions that are detrimental to developing countries. In this context, cheaper and high-quality imported products dominate the domestic market, thus threatening the sustainability of the local industry (Cherniwchan, 2017; Dragusha et al., 2023; Gnangnon, 2018; Hsieh et al., 2020; Khan et al., 2021). To protect domestic industries, the World Trade Organization (WTO) authorizes its member countries to implement temporary protection policies, such as Safeguard Import Duties (BMTP), to address significant import spikes.

This study aims to analyze the impact of BMTP policy on the import of ceramic tiles in Indonesia, both in terms of weight and import value, as well as its implications for the domestic industry. Using trade data for the period 2014–2024 and gravity model analysis methods, this study evaluates the effectiveness of BMTP policies in reducing dependence on imports and supporting the strengthening of local industries. In addition, the study also considers other factors, such as exchange rate fluctuations, raw material prices, and global market dynamics, that influence the success of these trade protection policies.

Indonesia has implemented the BMTP policy since 2018 to protect the domestic ceramic tile industry from massive import pressures. This policy aims to prevent serious losses to local producers due to the surge in imports, by imposing additional tariffs on certain imported products. In the case of ceramic tiles, this policy is expected to provide space for local producers to increase production capacity and competitiveness. However, the implementation of BMTP also poses challenges, such as the potential for an increase in the price of construction materials that can affect consumer purchasing power and infrastructure development costs.

The Safeguard Import Duty (BMTP) policy is a strategic step taken by the government to protect the domestic industry from a surge in imports that can harm local producers. In the context of ceramic tiles, the implementation of BMTP is aimed at limiting the dominance of imports from certain countries, which have contributed significantly to the high volume and import value of ceramic tiles in Indonesia. Specifically, this policy aims to reduce the weight and value of ceramic tile imports so that the domestic industry can compete competitively, both in terms of price and quality. By providing protection space through this tariff policy, it is hoped that there will be a shift in market dynamics that support strengthening local production capacity.

However, the success of this policy is still a subject of discussion that requires empirical proof. Is this BMTP policy really able to reduce the volume and value of imports of ceramic tiles from named countries, or does the policy have a limited impact? In addition, with the mechanism of reducing BMTP tariffs by 2% every certain period, there is a possibility that this policy will actually provide opportunities for imported products to increase their market share again.

This research is designed to provide an in-depth understanding of the impact of the Security Import Duty (BMTP) policy on the import of ceramic tiles in Indonesia. However, like any academic endeavor, it has several limitations that need to be acknowledged to ensure analytical accuracy and relevance. First, the study does not explore the implications of the BMTP policy at the individual company level within the ceramic tile industry, which could have offered more granular insights. Second, the analysis does not encompass the broader supply chain dynamics, which are essential for understanding the full economic ripple effect of such trade policies. Moreover, due to limited data availability, this study excludes critical variables such as the national ceramic tile industry's utilization rate and industrial gas prices, both of which can significantly influence production and competitiveness.

Despite these limitations, the research offers meaningful contributions, particularly for policymakers in trade and industry. It provides a fresh analytical perspective on the Temporary Trade Barrier (TTB) through a novel approach—utilizing monthly import data to assess the effectiveness of the BMTP policy. This is notably the first study to apply such a methodology in the context of ceramic tile imports, enabling a more nuanced evaluation aligned with the varied implementation timelines of the BMTP across countries. Ultimately, the study aims to support more evidence-based policymaking and enhance the design and evaluation of protective trade measures.

The current account balance serves as a crucial indicator of a country's external economic health. For Indonesia, persistent fluctuations in the current account—often driven by external trade shocks and internal macroeconomic instability—pose a challenge to achieving sustainable economic growth. Despite policy interventions, imbalances persist, with inflation, exchange rate volatility, and interest rates suspected as key contributing factors. Understanding how these variables affect the current account is essential for ensuring macroeconomic stability and shaping prudent economic policy.

Macroeconomic stability is a cornerstone for investment, trade, and long-term development. Indonesia's current account has frequently swung between surplus and deficit, particularly in response to external price shocks and domestic monetary adjustments. When the current account shows prolonged deficits, it increases dependence on foreign capital, which in turn makes the economy vulnerable to global financial fluctuations. In light of this, policymakers need accurate models to predict and mitigate current account deterioration through effective inflation targeting and exchange rate policies.

Moreover, with Indonesia's increasing integration into global markets, the urgency to understand these macroeconomic linkages intensifies. Failure to monitor and control inflation and exchange rate misalignments could lead to currency depreciation, capital flight, and loss of investor confidence. Hence, empirical analysis that clearly identifies how inflation, exchange rate, and interest rates interact with the current account is not only timely but also vital for national economic planning.

Several prior studies have explored the determinants of the current account. For example, Obstfeld and Rogoff (1996) established the intertemporal model of the current account, emphasizing how interest rate changes and expectations affect consumption and savings behavior, thereby influencing the current account. More recent research by Edwards (2001) found that real exchange rate appreciation negatively impacts the trade balance, worsening the current account in developing economies.

In the Indonesian context, Wahyudi and Rakhmanto (2017) found that inflation and exchange rate volatility are significantly associated with movements in the current account, particularly during periods of commodity price fluctuations. However, their study used annual data, limiting the precision of short-term policy responses.

Another study by Santoso and Mulyani (2019) employed a VAR model to estimate the causal relationship between macroeconomic indicators and the current account, concluding that exchange rate policy plays a more dominant role than interest rate adjustments. Nevertheless, these studies typically employ macro aggregates over longer time spans, leaving gaps in understanding short-term dynamics relevant to policy timing.

