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Countertrade in Modern Geoeconomics: A Study of Indonesia and the Eurasian Economic Union

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Countertrade in Modern Geoeconomics: A Study of Indonesia and the Eurasian Economic Union

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The views and opinions expressed by Sonia Anggun Andini in any capacity related to her academic and professional engagements are solely her own and do not represent the official position of the Coordinating Ministry for Economic Affairs (CMEA) or the Government of Indonesia.

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Abbreviations

ASEAN	Association of Southeast Asian Nations
CAATSA	Countering America's Adversaries Through Sanctions Act
EAEU	Eurasian Economic Union
EEC	Eurasian Economic Commission
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GDP	Gross Domestic Product
G20	Group of Twenty
HS	Harmonized System
NTT	New Trade Theory
REE	Rare Earth Element
SMEs	Small and Medium-Sized Enterprises
UNCTAD	United Nations Conference on Trade and Development
US	United States
USD	United States Dollar

1. Introduction

Countertrade, the practice of exchanging goods and services without immediate monetary payments, has played a notable role in modern international trade.

Since World War II, countertrade gained prominence, particularly among formerly communist nations. The Soviet Union and Eastern Bloc countries relied on countertrade due to limited access to Western credit and currency convertibility constraints (Black et al., 2000, p. 88). By 1953, 37 percent of Eastern Bloc trade was conducted with the Soviet Union, a sharp rise from the pre-war 1–2 percent, largely facilitated through the Council for Mutual Economic Assistance (Comecon) (Marino, 1990). Countertrade was also prominent in East-West trade, with companies like PepsiCo and Coca-Cola using it to access communist markets. Given its extensive use in these economies, countertrade likely represented a substantial portion of the estimated 15–30 percent of global trade during the 1970s and 1980s (UNCTAD, 1991). This mechanism allowed nations facing foreign exchange shortages to sustain trade flows while conserving hard currency reserves. Countertrade encompasses various forms, including barter, counter-purchase, offset agreements, and buyback arrangements (Kostecki, 1987). Each of these meets specific economic and strategic objectives.

Despite countertrade's importance during periods of economic constraint, there was a marked decline in its prevalence toward the end of the 20th century. This decline coincided with the liberalization of global markets, the rise of convertible currencies, and the influence of international financial institutions that favour free trade (WTO, 1995). Critics highlighted inefficiencies, increased transaction costs, and market distortions arising from countertrade (Caves et al., 2007). As more nations embraced open-market policies, currency-based trade became the standard, promising greater efficiency in most cases.

Recently, renewed global economic uncertainties and shifting geopolitical landscapes have prompted a resurgence of interest in countertrade. Scholars have increasingly framed such mechanisms in geoeconomic terms, viewing them as instruments that states can use to secure strategic resources and mitigate geopolitical risks (Blackwill and Harris, 2016; Medeiros, 2009). Some analysts observe that states are exploring ways to reduce their dependence on the US dollar for international commerce,

particularly where sanctions or financial volatility pose barriers to conventional monetary transactions (Taskinsoy, 2023). For a country like Indonesia, which has embarked on diversifying its trade partnerships, countertrade offers one possible avenue for minimizing currency-related vulnerabilities[1] while expanding export markets.

Regional blocs such as the Eurasian Economic Union (EAEU)—comprising Russia, Belarus, Kazakhstan, Armenia, and Kyrgyzstan—have shown an interest in integrating countertrade into their broader geoeconomic strategies (Libman and Vinokurov, 2012). Indonesia, as Southeast Asia's largest economy and a member of the G20, represents a significant opportunity for the EAEU to extend its economic ties in the Asia-Pacific. Indonesia's leadership in ASEAN and its strategic location make it an appealing partner for countertrade initiatives that align with the geoeconomic priorities of both parties.

The conclusion of negotiations for a prospective Free Trade Agreement (FTA) between Indonesia and the EAEU has further elevated countertrade's profile, though the agreement is still awaiting full ratification. In June 2024, the Eurasian Economic Commission (EEC) hosted a seminar on countertrade procedures that underscored the renewed appetite for non-monetary exchange arrangements (Eurasian Economic Commission, 2024). Officials at the seminar discussed how countertrade could help address trade imbalances, protect domestic industries, and bypass financial constraints. These discussions reflect the strategic ambitions of EAEU member states, which view countertrade as an opportunity to bolster economic cooperation while reducing exposure to dominant international financial systems.

This paper examines the feasibility of deploying countertrade under an Indonesia–EAEU Free Trade Agreement. It assesses both the benefits and pitfalls of countertrade for Indonesian super-large firms, large firms, and small and medium-sized enterprises (SMEs).[2] Potential merits include improved market access and reduced currency risks, whereas challenges range from regulatory complexities to resource misallocation and high transactions costs. Smaller firms may be especially prone to such risks due to limited capacities and bargaining power.

By analyzing the economic and geopolitical drivers that shape countertrade adoption, this paper highlights both the potential and the obstacles inherent in this trade mechanism. It notes that while countertrade can be an effective instrument for achieving strategic objectives, it can also compromise economic efficiency. Therefore, countertrade constitutes a multifaceted but imperfect solution for navigating a global trade environment characterized by fragmentation and shifting power dynamics.

Following this introduction, Chapter 2 provides a review of the literature on countertrade, focusing on its historical significance and theoretical foundations. Chapter 3 discusses current economic interactions between Indonesia and the EAEU, and Chapter 4 evaluates how countertrade might work in practice for different classes of Indonesian firms. Chapter 5 concludes with policy recommendations.

1. Indonesia has introduced a Local Currency Settlement (LCS) framework through Bank Indonesia, which aims to reduce reliance on the US dollar and boost trade efficiency by encouraging the use of local currencies in bilateral transactions (Putri, 2024).

2. We use the term 'super-large firms' in line with the concept of 'superstar firms' (Autor et al., 2020), referring to highly productive firms with significant market dominance, high markups, and low labor shares. These entities often possess extensive capital reserves, diversified global or regional market reach, and robust supply-chain networks (e.g., Salim Group). They typically command significant bargaining power, manage complex trade arrangements, and absorb higher transactional costs compared to large or SME counterparts.

2. Literature Review

Countertrade, the practice of exchanging goods and services without immediate monetary payments, has long been a mechanism of choice in international trade, particularly under conditions of financial or geopolitical constraints (Banks, 1983; Fitzgerald, 1987).

Its historical relevance is evident in periods such as the 1980s debt crises, where nations with foreign exchange shortages or under sanctions adopted countertrade to sustain trade flows. Countertrade encompasses a variety of transactional forms, each designed to address specific economic and strategic needs. These include barter, counter-purchase, offset agreements, and buyback arrangements (Huszagh and Huszagh, 1986; Verzariu, 1984).

Barter, one of the simplest forms, involves the direct exchange of goods or services without currency (Montague, 1989; Palia and Yoon, 1994). This method is often employed in markets where monetary systems are underdeveloped or where parties aim to bypass reliance on hard currencies. Counter-purchase, on the other hand, obligates exporters to purchase goods of equivalent value from the importing country, creating mutual trade flows that can stimulate local industries but may compel inefficient purchases (Burtescu and Bondoc, 2017). Offset agreements, frequently used in high-value sectors such as defence and aerospace, require sellers to make investments in the buyer's economy, fostering industrial development but sometimes leading to dependency risks (Rajski, 1986). Finally, buyback arrangements involve compensation through outputs generated by the capital goods provided by the seller, a mechanism particularly relevant in capital-intensive industries like energy and manufacturing (Sumer and Chuah, 2007).

These mechanisms provide flexibility for countries facing liquidity issues, trade sanctions, or other barriers to conventional trade. By enabling transactions without immediate monetary exchange, countertrade supports trade continuity and economic collaboration under constrained conditions. However, it also introduces administrative complexities and may lead to inefficiencies, making it a less optimal solution compared to currency-based trade in liberalized financial environments (Banks, 1983; Fitzgerald, 1987; Huszagh and Huszagh, 1986). While countertrade has been used as a practical response to specific financial and geopolitical constraints, its broader economic implications remain subject to debate.

