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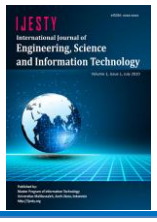

Analysis of The Influence of Import Volumes, Dynamics of Import Varieties, and Pricing Policies on Country's Foreign Exchange Growth

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Abstract

The objective of this research is to examine the factors that led to the cessation of imports of certain varieties after the crisis. This analysis proposes four alternative working hypotheses. Data from 100 products was taken. Several influencing factors reveal the impact of the economic crisis on imported varieties. More expensive varieties tend to experience an increased probability of stopping importation. This may be due to a decrease in purchasing power during the crisis, which makes expensive products less desirable. Geographic distance also plays an important role. More distant countries produce varieties with a higher probability of stopping imports, this could be due to higher transportation costs for varieties from distant countries. Varieties with a larger market share originating from countries with higher incomes tend to be more stable in the market during the crisis. Likewise, additional per capita income limits the probability of stopping imports to only 3.7%. This suggests that varieties from countries with high incomes or those with large market shares may have competitive advantages that make them more resilient to the impact of economic crises. Reducing imported varieties can hurt consumer welfare because it can reduce product choices and increase prices. Short-term estimates indicate a 9.5% decline in consumer welfare from imported goods.

Keywords: *Benefits of International Trade, Product Variety, Crisis, Imports.*

1. Introduction

One of the main advantages of international trade is that it opens up access to natural resources that are more diverse and in larger quantities. This advantage is important because having a wider reach allows countries to obtain resources that may be unavailable or limited domestically. Access includes the quantity, quality, and variety of resources. International trade allows countries to import a variety of natural resources that are unavailable for local production due to unfavorable geographical or climatic conditions. In contrast, tropical countries can import wheat, meat, or other products from temperate countries [1]. International trade allows access to a greater variety of natural resources. With the opening of international trade, countries can import natural resources of the best quality available on the global market. This is especially beneficial in the manufacturing and technology industries, where the quality of raw materials is critical. One of the positive impacts of having access to a wider range of natural resources is the ability to find varieties that best suit consumer preferences and needs. In the energy sector, importing various types of oil or natural gas can help countries meet their energy needs more efficiently. Greater access to natural resources can also drive sustainable economic growth [2]. Importing cheaper or higher-quality raw materials can reduce production costs, thereby lowering the price of finished products. This not only increases the competitiveness of domestic products in international markets but also expands market share and increases the country's income from exports. International trade offers benefits beyond its economic aspects. Greater access to diverse natural resources can also support a country's economic diversification, increase the likelihood of finding product variations that best suit market preferences, and have a positive impact on product quality and overall

production efficiency [3]. All of this contributes to more inclusive and sustainable economic growth. Thus, international trade has a very important role for countries in optimizing the use of their natural resources and improving overall economic prosperity. By managing trade wisely, countries can gain maximum benefit from the potential of their natural resources while providing a positive impact on global economic growth [4].

The size of the world market and the size of the country influenced the number of varieties available in early theoretical models of international trade based on product differentiation and fixed costs. However, newer models introduce elements of heterogeneity between firms and costs of entry into export markets. In this context, companies decide whether to participate in a particular export market based on an analysis of profits and the fixed costs of exporting. For small economies, there are special challenges. Profit possibilities tend to be lower, and fixed entry costs become more difficult to cover. Small economy firms tend to generate smaller profits than their more efficient competitors due to their lower relative efficiency levels [5]. As a result, some companies may choose not to participate in export markets, especially if they produce differentiated goods. Because each company produces differentiated products, it is possible that some product varieties will not be available in smaller economies. This can have an impact on the availability of diverse products for consumers in small economies, which in turn can affect consumer welfare and the competitiveness of those economies. To overcome these challenges, small economies can take steps to improve the efficiency and competitiveness of local companies. This could be through investment in innovation, infrastructure improvements, or policies that support the growth of the export sector. Thus, governments and stakeholders can play an important role in creating a supportive environment for local companies to compete in the global market [6].