Although various studies have analyzed the determinants of the current account, limited attention has been paid to the short-term dynamic interactions among inflation, exchange rate, and interest rates using quarterly data for Indonesia. Furthermore, few studies adopt the Error Correction Model (ECM) framework to simultaneously capture both short-run and long-run relationships in the context of Indonesia's external balance. This study aims to address this gap by offering a more granular analysis suited for real-time policy evaluation.

The novelty of this research lies in its methodological and contextual focus. It is among the first studies to apply the Error Correction Model (ECM) using quarterly Indonesian macroeconomic data to assess how inflation, exchange rate, and interest rates affect the current account. Unlike prior research that focused on annual data or single-variable approaches, this study integrates three key macroeconomic indicators into a unified empirical model, enhancing both theoretical robustness and policy applicability.

This study aims to analyze the simultaneous impact of inflation, exchange rate, and interest rate on Indonesia's current account balance, using the Error Correction Model to differentiate between short-term fluctuations and long-term equilibrium relationships.

This research is expected to provide valuable input for economic policymakers, particularly the central bank and Ministry of Finance, in formulating responsive and evidence-based strategies to stabilize the current account. By offering a comprehensive understanding of the short- and long-

term macroeconomic determinants, the study contributes to the development of more accurate forecasting tools and better-informed monetary policy decisions.

RESEARCH METHOD

The implementation of the Security Import Duty (BMTP) by the Indonesian government aims to protect the domestic industry, especially the ceramic tile sector, from a surge in imports that can suppress the competitiveness of local producers. This policy is expected to reduce import volumes by increasing the price of imported products through additional tariffs, which in turn provides an opportunity for local producers to increase production capacity and efficiency. In addition, BMTP can change the consumption pattern of the domestic market by shifting consumer preferences to local products, despite the potential for an increase in the price of local products due to reduced competitive pressure from imported products. This policy also has long-term implications in strengthening the national industrial structure, by giving time for the industry to improve the quality and production capacity to compete in the global market.

This study uses a gravity model combined with the Poisson Pseudo Maximum Likelihood (PPML) method to analyze the impact of BMTP on ceramic tile imports in Indonesia. The gravity model is used to evaluate the trade relationship between Indonesia and major supplier countries such as China, India, and Vietnam, taking into account factors such as economic size and trade barriers. PPML was chosen because of its ability to handle zero-value trade data on dependent variables, making it more stable in international trade data analysis. Through this approach, it is hoped that a clearer picture can be obtained of the impact of protection policies on import flows and its implications for strengthening domestic industry and more effective trade policies in the future.

Data

This study uses secondary data collected from various official sources to ensure the reliability and validity of the research results. The HS Code that is the focus of the research is the HS Code which is mentioned in the Regulation of the Minister of Finance as amended several times Number 156/PMK.010/2021 concerning the Imposition of Import Duties on Security Measures on the Import of Ceramic Tile Products, namely the period of 2017-2024 using 12 HS Codes, namely: 6907.21.91, 6907.21.92, 6907.21.93, 6907.21.94, 6907.22.91, 6907.22.92, 6907.22.93, 6907.22.94, 6907.23.91, 6907.23.92, 6907.23.93, 6907.23.94 as amended by BTKI in 2017 and 2022, while the period of 2014-2016 as stated in the Regulation of the Minister of Finance number 213 of 2011 concerning the Determination of the Goods Classification System and the Imposition of Import Duty Rates on Imported Goods, the HS Code used is: 6907.9010.00, 6907.9090.00, 6908.9011.00, 6908.9019.00, 6908.9091.00, 6908.9099.00 referring to BTKI in 2012. The import data studied includes information on import weight and value, macroeconomic variables, and special variables related to BMTP policy.

Model Gravity

The Gravity model functions to predict the impact of BMTP policies on the import of ceramic tiles to Indonesia. In this context, this model assumes that the volume of trade between countries is influenced by the size of each country's economy and the trade barriers represented by geographical distance. The basic theory of international trade supports that countries with large economies tend to have higher trade volumes. This study adapts the model developed by Khanal et al. (2024), by formulating an econometric model that includes important variables such as Indonesia's Gross Domestic Product (GDP), distance to the supplier country, and dummies for the

imposition of BMTP. The equations used in this study are designed to capture the complex relationships between these variables, providing a more accurate picture of trade dynamics.

Estimation Method: Poisson Pseudo Maximum Likelihood (PPML)

The estimation method used is Poisson Pseudo Maximum Likelihood (PPML), which is very suitable for the Gravity model. PPML has the advantage of addressing the zero-value problem that often arises in international trade data. Zeros on dependent variables can be a challenge for traditional estimation methods such as Ordinary Least Squares (OLS), which tend to ignore such observations. With PPML, all data can be used without the need for log transformation, thereby reducing the potential for bias and maintaining data integrity. In addition, PPML is designed to address heteroscedasticity, which is a common problem in international trade data. By modeling the relationship between dependent and independent variables on an exponential scale, PPML provides more robust and consistent estimates, despite violations of basic assumptions.