Examining countertrade through the lens of trade theories provides a critical framework for understanding its efficiencies, limitations, and long-term effects on global trade dynamics. The classical theory of comparative advantage, introduced by Ricardo (1817), provides a foundational explanation for the benefits of trade. It posits that countries gain by specializing in the production of goods where they hold relative efficiency, and trading for others, thereby maximizing global resource allocation, reducing production costs, and enhancing economic welfare. Countertrade aligns with this theory by enabling countries with limited access to foreign exchange to participate in global trade through direct exchanges of goods and services (Banks, 1983). For example, a resource-rich country may exchange commodities for advanced machinery or technology, thereby leveraging its natural endowments while avoiding financial constraints (Monteiro and Lasserre, 2022). However, the reciprocal obligations embedded in countertrade agreements often require countries to accept demand for goods or services that may not align with their comparative advantage, leading to inefficiencies in resource allocation. Such practices can divert resources from more productive uses, contradicting the classical theory's emphasis on efficient resource distribution (Caves et al., 2007). Additionally, while removing currency risk may seem beneficial, the absence of a standard pricing benchmark in countertrade often leads to higher negotiation and administrative costs — particularly in establishing the value of exchanged goods or services— undermining the theoretical gains predicted by comparative advantage.

While classical comparative advantage provides a useful lens for understanding the rationale behind countertrade, contemporary applications suggest a more nuanced reality. For instance, countertrade agreements have sometimes been used to expand the productive capacity of resource-rich nations by enabling access to advanced technology and industrial inputs. This aligns with the broader goals of comparative advantage but also reflects a strategic element where nations use trade mechanisms to achieve developmental objectives (Lebdioui, 2022). However, such applications often blur the lines between economic optimization and political or industrial strategy, highlighting the tension between theory and practice.

The Heckscher-Ohlin (H-O) model, developed by Heckscher (1919) and Ohlin (1933), provides a foundational framework for understanding trade based on factor endowments. According to this model, countries tend to export goods that intensively utilize their abundant resources while importing those that rely on their scarce factors, thereby achieving optimal global resource allocation. Countertrade agreements can align with these principles in contexts where financial or geopolitical barriers restrict traditional trade. For instance, a resource-

abundant country might exchange raw materials for capital-intensive goods, leveraging its factor endowment advantage (Rafidi and Verikios, 2022).

However, the realities of modern trade often deviate from the H-O model's idealized predictions, especially when institutional or policy-driven factors influence trade flows. As Belloc (2006) highlights, institutional structures and non-economic considerations frequently reshape the direction and nature of trade, introducing distortions that may not align with purely factor-driven models. In countertrade practices, this can manifest when agreements prioritize strategic or geopolitical objectives—such as fostering industrial development or building diplomatic ties—over economic efficiency, leading to resource misallocation.

Furthermore, as Rafidi and Verikios (2022) note, trade mechanisms like barter and offset agreements increasingly intersect with foreign direct investment (FDI) and industrial policy. These dynamics may either reinforce or undermine the efficiencies predicted by the H-O model. For example, countertrade agreements that facilitate technology transfers or infrastructure development might align with a nation's long-term industrial goals but deviate from short-term comparative advantages. Such cases highlight the evolving complexity of countertrade within a global trade system shaped by institutional and policy-driven interactions.

The emergence of New Trade Theory (NTT), pioneered by Krugman (1979, 1980), marked a significant shift in understanding trade patterns. Moving beyond the classical focus on factor endowments, NTT emphasizes the role of economies of scale and product differentiation as critical drivers of trade. This framework explains the rise of intra-industry trade among countries with similar endowments, where specialization in product varieties enhances efficiency and consumer welfare (Krugman, 1980; Ethier, 1982).

Countertrade aligns with these principles by enabling the exchange of differentiated products in contexts where traditional monetary transactions are infeasible. For example, a firm specializing in agricultural commodities might engage in countertrade to acquire advanced machinery, thereby expanding product variety and meeting diverse consumer preferences. Additionally, countertrade agreements can facilitate economies of scale by providing firms with access to new markets and resources. This enables firms to optimize production processes, reinforcing the efficiency gains predicted by NTT (Neary, 2009).

Although this setup can foster efficiency by bypassing currency shortages and unlocking new production possibilities, efficiency in a trade agreement largely refers to how well it reduces costs and streamlines transactions for all parties. As Ethier (1982) notes, achieving scale economies depends on well-structured arrangements. Countertrade, by contrast, can introduce cumbersome negotiations, valuation uncertainties, and logistical hurdles. These additional steps can divert time and resources away from innovation and specialization—two cornerstones of NTT.

Furthermore, as Neary (2009) observes, while NTT underscores the mutual benefits of intra-industry trade, countertrade agreements often reflect strategic or geopolitical considerations rather than pure economic optimization. This divergence highlights the tension between theoretical predictions and real-world trade practices, particularly in cases where countertrade obligations lead firms to engage in exchanges that do not align with their competitive advantages or market demands.

The newest trade theories, exemplified by the Melitz model (Melitz, 2003), emphasize firm-level heterogeneity, focusing on productivity differences among firms within an industry. These models demonstrate that trade liberalization disproportionately benefits the most productive firms, which can overcome fixed costs associated with entering foreign markets. However, countertrade agreements offer an alternative mechanism for firms, particularly those with liquidity constraints, to bypass liquidity barriers and participate in international trade. Larger, more productive firms are often better positioned to navigate the complexities of countertrade, enabling them to secure critical inputs, expand into new markets, and enhance competitiveness. By integrating advanced inputs acquired through countertrade into their production processes, these firms can drive innovation and enhance aggregate productivity (Melitz, 2003; Melitz and Redding, 2015).

Extensions of the Melitz framework, such as those by Melitz and Ottaviano (2008) and Helpman et al. (2004), explore the role of firm heterogeneity in shaping trade and investment decisions. For instance, while countertrade may help firms overcome liquidity barriers, it can also influence their decisions between export-oriented strategies and foreign direct investment (FDI). These choices are critical in determining the geographical scope and operational structure of international firms, particularly under conditions of limited financial access.

The interaction between market size, trade liberalization, and firm productivity, as detailed by Melitz and Ottaviano (2008), offers further insights into the implications of countertrade. Larger markets and reduced trade barriers can amplify the benefits of countertrade by enabling firms to scale their operations and diversify their offerings. However, countertrade's complex obligations might distort these benefits, particularly for smaller firms unable to compete with the operational scale of their more productive counterparts.

The heterogeneity of firms significantly influences their engagement with international trade mechanisms, including countertrade. Bernard et al. (2007) emphasize that larger firms, with their superior financial and managerial resources, dominate trade flows by leveraging economies of scale and diversified networks. In contrast, small and medium- sized enterprises (SMEs) often face significant barriers such as limited resources, higher transaction costs, and reduced bargaining power, making their participation in complex trade mechanisms more challenging. Adão et al. (2020) further highlight that larger, more productive firms disproportionately benefit from trade liberalization due to their ability to overcome fixed costs and adapt to market complexities, while smaller firms face higher risks of exclusion.

These insights suggest that countertrade agreements should consider firm-level heterogeneity to avoid exacerbating inequalities, ensuring that both large enterprises and SMEs can engage effectively and equitably in such trade mechanisms. However, while trade

theories focus on optimizing resource allocation and specialization under stable conditions, geoeconomics frames the recent resurgence of countertrade as a strategic use of economic tools to navigate geopolitical challenges and advance state objectives. By offering a mechanism to navigate financial sanctions, reduce dependency on dominant currencies, and enhance economic resilience, countertrade aligns with the geoeconomic priorities of nations facing global uncertainties. As Gopinath et.al (2025) argue, the increasing fragility of global financial linkages and the dominance of the U.S. dollar have prompted countries to seek alternative trade mechanisms that mitigate currency-related vulnerabilities. Countertrade, by allowing trade to continue without reliance on hard currency, provides a pathway for countries to insulate themselves from geopolitical and financial shocks.