Analysis from a dynamic viewpoint considers that market size and aggregate demand fluctuate. Specifically, a macroeconomic crisis that reduces aggregate demand in an economy affects the costs and profits of firms. As a result, the number of product variations available decreases, resulting in a loss of consumer welfare. In conditions of macroeconomic crisis, decreasing aggregate demand causes company revenues to also decrease [7]. This can force companies to cut production costs, including reducing the number of product varieties offered. Companies that were previously able to cover the fixed costs of exporting and participating in international markets may no longer be able to do so, resulting in withdrawal from those markets. This has a direct impact on reducing product choices for consumers, both in the domestic and international markets. This reduced product variety has negative implications for consumer welfare. When consumers have fewer choices, they may not be able to find products that fully meet their preferences, leading to decreased consumer utility or satisfaction. On a larger scale, reduced product variety can also reduce competition in the market, which usually serves to reduce prices and encourage innovation [8]. Without sufficient competition, product prices may become higher, and product quality and innovation may decline, exacerbating the impact of the crisis on consumer welfare. Additionally, from a company's perspective, declines in aggregate demand and market fluctuations can increase business risks and uncertainty. Companies may become more reluctant to make long-term investments or product innovations, which could slow overall economic growth. It is therefore important for economic policy to consider ways to support aggregate demand and market stability during the crisis to minimize negative impacts on the variety of products available and consumer welfare [9].

This crisis resulted in a reduction in the number of imported varieties available, defined as combination varieties. Citizens no longer have access to a particular product, namely multiple varieties, and with it, the possibility of finding the variety that best suits their preferences. This reduction in diversity results in a loss of well-being. Initially, the goal of this work was to enhance price indices through the introduction of new products. Next, the aim was to gauge the advantages of the steady rise in imported varieties. In this model, consumer utility is based on access to a variety of different imported products, and the loss of that variety directly reduces consumer welfare. This approach allows measuring the economic impact of reduced import diversification more accurately compared to traditional methods that only consider price and quantity changes. The reduction in imported varieties not only impacts consumer choice but also the competitiveness and efficiency of the economy as a whole [10]. When access to a variety of imported products is limited, domestic industries may not have access to the raw materials or components they need for production, which can reduce productivity and increase production costs. This, in turn, can reduce the competitiveness of domestic products in international markets and slow economic growth. In this context, this analysis is important to understand how the economic crisis and the decline in imports impact consumer welfare and the economy as a whole. Even if the number of imported goods recovers in the medium term, some product categories will still experience welfare losses due to the inability of new varieties to replace those that have ceased imports. The significant change in the number of imported varieties during this period reflects the impact of economic policy changes and structural adjustments that occurred after the crisis. When examining the crisis' impact, keep in mind that a full restoration of consumer welfare does not necessarily follow an economic recovery. Due to differences in quality, consumer preferences, or limited market access, new varieties may not be able to replace some product varieties lost during a crisis. This underscores the significance of international trade diversification and stability in maintaining consumer welfare amidst turbulent economic conditions. This analysis highlights how global economic fluctuations and domestic policies can influence consumer welfare through changes in the variety of imported products. By understanding these dynamics, policymakers can design better strategies to maintain economic stability and improve consumer welfare in the long term [11].

As mentioned earlier, there are fixed costs for imports and exports, which become very noticeable when certain varieties disappear from the market. Due to a minimum import or export volume, trade is no longer profitable. Various factors, including price, the proportion of total imports, GDP, and distance from the country of origin, influence the probability that a variety will cease imports. We conduct analysis based on observations of each variety to understand how these factors impact the variety's market presence. Higher-priced varieties tend to cease imports on average [12]. However, this possibility decreases as the proportion of varieties in imports increases. In addition, higher GDP per capita in the home country also reduces the probability of import cessation. This analysis shows that factors such as price, distance, proportion of total imports, and GDP per capita in the country of origin greatly influence the decision to stop importing a particular variety during the crisis [13]. Varieties with higher prices and longer distances tend to be more vulnerable to import cessation, while varieties with a larger proportion of imports originating from countries with a higher GDP per capita tend to remain on the market. This highlights the complexity of maintaining the diversity of imported products during times of economic crisis and the importance of trade strategies that take these factors into account.