Model Assumption and Robustness Test

Robustness checks are carried out by adding the lag variables of the previous period to ensure valid and reliable estimation results. The use of lag variables allows researchers to capture the dynamics of relationships between variables that may not be visible in static analysis. Lag variables can help identify patterns of temporal interconnectedness, where the influence of policies or economic disruptions is not always immediately apparent. By including lag variables, the model can capture dynamic effects, so that the estimated results reflect a stable and consistent relationship. The addition of these variables also reduces the risk of bias due to the influence of the previous uncontrolled period. It is hoped that the results of this robustness check can strengthen the validity of the research findings and provide more confidence in the resilience of the analysis to changes in model specifications. This is important to ensure that the conclusions drawn from this study are based on solid and reliable estimates, and can provide deeper insights into the impact of BMTP policies on ceramic tile imports.

Autoregressive Distributed Lag (ARDL) Analysis

The Autoregressive Distributed Lag (ARDL) Model is an econometric model used to analyze the relationship between dependent variables and independent variables, both in the short and long term. This model is often applied to time series data, especially when there is a possibility of a lag in the influence of independent variables on dependent variables. In the context of this study, ARDL is used to see the influence of the application of BMTP on the ceramic tile industry through several related indicators, The dependent variables that are the object of analysis are as follows:

Monthly production index of the non-metallic mining materials industry,

Price index of building and non-building construction materials,

Consumer price index, and

The average value of imports is weighted.

The use of the ARDL model in the context of importing ceramic tiles into Indonesia has several advantages, especially in separating the short-term and long-term influences of independent variables on the import weight of ceramic tiles. In the short term, fluctuations in raw material prices and consumer price indices may have a faster effect on imports, for example through changes in construction costs or people's purchasing power. Meanwhile, long-term relationships may reflect more stable trends, such as structural changes in the construction sector or building material consumption patterns. Thus, ARDL can provide a holistic analysis to understand both types of influence.

In addition, the ARDL model is also flexible in handling time series data with mixed integration levels, namely stationary data at level (I(0)) and integrated data at the first level (I(1)).

In this study, it is important to ensure that no variables are integrated at the second level (I(2)), as this would violate the basic assumptions of the ARDL model. The integration level testing process is carried out through unit root tests, such as Augmented Dickey-Fuller (ADF) or Phillips-Perron (PP). After ascertaining the feasibility of the data, the ARDL model can be estimated, and the long-term relationship can be tested using the Bounds Test to determine the existence of cointegration between the variables being analyzed.

From a policy perspective, the results of the ARDL analysis are expected to contribute to decision-makers in the trade and industrial sectors, especially related to the management of ceramic tile imports. If, for example, the results of the study show that the construction material price index has a significant impact on imports in the long term, then the government can formulate a more targeted policy to maintain the stability of construction material prices. In addition, if the weighted average value of imports in USD shows a significant influence in the short term, this can be the basis for considering strategies to mitigate the impact of exchange rate fluctuations on international trade. This analysis is not only relevant for the government but also for industry players and investors who want to understand the dynamics of the ceramic tile market in Indonesia.

RESULTS AND DISCUSSIONS

The main purpose of this study is to obtain information on the impact of the safeguard measure policy on ceramic tile products in Indonesia for the period of January 2014 to June 2024, the data was obtained from the Central Statistics Agency with HS Code parameters on ceramic tile commodities subject to BMTP which are divided into 2 periods based on the 2017 BTKI, namely: 6907.21.91, 6907.21.92, 6907.21.93, 6907.21.94, 6907.22.91, 6907.22.92, 6907.22.93, 6907.22.94, 6907.23.91, 6907.23.92, 6907.23.93, 6907.23.94. and BTKI in 2012, namely: 6907.9010.00, 6907.9090.00, 6908.9011.00, 6908.9019.00, 6908.9091.00, 6908.9099.00. Data shows that during this period, China was the main supplier of ceramic tiles to Indonesia with a percentage of around 85% overall both in terms of weight and value.

Table 1 Ceramic Tile Supplier Countries to Indonesia for the Period 2014-2024

No	COUNTRY	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	s.d Juni 2024	% All
1	CHINA	799,869,388	822,974,765	1,075,161,531	1,244,313,026	1,382,177,721	939,780,377	897,772,587	1,159,878,186	1,086,427,629	1,245,575,741	521,588,967	85.60%
2	INDIA	0	5	0	3,068,553	23,869,083	301,557,490	358,926,101	308,369,597	222,113,325	121,747,429	44,393,800	10.60%
3	VIETNAM	21,599,834	14,827,898	9,260,691	25,841,024	65,969,782	87,067,954	64,841,164	29,003,378	26,198,310	25,893,442	9,869,838	2.91%
4	MALAYSIA	8,066,205	7,416,599	2,414,588	3,319,485	9,547,056	7,156,434	7,607,785	10,134,589	8,187,583	10,156,969	3,141,610	0.59%
5	THAILAND	176,339	276,353	49,656	316,435	521,890	406,427	3,892,737	10,378,231	1,137,226	97,761	13,465	0.13%
6	SPAIN	1,774,529	1,355,697	925,618	1,035,927	727,209	499,195	249,915	186,725	76,125	578,501	298,297	0.06%
7	ITALY	113,986	242,352	448,325	308,471	334,426	766,012	574,231	615,477	848,639	962,178	294,851	0.04%
8	OTHERS	3,536	111,677	314,772	278,862	1,175,299	664,842	725,098	2,093,795	1,066,545	1,255,195	646,052	0.06%

NEGARA PEMASOK UBIN KERAMIK KE INDONESIA BERDASAR NILAI IMPOR (US$)