Historical precedents further illustrate how countertrade fits into geoeconomic strategies. Campos et al. (2024) analyze Cold War trade patterns, highlighting how geopolitical fragmentation reshaped global trade flows. Nations on either side of the Iron Curtain employed trade agreements to sustain economic relationships despite political divisions, prioritizing resource security and industrial development. These dynamics echo the modern resurgence of countertrade as a strategic tool for maintaining trade flows under conditions of geopolitical tension or economic fragmentation.

Contemporary instances of arms-for-commodities deals, or infrastructure-for-resources swaps, illustrate that countries use countertrade not only to sidestep sanctions but also to bolster their industrial bases (Taskinsoy 2023). Indonesia's arms acquisitions, sometimes financed through commodity exports, fit this pattern (Arifin, Suman, and Khusaini 2019; Abrams 2022).

However, the implementation of countertrade agreements involves significant challenges. As Gopinath et.al. (2024) note, alternative trade mechanisms such as countertrade often carry high transaction costs, including complexities in negotiation, enforcement, and valuation. These inefficiencies can offset the strategic benefits, particularly when trade delays or resource misallocations arise. Similarly, as Campos et al. (2024) highlight, geopolitical considerations can distort trade priorities, potentially reducing economic efficiency in favour of strategic objectives.

The existing literature on countertrade has provided valuable insights into its theoretical underpinnings and historical applications, but important nuances remain underexplored. Many studies focus on countertrade's role as a trade mechanism during periods of financial constraint or geopolitical tension, often treating it as a uniform practice. While studies on countertrade mechanisms have provided valuable insights, the ways in which they are implemented across enterprises of varying scales—such as super large enterprises, large firms, and small and medium-sized enterprises (SMEs)—remain underexplored. Existing research often treats countertrade as a uniform mechanism, overlooking the specific challenges and capacities these enterprises face. Additionally, the intersection of countertrade with geoeconomic strategies in specific bilateral contexts, such as the Indonesia–EAEU Free Trade Agreement, has yet to be fully examined.

This paper builds on the existing literature by investigating how countertrade can be adapted to the unique capacities and challenges of different enterprise types. By examining these distinctions, it aims to offer a more granular understanding of countertrade's potential applications within a specific geoeconomic framework, contributing to a more comprehensive view of its role in contemporary trade practices.

3. Current Economic Dynamic Between Indonesia and the EAEU

To assess the applicability of the theoretical framework to real-world scenarios, it is imperative to explore the current economic dynamics between Indonesia and the EAEU. This section provides a comparative overview of the economies involved, analyses trade trends, and reviews past countertrade experiences.

3.1 A Comparative Overview

Indonesia and the Eurasian Economic Union (EAEU) are two distinct economic blocs with contrasting development levels and resource allocations. Indonesia's economy, with a population of 277.5 million, is forecasted to grow at 5.1% annually from 2024 to 2026 (World Bank, 2024). In comparison, the EAEU economies, with 185 million people, had a moderate growth forecast of 1.7% (Eurasian Economic Commission, 2023). These figures highlight Indonesia's rapid growth potential against the EAEU's steadier economic trajectory.

The economy of each EAEU member is represented in **Table 1**. Russia stands out with the largest GDP of USD 2.02 trillion, though Indonesia remains economically significant at USD 1.37 trillion. GDP per capita figures further differentiate the economies: Russia and Kazakhstan each maintain relatively high per capita GDPs of USD 13,817 and USD 13,137, respectively, compared to Indonesia's USD 4,941. High inflation in Kazakhstan (14.7%) and Kyrgyzstan (10.8%) contrasts with Indonesia's stable rate of 3.7%, illustrating differences in economic stability across these nations. Meanwhile, Indonesia's substantial foreign direct investment (FDI) inflows of USD 22.08 billion contrast with Russia's FDI outflow of USD -11.1 billion, highlighting divergent investment trends.

In terms of business environment and inequality, Kazakhstan outperforms Indonesia on the Ease of Doing Business index, with a rank of 25 versus Indonesia's 73. Income inequality is also more pronounced in Indonesia, where the Gini index is 38.3, compared to Russia's 36 and Belarus's low 24.4.

These comparative economic snapshots illustrate not only the diversity within the EAEU but also Indonesia's significant growth and investment appeal amid differing structural strengths.

3.2 Indonesia-EAEU Trade Trends

The trade relationship between Indonesia and the Eurasian Economic Union (EAEU) has experienced notable fluctuations from 2004 to 2023. Indonesian exports to the EAEU steadily increased from USD 160.6 million in 2004 to a peak of USD 1.28 billion in 2016, before slightly declining in recent years to USD 1.05 billion in 2023.

Table 1 Comparative Economic Indicators of Indonesia and EAEU Member Countries

Indicators	Indonesia	Russia	Kazakhstan	Belarus	Armenia	Kyrgyzstan
GDP (USD)	1.37 tn	2.02 tn	261.42 bn	71.85 bn	24.12 bn	13.98 bn
GDP Per Capita (USD)	$4,941	$13,817	$13,137	$7,829	$8,716	$1,970
GDP Growth	5%	3.6%	5.1%	3.9%	8.7%	6.2%
Inflation Rate	3.7%	6.7%	14.7%	5%	2%	10.8%
Unemployment Rate	1.9%	0%	0%	0%	0.8%	0.7%
FDI Inflows (USD)	22.08 bn	-11.1 bn	5.3 bn	2.07 bn	580 mn	490 mn
Export Value (USD)	258.79 bn	407.85 bn	78.73 bn	7.10 bn	8.37 bn	3.30 bn
EoDB Rank	73	28	25	49	47	80
Gini Index	38.3	36	29.2	24.4	27.9	28.8

Source: World bank (2024); Eurasian Economic Commission, (2023).

In contrast, imports from the EAEU saw significant growth, particularly in 2008 with a sharp rise to USD 1.48 billion, reflecting the EAEU's dominant position in supplying key commodities. By 2023, Indonesia's imports from the EAEU had reached USD 2.74 billion, highlighting a persistent trade deficit as visualized in the trend in **Figure 1**. This trade imbalance can be attributed to the EAEU's substantial exports of raw materials such as energy resources and fertilizers, which remain in high demand in Indonesia.

Moreover, based on 2024 data from Trade Map, a detailed analysis of Indonesia's exports to the EAEU reveals that trade is overwhelmingly concentrated in Russia. Exports to Russia accounted for 86.78% of Indonesia's total exports to the EAEU, totalling USD 913 million. In comparison, exports to other EAEU member countries were notably smaller: Kazakhstan was valued at USD 111 million, Belarus USD 13.4 million, Armenia USD 7.7 million, and Kyrgyzstan USD 6.5 million. This distribution highlights Russia's central position in Indonesia's trade relations within the EAEU.

Consistent with previous export patterns, Indonesia's imports from the EAEU in 2023 were largely sourced from Russia, which accounted for 98.38% of Indonesia's total imports from the EAEU, valued at USD 2.4 billion. Imports from other EAEU member countries were comparatively minor. The dominance of Russian imports is primarily attributed to key commodities, including mineral fuels (HS 27) at USD 1,086 million, fertilizers (HS 31) at USD 480 million, iron and steel (HS 72) at USD 410 million, and cereals (HS 10) at USD 285 million.