2. Research Method

This analysis proposes four alternative working hypotheses. Data from 100 products was taken. This suggests that the economic crisis and currency devaluation significantly affected consumers' ability to purchase imported products at high prices. The highest-priced varieties are more vulnerable to import cessation because consumers can no longer afford them, so traders choose not to import these varieties.

Currency devaluation causes the price of imported goods to increase, which reduces consumer purchasing power. In this situation, consumers tend to reduce purchases of more expensive products or switch to more affordable local products. This causes demand for imported varieties at high prices to decline drastically so that traders stop importing these varieties because they are no longer economical. The decrease in the number of imported varieties available has an impact on consumer welfare. With reduced product choice, consumers lose access to the variety that best suits their preferences, ultimately decreasing their satisfaction and well-being. We can measure this loss of product variety as a welfare loss. This analysis supports the hypothesis that the highest-priced varieties are the ones most likely to no longer be available on the market during an economic crisis. The impact of devaluation and increasing import prices on consumer purchasing power led to the cessation of imports of these varieties, which hurt consumer welfare. This understanding is important for policymakers and economic actors to develop strategies that can maintain product diversification and economic stability during times of crisis.

3. Result and Discussions

Currency devaluation causes the price of imported goods to increase, which reduces consumer purchasing power. In this situation, consumers tend to reduce purchases of more expensive products or switch to more affordable local products. This causes demand for imported varieties at high prices to decline drastically so that traders stop importing these varieties because they are no longer economical. The decrease in the number of imported varieties available has an impact on consumer welfare. With reduced product choice, consumers lose access to the variety that best suits their preferences, ultimately decreasing their satisfaction and well-being. We can measure this loss of product variety as a welfare loss. This analysis supports the hypothesis that the highest-priced varieties are the ones most likely to no longer be available on the market during an economic crisis. The impact of devaluation and increasing import prices on consumer purchasing power led to the cessation of imports of these varieties, which hurt consumer welfare. This understanding is important for policymakers and economic actors to develop strategies that can maintain product diversification and economic stability during times of crisis. Generally, an increase in a variety's price increases the likelihood of its discontinuation from imports. The results of the analysis show that the average price of varieties that are no longer imported tends to be higher than the price of varieties that are still imported. An increase in price increases the probability of a variety stopping imports by 3.5%, demonstrating the significant influence of the trend on this probability. However, interestingly, this probability loses significance when using the previous year's prices. This indicates that a variety's price from the previous year significantly influences the decision to re-import or not. This analysis provides important insights into the factors that influence product variety and import decisions. With a better understanding of these factors, stakeholders can make better decisions in managing product imports, optimizing product portfolios, and improving overall import efficiency. Thus, a better understanding of prices and other factors that influence import decisions can help improve a country's international trade strategy.

The analysis reveals that after the crisis, the likelihood of not importing mineral products increased by 15.5% for every 1% price increase. This suggests that mineral prices had a significant impact on the decision to import these products after the crisis. Additionally, higher prices significantly impact other products, such as plastic and rubber products, machinery and electrical equipment, and transportation materials, potentially preventing their import after the crisis. This suggests that price is also an important factor in import decisions for these products after the crisis. This analysis provides important insights into how prices and other factors influence import decisions for different types of products after the crisis. With a better understanding of these factors, stakeholders can make better decisions in managing product imports, optimizing product portfolios, and improving overall import efficiency after the crisis. The analysis reveals that the ease of importing substitutes also influences the likelihood of a variety's discontinuation. Varieties with a greater elasticity of substitution tend to have a greater likelihood of discontinuing the market when faced with higher prices. However, the results of the analysis show some interesting findings that can provide deeper insight into import dynamics. Panel A reveals that varieties with prices above average are more likely to exit the market when their replacement becomes more challenging. This is somewhat contrary to expectations.