No	COUNTRY	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	s.d Juni 2024	% All
1	CHINA	181,002,840	176,508,492	210,912,667	237,315,860	295,384,387	180,954,839	172,645,411	248,349,843	258,308,480	260,368,553	107,338,530	84.47%
2	INDIA	0	3,267	0	667,958	5,405,743	61,171,558	70,003,744	63,916,897	54,910,770	30,014,221	11,473,676	10.79%
3	VIETNAM	7,301,337	5,025,964	2,821,362	5,724,327	14,150,150	19,982,482	14,477,043	6,289,107	6,343,107	6,106,339	2,231,051	3.28%
4	MALAYSIA	2,661,675	2,593,728	767,522	1,008,543	2,570,553	1,827,749	1,925,315	2,685,688	2,295,691	2,861,682	813,210	0.80%
5	ITALY	259,653	329,433	895,363	411,457	405,162	858,848	840,281	795,458	964,710	1,358,689	413,106	0.27%
6	SPAIN	1,105,550	636,629	407,972	518,678	395,352	276,208	162,427	116,623	42,135	425,340	245,622	0.16%
7	THAILAND	136,384	195,538	41,899	235,299	278,964	218,083	620,066	1,772,429	243,822	38,222	4,931	0.14%
8	OTHERS	26,449	39,646	235,924	340,854	524,957	389,721	97,803	223,635	275,458	249,906	84,720	0.09%

Source: World Ceramic Magazine

Furthermore, the countries with the largest exports of ceramic tiles to Indonesia are India with a percentage of around 11%, and Vietnam 3%. When combined, these three countries account for around 99% of Indonesia's ceramic tile imports while the remaining 1% is contributed by 25 other countries. This shows the strong dominance of these three countries in the entry of ceramic tile commodities into the Indonesian market, this is also what makes this country subject to BMTP. Based on figure 1, it is also seen that the import analysis of the three main countries is mentioned as named countries, and for countries that are not subject to the BMTP policy, they will be mentioned as non-named countries

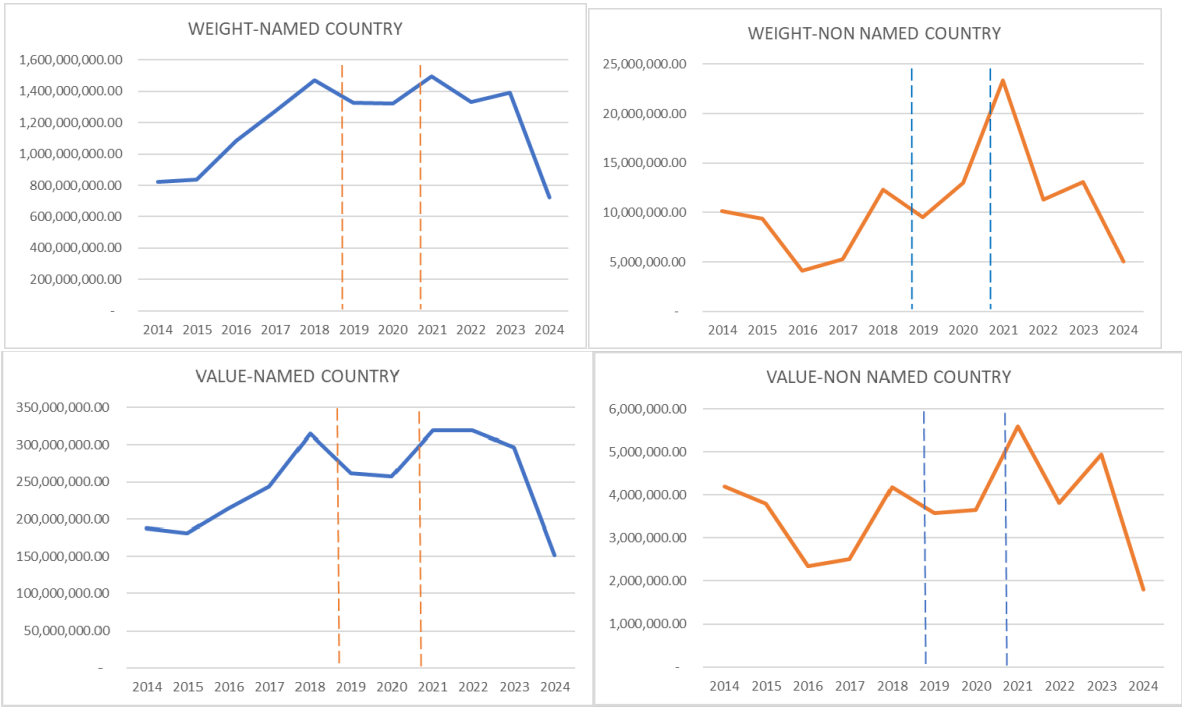

Figure 1. Statistics on Import Weight and Value of Indonesian Ceramic Tiles
Source: Central Statistics Agency, processed by the author

Based on the image above, it shows that since the first implementation of BMTP of ceramic tiles from China in October 2018 shows a trend of fluctuations in the weight and value of imports from named countries and an increase in the weight and value of imports from non-named countries, then in September 2020 when India and Vietnam were added to the countries subject to BMTP initially did not have the effect of decreasing the weight and value of imports. but slowly experiencing strong fluctuations, allegedly due to the influence of the Covid-19 Pandemic experienced by almost all countries in the world. Meanwhile, in non-named countries, both in terms of weight and import value, fluctuates and tends to experience an overall downward trend.