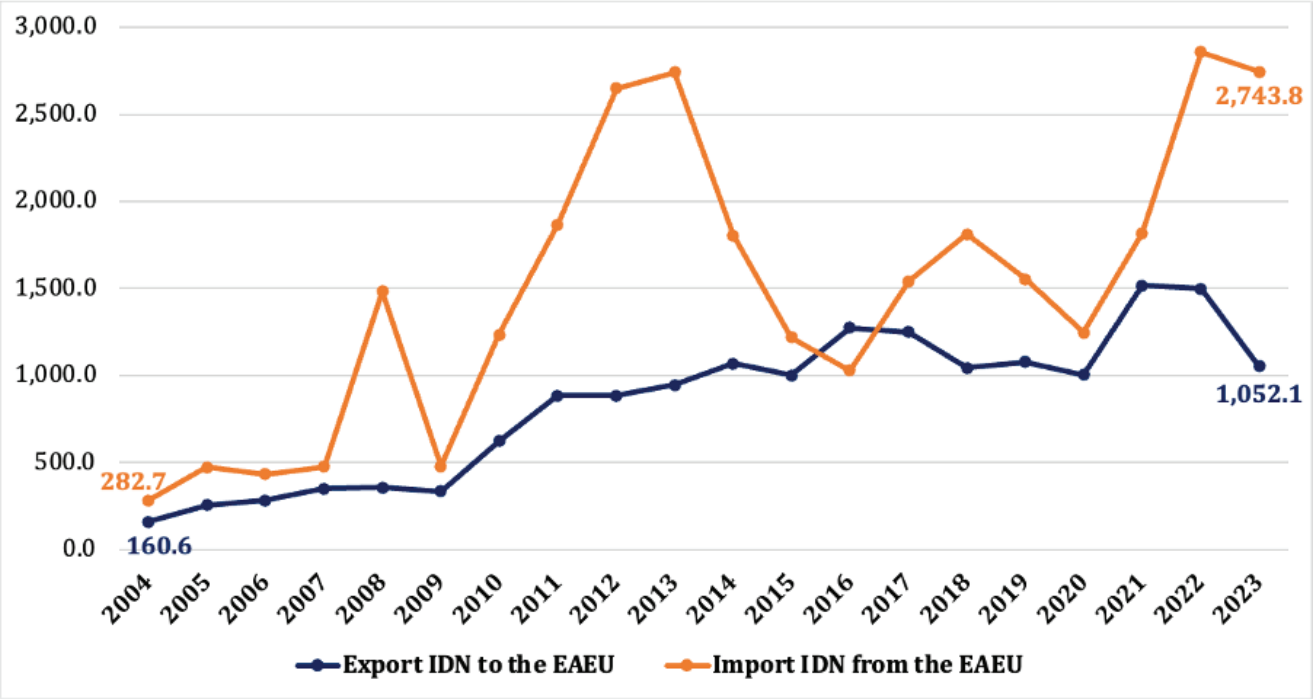
In terms of the participation in world trade, Indonesia, Kazakhstan, and Russia show distinct levels, as indicated by their respective shares of global exports and imports. Indonesia accounts for 1.1% of global exports and Russia for 1.8%, underscoring their more substantial roles in international markets compared to Kazakhstan at 0.3% and Armenia and Belarus, each with less than 0.1%. For imports, both Indonesia and Russia hold a 0.9% share of global imports, reflecting relatively high demand for foreign goods and services, followed by Kazakhstan at 0.3% and Armenia, Belarus, and Kyrgyzstan each at 0.1%.

These world shares highlight the concentrated role of larger economies like Indonesia and Russia in both exports and imports within this group, which likely reflects their diversified economies and stronger global trade ties. In contrast, the lower world trade shares for other EAEU members indicate limited global trade involvement, likely influenced by smaller economic scales or a narrower export base. Expanding these economies' engagement in global trade could be advantageous, offering new growth avenues and fostering greater regional economic resilience amid global shifts.

In 2023, Indonesia's exports to the EAEU were dominated by a few key products, with animal, vegetable, or microbial fats and oils (HS 15) leading at USD 595 million. This was followed by electrical machinery and equipment (HS 85) at USD 95 million and nuclear reactors, boilers, and machinery (HS 84) at USD 63 million. Other notable exports included footwear (HS 64) and coffee, tea, and spices (HS 09), each valued at approximately USD 33 million. These figures suggest that Indonesia's exports to the EAEU are primarily concentrated in agricultural and industrial goods, highlighting the country's strength in agricultural exports and niche industrial sectors, such as machinery.

Conversely, Indonesia's imports from the EAEU were largely driven by raw materials, with mineral fuels, mineral

Figure 1 Indonesia-EAEU Trade Flow, 2004–2023 (in USD millions)

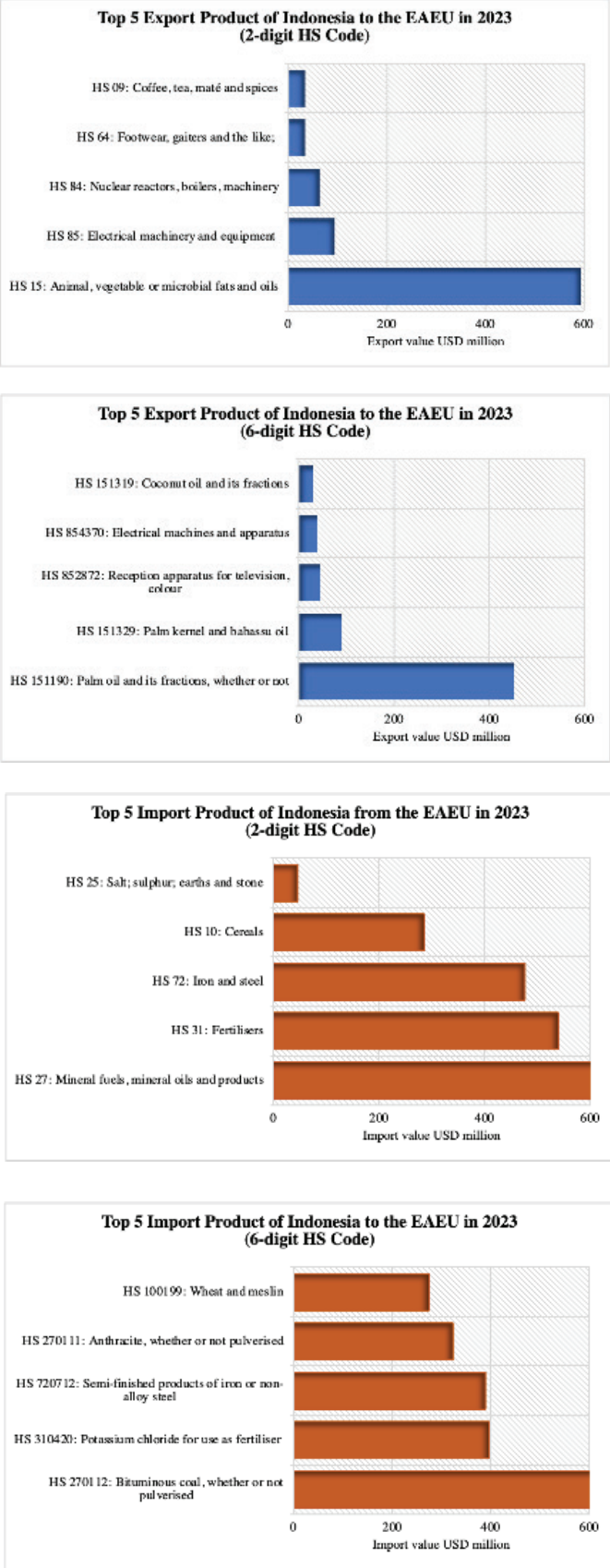


Source: Trade Map (2024)

oils, and products (HS 27) representing the largest category at USD 1.24 billion. Fertilizers (HS 31) followed at USD 540 million, and iron and steel (HS 72) were imported at USD 477 million. Other imports included cereals (HS 10) at USD 286 million and salt, sulphur, earths, and stone (HS 25) at USD 47 million. These imports underscore Indonesia's reliance on the EAEU for essential intermediate goods, particularly energy and fertilizer products, which are critical to its energy sector and agricultural production.