According to the second hypothesis, varieties that account for a larger proportion of imports persist after the crisis. Assuming that preferences or technology exogenously determine market participation, a strong correlation between market share size and the viability of a variety aligns with the existence of fixed costs associated with importing a variety from a country. This indicates that fixed costs are the same across varieties in a country, or at least do not vary proportionally with market size. The greater the quantity of a particular variety imported, the more difficult it is to replace or eliminate without ceasing to provide benefits for importing into that country. This is the reason they persist in their importation practices. In other words, the size of the market that a variety represents can influence the sustainability of its imports. The greater the market share a variety has, the greater the tendency to continue importing that variety. This analysis illustrates the importance of market size in influencing the sustainability of imports. With a better understanding of these factors, stakeholders can make better decisions in managing product imports, optimizing product portfolios, and improving overall import efficiency. The results of the analysis show that, on average, the varieties that continued to be imported after the crisis represent a larger proportion of total imports. In other words, a 1 percent increase in market share in total imports leads to an almost 10 percent increase in the probability of the variation remaining imported. This shows that the higher the price and the increase in market share, the more important market participation is in explaining the continuity of imported product variations after the crisis. Factors such as prices and market trends play an important role in determining the sustainability of imports of a variety after the crisis. Therefore, stakeholders need to carefully consider these factors in managing product imports and deciding which varieties to continue to import after the crisis. By better understanding the relationship between market share, price, and import sustainability, stakeholders can make better decisions about optimizing product portfolios and improving overall import efficiency.

Given that product prices are typically higher, the third hypothesis about the decline in the number of imported varieties after the crisis emphasizes that consumers are less likely to purchase varieties from high-income countries. Although the number of varieties imported from high-income countries is greater in absolute terms, the proportion is lower than that of varieties imported from low- and middle-income countries. Varieties that ceased imports from low-, middle-, and high-income countries account for a larger percentage of the total varieties imported from these countries. Despite the introduction of new varieties, this is not enough to offset these differences between country types. As a result, the share of varieties imported from low-income countries in total imports is decreasing, while the share of varieties from middle-income countries is increasing. A reduction in the number of varieties imported from high-income countries can have a significant impact on a country's import structure. This can affect the diversification of products available in the domestic market and shows the importance of price in determining demand. Stakeholders need to pay attention to these trends in managing product imports,

taking into account pricing and product diversification, to ensure adequate availability and sustainability of supply. Understanding the factors influencing product variety imports can optimize import decisions, enhancing overall efficiency and sustainability.

From the results of the analysis, it appears that varieties imported into middle- and high-income countries are equally likely compared to varieties imported from low-income countries. These results indicate that there is homogeneity in impact between varieties originating from middle- or high-income countries compared to those originating from low-income countries. This analysis also controls price levels and trends to ensure that the results are consistent. Thus, regardless of other factors, the same variables apply to a variety of countries with different income levels. These findings have important implications in the context of international trade and import policy. Although varieties imported from middle- and high-income countries have higher prices, they are equally likely to remain imported after the crisis. This suggests that factors other than price, such as quality, innovation, or sustainability of supply, may have more influence on the decision to continue importing the variety. Therefore, stakeholders need to consider these factors more comprehensively in planning import policies to ensure continuity of supply and adequate product diversification. In this study, while high-income countries import fewer varieties than other countries in absolute terms, middle- and low-income countries import a higher proportion of these varieties. From these results, we can see that factors other than price may have a greater role in the decision to continue importing a particular variety. Quality, innovation, sustainability of supply, or even political and regulatory factors may also be important considerations for importers when choosing to continue importing a variety. Therefore, stakeholders in middle- and low-income countries need to consider different import strategies to ensure continued supply and product diversification to suit the needs of their domestic markets.