In general, based on visualization, it can be seen that the impact of the BMTP policy has a fluctuating impact on importing countries, for countries subject to BMTP since the significant upward trend in the period of 2014-2018, after the enactment of BMTP, the policy is able to control the massive surge in imports and for countries that are not subject to BMTP, the growth of imports fluctuates.

Based on the graph above, although there was a decrease in the weight and value of imports from non-named countries after the implementation of the Safeguard Import Duty (BMTP), the data did not show a strong indication of trade diversion. In the context of international trade, trade

diversion is defined as the change of import sources from a named country to another non-named country, in response to a protection policy. However, the trend of imports from non-named countries actually shows fluctuations that tend to decrease after the implementation of the BMTP, which indicates that a significant shift in trade to these countries does not occur.

One of the underlying reasons for this is the limited production capacity of non-named countries. Based on market analysis, countries such as China, India, and Vietnam have long been major producers of ceramic tiles with large production scales, high efficiency, and competitive ability in price and quality (UNCTAD, 2021). In contrast, non-named countries tend to have a marginal role in the global ceramic tile supply chain, making it difficult to fill the void left by the decline in imports from named countries.

Furthermore, consumer preferences in Indonesia are also an important factor. Ceramic products from China, India, and Vietnam have a significant market share because they are considered to meet the needs of the domestic market both in terms of price and design. This is reflected in data from the Central Statistics Agency (BPS) which shows that before the implementation of BMTP, more than 95% of Indonesia's ceramic tile imports came from the three countries. The absence of a significant increase in imports from non-named countries after the BMTP reinforces the argument that this preference still persists.

The Covid-19 pandemic also played an important role in this trading pattern. Global supply chain disruptions, reduced production capacity, and logistical restrictions in many countries in the 2020–2021 period limited the ability of non-named countries to increase their exports to Indonesia (World Bank, 2021). This factor may explain why imports from non-named countries do not show an upward trend even though those countries are not subject to BMTP.

In addition, BMTP's success in controlling imports also needs to be analyzed more deeply. The overall decline in imports from named countries shows that the policy is effective in limiting the surge in imports. However, fluctuations that occur in non-named countries can reflect the dynamics of the global market and not solely due to the implementation of protection policies in Indonesia. According to international trade policy theory (Krugman & Obstfeld, 2009), the effectiveness of a protection policy often depends on the overall market response, including on countries that are not directly affected by the policy.

Thus, although the data show that trade diversion did not occur, it needs to be further analyzed by examining other factors, such as price dynamics, changes in domestic demand, and the production capacity of non-named countries. In-depth analysis with quantitative approaches, such as trade gravity models or Difference-in-Differences (DID) methods, can provide a more comprehensive understanding of the impact of BMTP policies.

Then, if separated specifically based on the 3 main supplier countries which are then determined to be affected by BMTP in Figure 4.1, it shows the weight and value of imports of ceramic tiles from the three main supplier countries, namely China, India, and Vietnam, to Indonesia. Based on this data, there is a different pattern in each country after the implementation of the Security Import Duty (BMTP) policy. For imports from China, the implementation of BMTP which began in October 2018 has been seen to have a direct impact on the decline in both the weight and value of imports. However, after this period, there is a fluctuating trend that overall tends to increase, especially from 2021 to 2023. This could indicate an adaptation of Chinese exporters to the BMTP policy, such as lowering prices or shifting market strategies.

Meanwhile, imports from India and Vietnam show a different pattern. The BMTP policy began to be implemented for these two countries in September 2020. After the implementation of the policy, both the weight and value of imports from India and Vietnam experienced a significant

decrease. However, if observed further, the downward trend of imports from these two countries has actually been seen since the implementation of BMTP against China in October 2018. This indicates that BMTP's policy towards China not only has a direct impact on the country, but also has an indirect effect on other supplier countries, possibly through an increasingly tight market competition mechanism.

It can be concluded that BMTP policies have had mixed effects on these three major supplier countries. The decline in imports from India and Vietnam before the BMTP policy was implemented indicates that there are other external factors that affect import trends, such as changes in domestic demand in Indonesia or global market dynamics. However, after the implementation of the BMTP, significant reductions in imports from India and Vietnam demonstrate the effectiveness of this policy in reducing dependence on imports from these countries. On the contrary, the trend of increasing imports from China after several years of BMTP implementation is an indication of the need for further evaluation of the effectiveness of the long-term policy.

To explore this impact, further analysis is needed regarding the factors that influence changes in import trends, such as changes in international prices, tariff adjustments, exporter strategies, or domestic market needs. Additional quantitative analysis can also be carried out to strengthen this conclusion, for example through econometric models with control variables that include aspects of prices, trade volumes, as well as policy dynamics in the destination country.

In the next discussion, an in-depth analysis will be carried out through relevant econometric theories and the use of applications to determine definitively and accurately whether the BMTP policy affects the value and import of ceramic tiles as in accordance with the hypothesis made by the author.