Indonesia's trade with the EAEU showed a significant imbalance, exporting low-value goods like fats, oils, and footwear, while importing high-value raw materials such as mineral fuels, fertilizers, and steel as illustrated in **Figure 2**. This reflects Indonesia's reliance on the EAEU for critical industrial inputs, particularly energy and intermediate goods. To address this imbalance, Indonesia needs to diversify its exports, focusing on more advanced goods to reduce dependency on EAEU imports. Negotiating a trade agreement with the EAEU can create conditions for better market access, improved trade terms, and investment in higher-value industries.

Figure 2 Top 5 Export and Import Products between Indonesia and the EAEU in 2023



Source: Trade Map (2024)

3.3 Countertrade Experience Between Indonesia and EAEU Member States

The countertrade practice has become particularly significant in Indonesia, especially in the procurement of defence equipment from foreign suppliers. This scheme offers valuable economic opportunities by facilitating access to critical goods while also supporting local industries through increased exports. By leveraging counter-purchase agreements, Indonesia can balance its trade relationships and strengthen its position in global markets. To regulate such practices, Indonesia has implemented specific trade provisions under Government Regulation No. 29 of 2017[3], which governs the payment and delivery of goods in export and import activities. Additionally, Minister of Trade Regulation No. 28/M-Dag/Per/5/2017[4] amends an earlier regulation (No. 44/M-Dag/6/2016), providing guidelines for the procurement of imported government goods through countertrade methods. These regulations outline various payment methods, including barter, buyback, and offset arrangements, which are central to Indonesia's countertrade practices (Arifin, Suman, & Khusaini, 2019).

In the context of defence equipment trade, Indonesia has established specific regulations to govern countertrade mechanisms. These are outlined in Government Regulation No. 76 of 2014[5], which addresses the trade return mechanism in the procurement of foreign defence and security equipment, and Minister of Defence Regulation No. 30 of 2015[6], which focuses on trade returns, local content, and offset in defence and security equipment procurement. Both regulations define trade returns as a reciprocal trade activity, where the value of defence and security equipment contracts with foreign parties is met by an equivalent value of Indonesian exports.

Despite the economic opportunities that countertrade offers, Indonesia's implementation has faced challenges. A notable example is the purchase of Sukhoi SU-35 aircraft from Russia, valued at USD 1.14 billion (Reuters, 2017). According to the countertrade agreement, Indonesia was expected to export goods worth 50% of the purchase value, or approximately USD 570 million. Potential export commodities included processed rubber, CPO, machinery, coffee, cocoa, textiles, and more. However, the selection of commodities was not without complications. For instance, while Indonesia proposed 20 commodities for barter, Russia agreed to 10, selecting those with higher added value or that could not be produced domestically. Moreover, negotiations between Indonesia's Ministry of Defence and Ministry of Trade were prolonged, particularly regarding the types of rubber to be traded where Indonesia wanted to export finished products, such as tires, to support its domestic industry, while Russia initially sought raw rubber.

Delays were also encountered in finalizing the contract, with the main trade agreement between Indonesia and Russia signed in January 2018. Even then, the specific commodities for exchange remained undecided. The agreement could only proceed after the contract was activated, marked by the opening of a letter of credit by Indonesia's Ministry of Finance. These delays underscored the importance of effective coordination between Indonesia's Ministry of Defence and Ministry of Trade to ensure the realization of trade returns, which would help improve Indonesia's trade balance with Russia. Without successful cooperation, Indonesia risks missing potential economic benefits. This case highlights both the challenges and opportunities of utilizing trade returns, particularly in the defence sector, and calls for a more streamlined approach to securing beneficial agreements with foreign partners.

Furthermore, Indonesia's shift in 2022 from a planned purchase of Russian Su-35 fighter jets to new agreements with the U.S. and France highlights the growing impact of U.S. sanctions. After facing pressure under the Countering America's Adversaries Through Sanctions Act (CAATSA), which threatened economic consequences for purchasing Russian arms, Indonesia cancelled a $1.1 billion Russian deal and instead announced $22 billion in Western fighter jet contracts. These included $8.1 billion for French Rafales and $13.9 billion for U.S. F-15s. The move underscores how U.S. sanctions leverage the global financial system to influence arms deals, redirecting military spending from Russia to Western suppliers while weakening Russia's defence industry and bolstering Western markets (Abrams, 2022).

According to Shofa (2024), although Indonesia initially cancelled its agreement to purchase Russian Su-35 fighter jets in favour of U.S. F-15s and French Rafales, Russia remains optimistic that the deal may still be implemented. The delay was mainly due to financial difficulties during the COVID-19 pandemic and concerns over U.S. sanctions. Russian Ambassador Sergei Tolchenov confirmed that the Su-35 contract was "frozen" rather than cancelled, and added that Russia is open to the possibility of transferring jet technologies in the future. With the leadership change in Indonesia under President Prabowo Subianto, a former defence minister with a strong military background, defence cooperation and military modernization could lead to a potential revival of the Su-35 deal. Additionally, the US-Russia rapprochement under President Trump could have influenced Indonesia's decision-making, as shifting geopolitical dynamics may have opened the door for renewed defence cooperation with Russia.

3. Government of Indonesia, Government Regulation No. 29 of 2017 on Methods of Payment for Goods and Methods of Delivery of Goods in Export and Import Activities, available at https://peraturan.bpk.go.id/Details/51593.

4. Minister of Trade, Republic of Indonesia, Regulation No. 28/M-Dag/Per/5/2017 on Amendments to Regulation No. 44/M-Dag/Per/6/2016 Concerning Countertrade Provisions for Government Procurement of Imported Goods, available at [https://jdih.kemendag.go.id/peraturan/peraturan-menteri-perdagangan-nomor-28m-dagper52017-tentang-perubahan-atas-permendag-no-44m-dagper62016-tentang-ketentuan-imbal-beli-untuk-pengadaan-barang-pemerintah-asal-impor

5. Government of Indonesia, Government Regulation No. 76 of 2014 on Countertrade Mechanisms in the Procurement of Defense and Security Equipment from Abroad, available at https://peraturan.bpk.go.id/Details/5519.

6. Minister of Defense, Republic of Indonesia, Regulation No. 30 of 2015 on Offset in the Procurement of Defense and Security Equipment from Abroad, available at https://www.kemhan.go.id/pothan/wp-content/uploads/2016/12/Permenhan-No.-30-Tahun-2015-ttg-Ofset.pdf.

4. Alternative Scenarios of Countertrade Engagement

We develop a theoretical framework using the Melitz model to examine the strategic benefits that firms may derive from countertrade (see **Technical Annexure**).

This framework highlights the balance between higher fixed and variable costs and the potential advantages that countertrade offers to firms with sufficient productivity levels. Building upon the theoretical framework and the current economic dynamics between Indonesia and the EAEU, this section critically assesses the practical viability of countertrade for different types of Indonesian firms. The framework highlights that without significant strategic benefits $B(\phi)$, the threshold for countertrade (ϕ_c^*) remains higher than that for monetary trade (ϕ_m^*), rendering countertrade less viable for many types of firms.

By focusing on real-world considerations, we examine whether super-large firms, large firms, and small and medium-sized enterprises (SMEs) can effectively engage in countertrade within the Indonesia–EAEU trade context. This analysis highlights the opportunities, challenges, and strategic implications for these firms, moving beyond theoretical predictions to practical applications. Using this theoretical foundation, the following Comparative Assessment Matrix outlines key scenarios, categorizing firms by type and examining their engagement in countertrade along with the associated strategic benefits.