In this context, it is important to note that the difficulties in replacing varieties from countries with rich, generally differentiated products and using better technology are likely to be greater than those observed for varieties from countries with inferior products and may be less complex. Although varieties from high-income countries may command higher prices, their difficulty in substituting means they remain on the market after the crisis. This suggests that factors other than price, such as product complexity and technology, also play a role in the sustainability of imported varieties after the crisis. Varieties from high-income countries may find it more challenging to replace those from low- or middle-income countries due to higher product complexity and technology. This may be due to a higher degree of specialization, stricter quality standards, or more advanced production technology that competitors from countries with a lower level of economic development find difficult to match. Additionally, the brand reputation and quality associated with products from rich countries can also play a role in making consumers prefer those products, even at higher prices. Taking these factors into consideration, an effective import strategy for middle- and low-income countries could involve increasing domestic products and technological innovation to increase the competitiveness of local products. Diversifying import sources may also be a wise strategy to reduce dependence on products from high-income countries that may be difficult to replace. Thus, stakeholders in middle- and low-income countries need to consider these measures to improve the sustainability of supply and the competitiveness of their products in the global market.

The latter hypothesis posits that varieties imported from more distant countries have higher transportation costs, which should decrease during the crisis, resulting in higher prices. Even after controlling for price, regression results indicate that a variety's likelihood of stopping imports increases with its distance from the country of origin. This implies that while higher prices typically suggest a decreased likelihood of continued imports, a greater distance could potentially boost the likelihood of continued imports. Since exporters pay part of the transportation costs, they may struggle to cover their fixed export costs during the crisis and continue to export at higher prices. These results indicate that distance not only influences distant countries with high GDP but also influences the level of output per capita among trading partners. This suggests that greater distance between the country of origin and destination of imports may be an important factor in the decision to continue importing, regardless of the level of GDP per capita of the trading partner country. In this context, import-receiving countries can adopt a strategy of enhancing logistics and transportation efficiency to lower import costs from distant countries. Investments in better transportation infrastructure, more efficient shipping contract negotiations, or improvements in supply chain management can help mitigate the negative impact of long distances on the decision to continue importing. Additionally, diversifying import sources to cover more geographically close countries can help reduce risk, depending on countries that may be more susceptible to price fluctuations or logistics problems. Thus, taking these factors into account can help countries make better decisions in their import management, increase supply resilience, and minimize the risks associated with dependence on imports from distant countries.

This shows that the various factors analyzed still affect the probability of a variety being imported, with most only slightly higher than the total estimate. Despite the issue of nomenclature changes, the results remain consistent and do not significantly alter. This shows that, in the context of import decisions, factors such as price, product characteristics, and country of origin play a significant role in determining the viability of importing a variety. Despite changes in nomenclature or the definition of varieties, the impact of these factors remains consistent. This demonstrates that the conducted analysis possesses a robust foundation, enabling stakeholders to make more informed decisions regarding their import management. The importance of such analysis lies in its ability to provide deep insight into the dynamics of imports and the factors that influence them. With a better understanding of these factors, countries can develop more effective import strategies, reduce the risk of dependence on imports from specific countries, and increase the resilience of their supply. Thus, research of this kind has major practical implications in the context of international trade and overall economic management.

4. Conclusion

Several influencing factors reveal the impact of the economic crisis on imported varieties. More expensive varieties tend to have an increased probability of stopping importing. This may be due to a decrease in purchasing power during the crisis, which makes expensive products less desirable. Geographic distance also plays an important role. More distant countries produce varieties with a higher probability of stopping imports. This could be due to higher transportation costs for varieties from distant countries. Varieties with a larger market share originating from countries with higher incomes tend to be more stable in the market during the crisis. This suggests that varieties from countries with high incomes or those with large market shares may have competitive advantages that make them more resilient to the impact of economic crises. Reducing imported varieties can hurt consumer welfare because it can reduce product choices and increase prices. These welfare losses varied from product to product.