Statisitk Descriptive Variables

Table 2 Descriptive Statistics of Research Variables

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Berat Impr (Kg.mil)	3,528	3.700,648	18.128,325	0	229.156,275
Nilai Impr (US$.mil)	3,528	0,781.536	3.783,881	0	50.639,924
Kurs (Rp)	3,528	14,057	1,076	11,404	16,421
Jarak Negara (Km)	3,528	7,456	4,617	523.0	16,180
GDP Eks (US$.mil)	3,528	2.359,505	4.769,124	31,051	27.743,841
GDP IDN (US$.mil)	3,528	1.101,396	187,494	860,854	1.518,480
Dum Penyelidikan	3,528	0.127	0.333	0	1
Dum BMTP	3,528	0.0456	0.209	0	1
Tarif BMTP (%)	3,528	0.787	3.650	0	23
Tarrif MFN (%)	3,528	13.26	9.043	0	20
Dum Covid-19	3,528	0.270	0.444	0	1

The table above illustrates the descriptive statistics of monthly ceramic tile imports from various supplier countries to Indonesia during the period January 2014 to June 2024. The import weight shows a maximum value of 229.156 million kilograms with a minimum value of 0 kilograms and a standard deviation of 18.128 million kilograms. This figure is dominated by imports from China, which is the main supplier of ceramic tiles to Indonesia. Meanwhile, the value of imports reached a maximum of 50.639 million USD with a minimum value of 0 USD and a standard deviation of 3.783 million USD, which again reflects the great influence of imports from

China. The construction price index has an average value of 143.6 with a minimum value of 120 and a maximum value of 166.8.

The rupiah exchange rate against the US dollar during the period ranged from 11,404 IDR/USD to 16,421 IDR/USD with a standard deviation of 1,076 IDR/USD, reflecting significant exchange rate fluctuations and potentially affecting import costs. The distance between supplier countries varies, with the farthest distance reaching 16,180 kilometers and the closest distance reaching 523 kilometers, as well as the standard deviation of 4,617 kilometers, reflecting the geographical diversity of Indonesia's trading partner countries. The gross domestic product (GDP) of the supplier country shows a huge difference, with a maximum value of 27.743 billion USD, a minimum value of 31 million USD, and a standard deviation of 4.769 billion USD. This difference indicates a very diverse economic capacity among the supplier countries. On the other hand, Indonesia's GDP during the period ranged from 860 million USD to 1.518 billion USD with a standard deviation of 187 million USD, reflecting Indonesia's economic growth.

Several dummy variables such as the investigation period, the imposition of BMTP (Security Import Duty), and Covid-19 have a minimum value of 0 and a maximum of 1, indicating whether or not there are certain conditions that affect a certain period. Other trade policies, such as the BMTP tariff, have a maximum value of 23% and a minimum of 0% with a standard deviation of 3.65%, while the MFN (Most Favored Nation) tariff ranges from 0% to 20% with a standard deviation of 9%. This policy shows the government's measures to protect domestic industries from adverse trade practices. China's dominance in weight contribution and import value reflects the country's price competitiveness and production efficiency compared to other countries.

Overall, exchange rate fluctuations, distance between countries, and trade policies such as BMTP and MFN tariffs are important factors influencing the dynamics of ceramic tile imports to Indonesia. Adjustments to global conditions such as the Covid-19 pandemic and the protection of domestic industries through tariff policies show the importance of the government's role in maintaining the balance of the domestic market. Further analysis taking into account seasonal patterns and other external factors can provide additional insights into trading dynamics during this period.

Estimated Results

The impact of the policy in the form of the imposition of BMTP on ceramic tiles has theoretically been explained in the previous chapter, the Temporary Trade Barrier policy in the form of BMTP has mostly produced significant results in reducing imports, but not a few studies have concluded that the imposition of BMTP is not fully effective in reducing the rate of imports. This study itself uses a model from the research of Khanal et al. (2024) which was subsequently modified by the researcher using a PPML estimator to overcome the issue of heterogeneity and zero trade flow that has been proven (Santos Silva & Tenreyro, 2022). The results of the estimation carried out using the STATA 18 software are as follows:

Table 2. PPML Estimation Results and Import Values

	Variable Interest-Dummy BMTP		Variable Interest-BMTP Tariff	
	(1)	(2)	(3)	(4)
VARIABLES	Weight	Value	Weight	Value
lnGDPI	6.215*	4.287	6.518**	4.604
	(3.293)	(2.908)	(3.186)	(2.813)
lnGDP	-3.657*	-1.918	-4.311**	-2.573

	(2.028)	(1.800)	(1.978)	(1.727)
o.lnDist	-	-	-	-
Dumbmtp	-0.751***	-0.734***		
	(0.0483)	(0.0851)		
MFN	-0.0129	-0.00825	-0.0178	-0.0134
	(0.0103)	(0.0151)	(0.0112)	(0.0164)
lnExchange	2.613***	1.786**	2.774***	1.941**
	(0.874)	(0.894)	(0.888)	(0.884)
Dumcovid	0.491**	0.417**	0.452**	0.384*
	(0.244)	(0.208)	(0.229)	(0.199)
DumPNY	-0.0151	-0.110	-0.107	-0.196
	(0.178)	(0.183)	(0.190)	(0.184)
Duty			-0.0326***	-0.0323***
			(0.00165)	(0.00449)
Constant	-33.90	-29.02	-29.09	-24.35
	(22.09)	(20.99)	(21.61)	(21.06)
Observations	3,402	3,402	3,402	3,402
Pseudo R-squared	0.953	0.951	0.952	0.950

Robust standard errors in parentheses

p<0.01, ** p<0.05, * p<0.1

The results of the study are divided into two parts that are the focus of the research, namely the use of dummy dependent variables BMTP and BMTP Tariffs. This is done not only to find out the impact of the two variables on the dependent variables but also to measure the extent of the differences produced considering that the BMTP policy implemented in Indonesia generally sets tariffs that always fall every year without exception the ceramic tile commodities studied. This condition is very different from the Anti-Dumping Import Duty policy which sets consistent rates between periods. This is understandable considering that the decision taken by the WTO in the BMTP rules is indeed imposed to protect domestic industries in injury situations and must immediately improve its capacity and create a trade balance.