Table 2 Comparative Assessment Matrix: Countertrade Scenarios, Strategic Benefits, and Thresholds

Firm Type	Super Large Firm/ Conglomerates	Large Firms (State-Owned or Private)	Small Firms (SMEs)
Productivity Level (ϕ)	• **High productivity:** Productivity significantly exceeds countertrade threshold (ϕ_c^*).	• **Moderate productivity:** Productivity around ϕ_c^*, requiring $B(\phi)$to justify countertrade over monetary trade.	• **Low productivity:** Productivity often below ϕ_c^*, with countertrade viable only if $B(\phi)$ is exceptionally high or external support exists.
Fixed Costs (f_c)	• Absorbed due to scale and resources. • High $B(\phi)$ (e.g., geopolitical benefits) effectively reduces the perceived f_c	Manageable with partial $B(\phi)$ (e.g., government contracts) offsetting fixed costs.	Less viable unless $B(\phi)$ or external subsidies lower f_c significantly.
Variable costs (τ_c)	• Efficient global logistics minimize τ_c. • Benefits from economies of scale to absorb inefficiencies.	Moderate τ_c burden; cost-effectiveness relies on negotiated terms or operational optimization.	Inefficient operations result in high τ_c, outweighing most potential benefits.
Strategic Benefits $B(\phi)$	• **Geopolitical leverage:** Access to regulated markets (e.g., arms-for-oil deals). • **Resource acquisition:** Securing scarce commodities (e.g., rare earth metals). • **Market access:** Overcoming trade barriers in large or strategic regions. • Reduces reliance on **foreign exchange**	• **Economic diplomacy:** serve as a strategic instrument for advancing a country's economic diplomacy. • **Market expansion:** Entering semi-regulated markets with government-backed opportunities. • **Trade compliance:** Fulfilling local countertrade mandates. • Reduces reliance on **foreign exchange** reserves.	• **Niche markets:** Entering regions with specific demand and low competition. • **Export promotion program:** Benefiting from government-backed export promotion. • **Material suppliers** for super-large or large firms in countertrade agreements.
Example of Firms	Firm A	Firm B	Firm C
Mechanisms of Countertrade	• **Barter:** Exchange palm oil for fertilizers or wheat processing equipment. • **Buybacks:** Import grain milling technology, repay with processed flour products (HS 1905).	• **Offset agreement:** Acquire agricultural machinery and redistribute to local farmers.	• **Barter:** Exchange artisanal or agricultural products for imported equipment.

Source: Author construction.

4.1 Super-Large Firms

In Indonesia's economy, super-large firms, commonly known as conglomerates, dominate key sectors such as agribusiness, banking, property, telecommunications, and others. These enterprises, characterized by their vast operational scale, diversified product portfolios, have been shown to achieve significant productivity levels (ϕ_c^*)(Hill, 1996; Aswicahyono & Hill, 2015; Kuncoro, 2017). These firms are particularly well-positioned to utilize countertrade due to their extensive resources and ability to absorb high fixed costs (f_c) as a result of their scale. Their global logistics networks further minimize variable costs (τ_c), enabling them to benefit from economies of scale, even in arrangements involving countertrade, which are often marked by inefficiencies.

The Heckscher-Ohlin model posits that trade patterns reflect countries' factor endowments. Indonesia's resource-rich super-large firms align with this theory, using countertrade to overcome financial constraints when monetary trade is hindered by currency shortages, regulations, or geopolitical challenges.

Firm A (e.g. Salim Group), one of Indonesia's largest conglomerates, operates across sectors like food, banking, mining, and energy. Its scale and productivity enable countertrade mechanisms such as bartering palm oil (HS 1511) for fertilizers (HS 3104) from EAEU countries. This approach aligns with Ricardo's comparative advantage theory (1817), as Firm A specializes in palm oil production while bypassing liquidity or forex constraints. Challenges include finding fertilizer suppliers willing to accept palm oil and negotiating pricing amid countertrade's complexity. Additionally, Firm A can adopt counter-purchase agreements, such as importing wheat (HS 1001) from EAEU states, processing it into pasta or instant noodles (HS 1902, HS 1905), and exporting these products back. This leverages Firm A's downstream processing capabilities and logistics efficiency, mitigating variable costs (τ_c) and maintaining trade flows despite countertrade's complexities.

Furthermore, Firm A's extensive operations enable it to leverage buyback and offset agreements, key forms of countertrade. For instance, in its flour milling business Firm A could import advanced grain processing equipment from EAEU suppliers and repay with exports of processed flour or bakery goods (HS 1905). In the automotive sector, it could import components or technology and compensate by exporting finished vehicles or spare parts. Offset agreements in retail operations allow Firm A to source technologies like point-of-sale systems or cold chain equipment while fulfilling obligations by exporting Indonesian commodities, such as tropical fruits, coffee, or snacks. This approach ensures market access and secures scarce resources, critical strategic benefits $B(\phi)$.

Another key advantage for Firm A lies in its ability to engage in joint production facilities under countertrade. As the world's largest instant noodle producer (Asia Food Beverages, 2021), it could establish plants in EAEU countries, supporting local employment and industrial growth. Similarly, in the automotive sector, Firm A could invest in local manufacturing or supply chain partnerships, fostering bilateral industrial development. Such agreements provide geopolitical leverage, access to regulated markets, and reduced reliance on foreign exchange, vital strategic advantages amid geo-economic challenges.

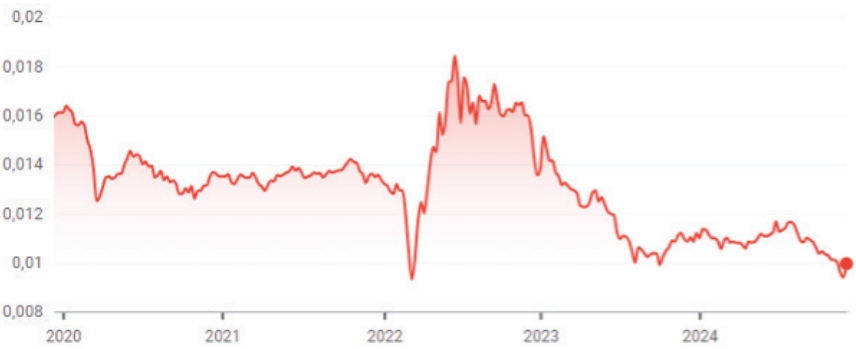
However, as a super-large firm in Indonesia, Firm A can efficiently conduct export and import activities through monetary trade mechanisms without relying on countertrade. Monetary trade allows firms to access established markets, negotiate transparent prices, and avoid the inefficiencies inherent in countertrade arrangements. While countertrade is often justified as a tool for marketing or foreign exchange conservation, it typically involves higher transaction costs. Additionally, according to Marino (1990), countertrade can obscure true prices and quality, making transactions less transparent and potentially less profitable. Companies successful in executing profitable countertrade transactions are typically those with extensive international trade experience and the commitment to manage long-term agreements.

The Melitz (2003) model, which highlights firm-level heterogeneity, suggests that larger firms like Firm A may find it easier to engage in countertrade due to their resources and scale. However, even large firms may determine that the complexities of countertrade outweigh its benefits, particularly when the strategic benefits $B(\phi)$ are minimal.