References

[1] Aulia, M. R., & Junaidi, H. E., Rizki, M., Mulyadi, & Abdullah, A.(2024). The Development of the Partnership Program and Business Performance: in Terms of Communication Behavior and Social Networks of MSMEs. Journal of System and Management Sciences, 14(1), 159-174.

[2] Sanadi, P. Y. F., Fatmawada, S., & Djunaedi, D. (2024). ANALISIS KUALITAS PELAYANAN PEMBAYARAN PAJAK KENDARAAN BERMOTOR PADA KANTOR SAMSAT KABUPATEN BIAK NUMFOR. *Gema Kampus IISIP YAPIS Biak*, *19*(1), 55-71.

[3] Nimran, U., Al Musadieq, M., & Afrianty, T. W. (2024). Empowerment effect on competence and organizational commitments: Organizational learning culture as moderating. *Multidisciplinary Reviews*, *7*(2), 2024038-2024038.

[4] Setyawasih, R., Baali, Y., Ekopriyono, A., Pasaribu, J. S., Mas'ud, A. A., Simarmata, N., ... & Mose, Y. (2023). Manajemen Sumber Daya Manusia Global.

[5] Mose, Y., Mokalu, R. C., Andaria, A. C., & Sorongan, D. (2023). Mengukur Efektivitas Aplikasi Godrej Ver 1.0. 21 Menggunakan Model DeLone dan McLean. *Jurnal Sistem Komputer Trinita*, *1*(1).

[6] Butsianto, S., Priyangan, D. M., Herdiani, F. D., Budiman, B., & Mose, Y. (2024). Evaluation of the Effectiveness of Technology-Based Project Management Systems for Software Development. *Global International Journal of Innovative Research*, *1*(2), 175-181.

[7] Arifah, F. N., Gunawan, N., Farisi, A., Tobing, R. B., Mose, Y., Zakaria, M., ... & Kusuma, I. (2023). KONSEP SISTEM INFORMASI: Konsep dan Penerapan. *YAYASAN LITERASI SAINS INDONESIA*, *1*(1).

[8] Jasri, J., Mansyur, S., Rahayu, I., & Astuti, H. (2021). PERANAN BANK SYARIAH INDONESIA (BSI) DALAM MENDUKUNG PENINGKATAN KESEJAHTERAAN USAHA KECIL DAN MENENGAH. *Jurnal Akuntansi, Ekonomi dan Manajemen Bisnis*, *1*(2), 128-134.

[9] Rahayu, I., Ardiyanti, H., Judijanto, L., Hamid, A., & Bani-Domi, E. S. (2023). ETHICAL DILEMMAS AND MORAL FRAMEWORKS: NAVIGATING THE INTEGRATION OF ARTIFICIAL INTELLIGENCE IN ISLAMIC SOCIETIES. *International Journal of Teaching and Learning*, *1*(3), 171-183.

[10] Tannady, H., & Filbert, K. (2018). Pengendalian Persediaan dengan Menggunakan Metode Economic Oreder Quantity dan Silver Meal Algorithm (Studi Kasus PT SAI). *Jurnal Teknik dan Ilmu Komputer*.

[11] Lois, C., Rowena, J., & Tannady, H. (2017). Perencanaan dan Pengendalian Persediaan Bahan Baku Benang dengan Lot Sizing Economic Order Quantity. *JIEMS (Journal of Industrial Engineering and Management Systems)*, *10*(2).

[12] Tannady, H., & Pratama, Y. D. (2019). Analisis Perencanaan Persediaan Bahan Baku Menggunakan Metode Economic Order Quantity Dengan Pertimbangan Stockout Cost (Studi Kasus Pada PT. Multi Logam Presisi). *Spektrum Industri*, *17*(2), 93.

[13] Aulia, M. R., Lubis, Z., & Effendi, I. (2023). Leveraging Quality Management and Partnership Programs for Technopreneurial Success: Exploring their Impact on MSME Performance. Aptisi Transactions on Technopreneurship (ATT), 5(2), 157-168.