Robustness Check

In order to ensure the robustness and validity of the model being studied, robustness checks are carried out by adding the Lag variable of the previous period (t-1) as an independent variable to ensure the stability of the model results and overcome the problem of bias due to endogeny as conducted by (Santos Silva & Tenreyro, 2022), as well as to test whether the relationship found in the regression remains consistent if the data is changed to a Lag period. This is relevant to validate that the regression results are not very sensitive to certain time changes as the research conducted by Baltagi (2008). The results of the estimated robustness check are shown in tables 1 and 2.

Table 2. Robustness Check PPML Import Weight and Value Estimator

	Variable Interest-Dummy BMTP		Variable Interest-BMTP Tariff	
	(1)	(2)	(3)	(4)
VARIABLES	Weight	Value	Weight	Value

lnGDPI	2.287***	1.393***	2.510***	1.641***
	(0.555)	(0.487)	(0.635)	(0.527)
lnGDP	-1.500***	-0.598	-1.972***	-1.100**
	(0.492)	(0.420)	(0.579)	(0.481)
o.lnDist	-	-	-	-
Dumbmtp	-0.529***	-0.552***		
	(0.0665)	(0.0962)		
MFN	-0.0185***	-0.0171***	-0.0227***	-0.0217***
	(0.00306)	(0.00389)	(0.00364)	(0.00449)
lnExchange	1.052**	0.574*	1.155***	0.683*
	(0.422)	(0.347)	(0.441)	(0.369)
Dumcovid	0.291***	0.269***	0.270***	0.249***
	(0.0320)	(0.0363)	(0.0350)	(0.0378)
DumPNY	0.172*	0.105	0.112	0.0442
	(0.0946)	(0.0801)	(0.0920)	(0.0763)
L.lnWeight	0.400***		0.404***	
	(0.0966)		(0.0997)	
L.lnValue		0.384***		0.387***
		(0.0968)		(0.0987)
Duty			-0.0237***	-0.0251***
			(0.00295)	(0.00408)
Constant	-6.404**	-4.722*	-2.910	-1.129
	(2.782)	(2.445)	(2.571)	(2.056)
Observations	865	865	865	865
Pseudo R-squared	0.950	0.948	0.950	0.948

Robust standard errors in parentheses
p<0.01, ** p<0.05, * p<0.1

The robustness check using the lag variable of the previous period showed that the estimation results on the dependent variables as a whole produced the same direction and significance as the PPML model, both the dependent variables which were notated as the weight and value of the imported ceramic tiles and the independent variables that were notated as dummy BMTP and BMTP tariffs from both equations. So it can be concluded that the research model is valid and has quite good reliability.

Auto-Regressive Distributed Lag (ARDL) Regression

International trade has an important role in supporting the economic growth of a country. However, on the other hand, an uncontrolled surge in imports can have a negative impact on the domestic industry, especially for sectors that have low competitiveness. In facing these challenges, the Indonesian government has adopted various trade protection policies, one of which is the imposition of Safeguard Import Duty (BMTP). This policy aims to provide temporary protection for domestic industries from a surge in imports that can harm the stability of the domestic market. One of the commodities that is the focus of BMTP's policy is ceramic tiles, which are under pressure due to high imports from other countries.

To understand the effectiveness of BMTP policies on related sectors, this study uses the Autoregressive Distributed Lag (ARDL) regression model. The ARDL approach was chosen because it is able to analyze short-term and long-term relationships between dependent and

independent variables, especially on time series data. In the context of this study, ARDL regression was used to evaluate the effect of BMTP imposition on a number of key economic variables, such as the production of non-metallic excavated materials, the construction material price index, the consumer price index, and the dynamics of BMTP tariffs. The model also takes into account the effects of lag or delay, which is relevant in observing the impact of economic policies that generally take time to deliver results.

Through the ARDL approach, this study not only identifies the direct relationship between variables, but also provides an in-depth understanding of the dynamics of BMTP policies in Indonesia. This model allows for a more detailed analysis, given that trade protection policies such as BMTP are often influenced by a variety of other factors, including domestic market dynamics, price fluctuations, and domestic production efficiency. Thus, this research is expected to make a significant contribution in evaluating trade protection policies and providing input for more effective policy formulation in the future.

Table 3. Auto-Regressive Regression Distributed Lag

VARIABLES	(1) lniProduction	(2) lniHBgn	(3) lniHK	(4) lnweightedDuty
L.lniProduction	0.345****			
	(0.110)			
L2.lniProduction	0.249**			
	(0.105)			
lniHBgn	1.499**		0.679****	-0.233
	(0.737)		(0.0925)	(0.666)
L.lniHBgn	-2.339****	0.893****	-0.566****	
	(0.826)	(0.0751)	(0.114)	
L2.lniHBgn	1.245			
	(0.777)			
L3.lniHBgn	1.560**			
	(0.771)			
L4.lniHBgn	-2.707****			
	(0.632)			
lniHK	0.690	0.722****		0.175
	(0.506)	(0.0984)		(0.804)
lnweightedDuty Value	-0.0333	0.00676	0.00228	
	(0.0865)	(0.0110)	(0.0107)	
L.lnweightedDuty_Value	0.156			0.663****
	(0.106)			(0.109)
L2.lnweightedDuty_Value	0.0393			
	(0.108)			
L3.lnweightedDuty Value	0.108			
	(0.0958)			
L4.lnweightedDuty_Value	-0.310****			
	(0.0818)			
L.lniHK		-0.621****	0.827****	
		(0.119)	(0.0869)	
lniProduction		0.00531	-0.00362	-0.0916
		(0.0150)	(0.0145)	(0.145)
Constant	2.140	0.0262	0.315	0.103
	(1.926)	(0.260)	(0.249)	(2.481)
Observations	62	62	62	62
R-squared	0.673	0.923	0.890	0.409