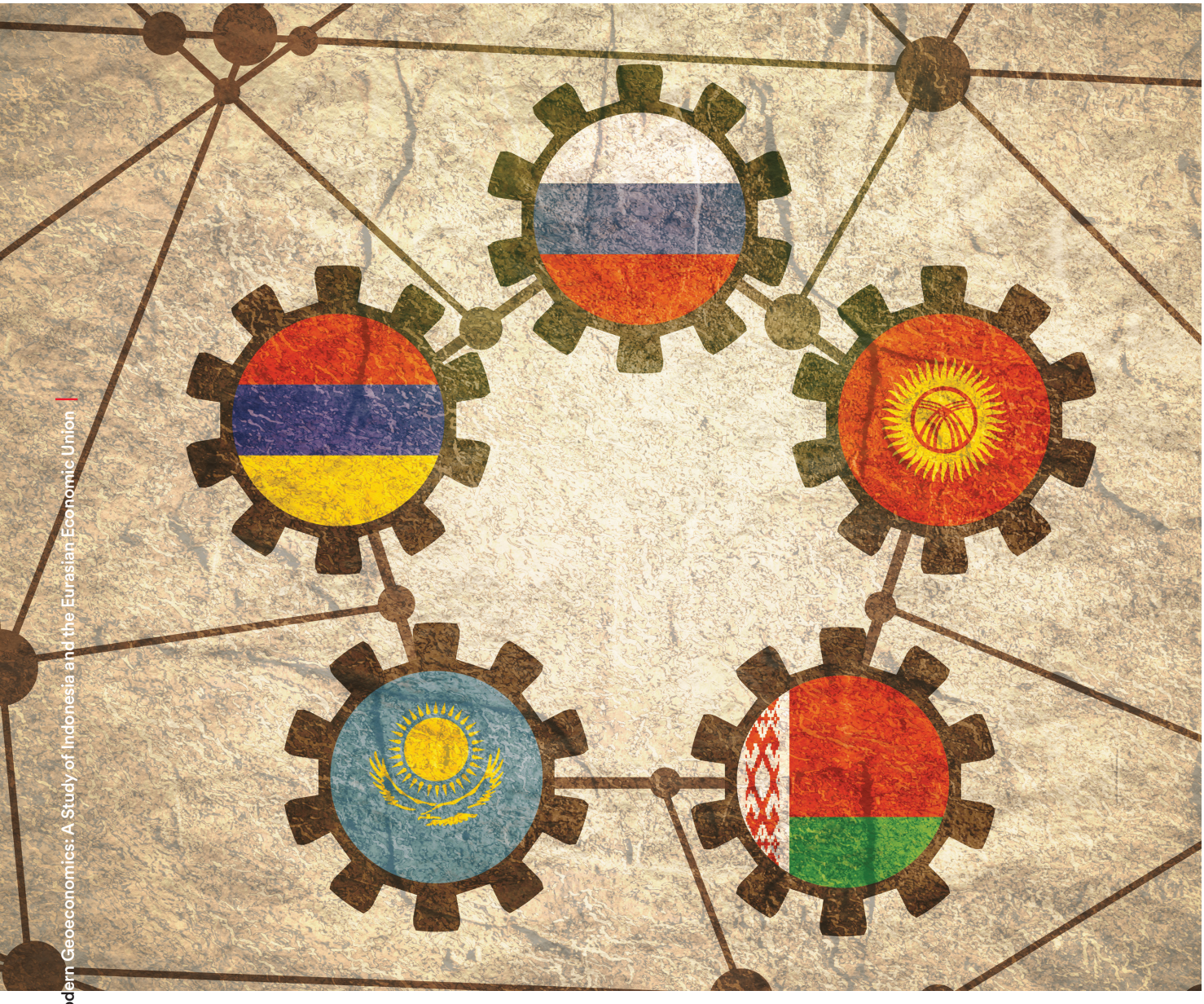
For Indonesia, the most significant strategic benefit of countertrade with EAEU countries is resource acquisition, specifically securing scarce commodities, such as rare earth elements (REEs), which are essential for green energy technology. EAEU member countries, particularly Russia and Kazakhstan, play key roles in this regard. Russia possesses substantial reserves of REEs, while Kazakhstan is one of the world's largest uranium producers (World Nuclear Association, 2024).

On the other hand, for EAEU member countries, the urgent need for countertrade often stems from currency issues caused by severe depreciation in one or more member states due to geo-economic conditions (**Figure 3**). In such cases, countertrade provides a temporary solution, though its benefits may differ from those experienced by countries like Indonesia, which participate in free trade agreements with other partners.

Figure 3 The Russian Ruble's decline against the U.S. Dollar



Sources: Trading Economics (2024



4.2 Large Firms

Just like super-large firms, large firms are motivated to engage in countertrade when the strategic benefits $B(\phi)$ are significant. Private firms, even though they are large companies, will likely engage in countertrade when the strategic benefits ($B(\phi)$ outweigh the challenges of monetary trade. For private firms with moderate productivity, countertrade can be a practical option, but only if the strategic benefits help justify the higher fixed costs, which are difficult to cover without a substantial offset of those costs. These firms will typically resort to countertrade when they aim to expand into semi-regulated markets where government-backed opportunities exist, thus creating a pathway for growth in otherwise constrained environments. Furthermore, for companies operating in countries with highly depreciated exchange rates, countertrade presents a way to reduce their reliance on dwindling foreign exchange reserves, offering them a competitive edge in navigating volatile market conditions. However, large private firms remain sceptical about countertrade due to its complexity, administrative burden, and the risk of misalignment with their core business goals.

In cases where the government has a specific objective to pursue economic diplomacy with a particular country, countertrade can become a viable mechanism to achieve diplomatic success. This is particularly evident when the government relies on large state-owned enterprises (SOEs) to facilitate such engagements, as these entities are well-positioned to align their operations with national priorities.

Countertrade arrangements, which involve the exchange of goods and services instead of monetary transactions, offer flexibility in addressing trade imbalances, currency constraints, or geopolitical challenges. For instance, countertrade can secure access to strategic resources, promote technology transfer, or support domestic industries. This approach not only facilitates trade but also strengthens diplomatic relations by aligning the mutual interests of the countries involved.

The use of SOEs in countertrade further underscores their critical role as instruments of national policy. Their capacity to undertake large-scale projects, combined with their alignment with government strategies, makes SOEs ideal actors in countertrade agreements. Consequently, countertrade transcends its commercial purpose, becoming a diplomatic tool that fosters mutual cooperation and enhances the government's strategic influence in international trade relations.

Large firms in Indonesia operate on a national or regional scale with strong but less diversified portfolios compared to super-large conglomerates in key sectors such as energy, manufacturing, and agriculture. For example, Firm B (e.g. Pupuk Indonesia), Southeast Asia's largest fertilizer producer, plays a critical role in promoting food security and agricultural development. While Firm B does not directly require agricultural machinery, its stakeholders, such as farmers and agricultural cooperatives, depend on such equipment to enhance productivity. An offset agreement involving agricultural machinery, such as tractors supplied by Belarus Tractor Works (MTZ), could allow Firm B to redistribute or market these tools to farmers through government-supported programs or strategic partnerships. By bundling fertilizers with agricultural machinery or collaborating with the Ministry of Agriculture, Firm B could facilitate the modernization of agricultural practices, enhance infrastructure, and minimize reliance on foreign exchange transactions.

Successful implementation of countertrade requires careful negotiation to optimize terms, effectively manage variable costs (τ_c) and overcome logistical challenges such as distribution inefficiencies and additional costs due to uncertainty. Moreover, the effectiveness of countertrade practices could be significantly enhanced through the inclusion of supportive provisions in international agreements. Such provisions should regulate critical areas, including national treatment, taxation, internal regulation, antidumping duties, countervailing duties, quantitative restrictions, subsidies, state-owned trading companies, and emergency measures on imports of specific products (Huh, 1983). These provisions could address key aspects of countertrade practices and provide a framework for their execution. At present, however, there is no comprehensive international law or agreement regulating countertrade. Existing frameworks only offer general concessions on certain aspects, leaving significant gaps that could create uncertainties and inefficiencies for firms engaging in countertrade.

4.3 Small and Medium-Sized Enterprises (SMEs)

Indonesian Small and Medium-Sized Enterprises (SMEs), often family-owned or community-driven, have the potential to engage in countertrade by leveraging niche markets or government-assisted initiatives. Despite their limited scale and resources, SMEs can pursue countertrade mechanisms such as barter and reciprocal purchasing agreements to address liquidity challenges and expand their market reach. However, for countertrade to succeed without jeopardizing their operational stability, SMEs must realize significant strategic benefits $B(\phi)$, which can be amplified through targeted support or access to specific high-demand markets.