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1

These results provide several important points that can be described in more detail, as follows:

The Impact of BMTP Policy on the Production of Non-Metallic Mining Materials

The results of Model 1 analysis show that the weighted average BMTP tariff (ln(weightedDuty_Value)) is not statistically significant to the logarithm of the production index of non-metallic mineral materials (ln(iProduction)). In contrast, the lag of the production indices (L.ln(iProduction) and L2.ln(iProduction)) showed a significant positive influence. These findings indicate that the sustainability of the production of non-metallic minerals in Indonesia is more influenced by the internal dynamics of production itself than by the BMTP tariff policy.

In other words, the BMTP policy has not provided direct incentives to the domestic industry to increase its production capacity. Other factors, such as the efficiency of the production process, the demand of the domestic market, or the availability of local raw materials, seem to play a greater role in driving increased production. This signals that trade protection policies alone are not enough to develop the competitiveness of domestic industries in the absence of other supporting policies.

The Impact of BMTP Policy on the Construction Material Price Index

Model 2 shows that the effect of the weighted average BMTP tariff (ln(weightedDuty_Value)) on the construction material price index (ln(iHBgn)) is not significant. On the other hand, the lag of the construction material price index, especially L.ln(iHBgn), has a very significant positive influence. This shows that there is a price transmission mechanism in the construction sector over time.

However, a longer lag (L4.ln(iHBgn)) has a significant negative influence, which indicates the presence of a price adjustment effect in the long run. These findings show that changes in the price of construction materials are more influenced by market factors, such as fluctuations in raw material prices and construction demand, than by BMTP tariff policies. Thus, the policy of trade protection through the imposition of BMTP does not seem to directly affect the price structure of construction materials.

The Impact of BMTP Policy on the General Consumer Price Index

In Model 3, the weighted average of BMTP rates (ln(weightedDuty_Value)) also did not show a significant effect on the general consumer price index (ln(iHK)). In contrast, the construction material price index (ln(iHBgn)) has a significant positive influence on the consumer price index. This indicates that changes in the price of construction materials, which are one of the important components of the development sector, have a greater impact on overall consumer prices than the BMTP policy.

The lag of the consumer price index (L.ln(iHK)) shows a significant negative influence, which may reflect the price adjustment mechanism in the short term. Overall, BMTP's policy on the import of ceramic tiles does not contribute significantly to general consumer price dynamics, likely because the contribution of ceramic tiles to the overall consumption structure is relatively small compared to other goods.

BMTP Tariff Dynamics

In Model 4, the fourth lag variable of BMTP's rate-weighted average (L4.ln(weightedDuty_Value)) showed a significant negative influence on the current rate value. This shows that there is a mechanism for adjusting tariff policies in the long term, where changes in tariffs in the past affect the current tariff level. However, other variables such as the construction material price index (ln(iHBgn)) and the general consumer price index (ln(iHK)) did not show a significant influence, so the dynamics of the BMTP tariff were influenced more by the internal factors of the policy itself than by external variables.

Based on the results of the analysis and findings that have been described, it can be concluded that the policy of imposition BMTP on the import of ceramic tiles in Indonesia has not shown a significant direct influence on key economic variables such as the production of non-metallic excavated materials, the construction material price index, the general consumer price index, and the weighted average BMTP tariff. These findings indicate that the effectiveness of BMTP policies in providing protection to domestic industries tends to be limited and takes time to have a more tangible impact. In addition, domestic market dynamics, production efficiency, and demand and supply factors seem to have a more dominant role compared to tariff policy. Therefore, additional complementary policies, such as strengthening the competitiveness of domestic industries, improving production efficiency, and optimizing supply chains, are needed to ensure that trade protection policies such as BMTP can have a more significant impact on economic growth and domestic market stability.

CONCLUSION

The conclusion of this study confirms that the Safeguard Import Duty (BMTP) policy has been effective in reducing ceramic tile imports from major source countries such as China, India, and Vietnam, significantly impacting import volumes and values, and allowing local manufacturers the space to enhance production capacity. However, the gradual reduction in BMTP tariffs may undermine domestic industry protection if not accompanied by improvements in competitiveness. While the policy provides benefits such as increased opportunities for local producers, it also raises domestic prices and construction costs, which ultimately affect consumers. Structural barriers—such as high production costs and dependence on imported raw materials—continue to limit the global competitiveness of Indonesia's ceramic industry. Therefore, BMTP should be part of a broader, long-term industrial strategy, including regular policy evaluations, flexible tariff designs, industrial gas subsidies, local raw material development, technological upgrades through tax incentives, and market diversification. These measures should be harmonized with national energy policy, quality standards (SNI), and involve collaboration between government, industry associations, and private actors. For future research, it is recommended to conduct a more granular analysis at the firm level and explore the long-term effects of BMTP on employment, innovation adoption, and regional industrial distribution to provide a more holistic understanding of the policy’s socioeconomic impact.

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