The Comparative Assessment Matrix underscores the factors influencing SME participation in countertrade. SMEs typically operate below the productivity threshold ($\phi < \phi_c^*$), making them less competitive in monetary trade environments. Countertrade becomes viable for these firms only when $B(\phi)$ is exceptionally high or when external subsidies offset their high fixed costs (f_c) and inefficient variable costs (τ_c). Government programs, such as subsidies for logistical and administrative expenses or export promotion initiatives, can significantly reduce these barriers. By leveraging such support or targeting niche markets with low competition, SMEs can transform countertrade into an effective mechanism for market entry and growth. For instance, SMEs like Firm C, producing artisanal goods like batik, can access international markets where demand for cultural and handmade products is robust. Through barter mechanisms, batik producers could exchange their goods for essential production inputs, such as dyes or packaging materials, ensuring operational sustainability while avoiding foreign exchange dependence.

However, the viability of such arrangements is contingent on minimizing potential losses. SMEs inherently face higher variable costs (τ_c) due to inefficient operations, and without substantial strategic benefits, these costs can outweigh the gains from countertrade. The success of SMEs in this context depends on either securing large-scale benefits from niche market access or leveraging external assistance, such as subsidies, export facilitation, or trade fairs organized by government agencies.

Government support plays a pivotal role in amplifying the strategic benefits of countertrade for SMEs. Export promotion programs, such as subsidized logistics, training in trade mechanisms, or access to international trade exhibitions, can significantly reduce fixed costs (f_c) and enhance the visibility of SME products in foreign markets. By aligning these programs with countertrade initiatives, the government can empower SMEs to maximize their strategic benefits while minimizing financial risks.

Another countertrade scenario involving SMEs is their role as material suppliers for super-large firms or large firms engaging in countertrade with foreign countries. For instance, if Firm A or Firm B seeks to acquire strategic goods from firms in EAEU member countries through countertrade, they could source materials domestically from SMEs. These domestically produced goods would then be exchanged for the desired foreign goods. This arrangement benefits SMEs by increasing sales and providing opportunities to integrate into larger value chains. Simultaneously, Firms A and B gain access to strategic goods.

However, this scenario is not without challenges. SMEs often face production constraints, such as limited capacity or inconsistent quality, which could hinder their ability to meet the demands of super-large firms. These limitations could disrupt the countertrade process and delay delivery timelines, potentially undermining the larger firms' negotiations with foreign partners. Additionally, the high variable costs (τ_c) and inefficiencies typical of SME operations could increase the overall cost of countertrade transactions, diminishing the economic advantages for all parties involved. Another potential obstacle is the lack of robust coordination mechanisms between SMEs and larger firms, which could lead to misaligned expectations or logistical inefficiencies.

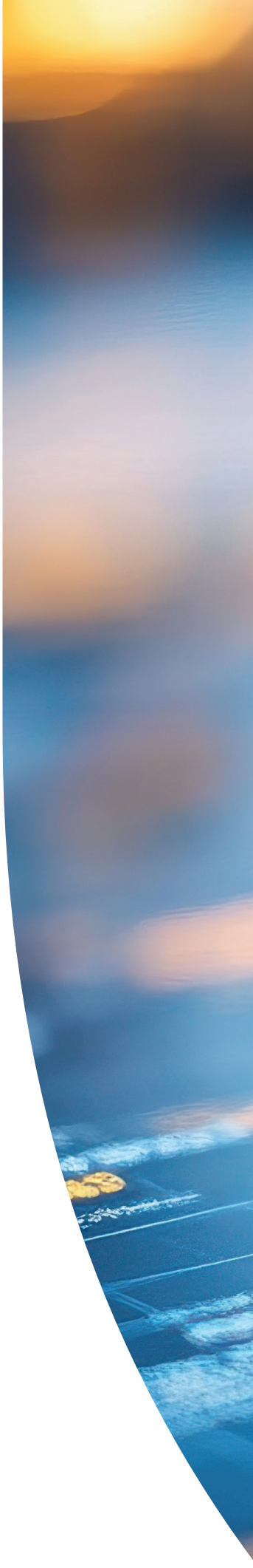
5. Conclusion

While theory suggests that high-productivity firms might engage in countertrade if they gain significant strategic benefits, real-world challenges often prevent this outcome.

For super-large firms, uncertainties like geopolitical risks and regulatory complexities make it difficult to realize substantial strategic benefits. The high costs and administrative burdens associated with countertrade further deter these firms unless the benefits are both substantial and achievable. Large firms generally find that the strategic advantages of countertrade do not outweigh its additional costs. With access to traditional trade financing and established networks, monetary trade remains a more practical and economically sound option for them. For small and medium-sized enterprises (SMEs), countertrade is even less feasible. Limited resources, lack of bargaining power, and higher risk exposure make the complexities and costs of countertrade prohibitive.

These conclusions are drawn primarily from our theoretical framework rather than direct firm-level sampling. While we refer to existing literature suggesting that super-large firms may face disproportionate countertrade costs and SMEs may struggle due to resource constraints, the empirical evidence remains limited. Further case studies and quantitative analyses would be required to confirm the extent of these challenges in practice.

Nonetheless, within the context of theory and documented case illustrations, countertrade appears workable only under specific, favourable conditions—for instance, where currency risk is acute or when government support offsets coordination burdens. In most situations, traditional monetary transactions remain more efficient. Policymakers should weigh these theoretical insights against real-world conditions, acknowledging that actual outcomes depend on a variety of factors, including each firm's bargaining power, resource availability, and external market dynamics.



References

Abrams, A. B. (2022). "Indonesia's $22 Billion Purchases of US, French Fighter Jets: How Russia's Su-35 Lost Out." The Diplomat (February 12).

Adão, R., Arkolakis, C., & Ganapati, S. (2020). "Aggregate Implications of Firm Heterogeneity: A Nonparametric Analysis of Monopolistic Competition Trade Models." NBER Working Paper (No. w28081).

Ahn, J., Amiti, M., & Weinstein, D. (2011). "Trade Finance and the Great Trade Collapse." American Economic Review, 101(3), 298–302.

Arifin, Z., Suman, A., & Khusaini, M. (2019). "Countertrade Mechanism of Global Arms Trade: Case Study of Indonesia." International Journal of Financial Research, 11(1), 307–316.

Asia Food Beverages. (2021). Indomie now the world's largest instant noodle brand/producer. Retrieved from https://asiafoodbeverages.com/indomie-now-the-worlds-largest-instant-noodle-brand-producer/

Aswicahyono, H., & Hill, H. (2015). Indonesia's industrial transformation: The challenge of late industrialization. *Oxford Development Studies, 43*(3), 279-297.

Autor, D., Dorn, D., Katz, L. F., Patterson, C., & Van Reenen, J. (2020). The fall of the labor share and the rise of superstar firms. *The Quarterly Journal of Economics*, 135(2), 645–709.

Banks, G. (1983). "The Economics and Politics of Countertrade." The World Economy.

Belloc, M. (2006). "Institutions and International Trade: A Reconsideration of Comparative Advantage." Journal of Economic Surveys, 20(1), 3–26.

Bernard, A. B., Jensen, J. B., Redding, S. J., & Schott, P. K. (2007). "Firms in International Trade." Journal of Economic Perspectives, 21(3), 105–130.

Blackwill, R. D., & Harris, J. M. (2016). War by Other Means: Geoeconomics and Statecraft. Harvard University Press.

Burtescu, C. L., Dumitru, M. I., & Bondoc, M. D. (2017). "The Use of Countertrade: Advantages and Disadvantages for Companies." Annals of the University.

Campos, R. G., Heid, B., & Timini, J. (2024). The economic consequences of geopolitical fragmentation: Evidence from the Cold War. *arXiv preprint arXiv:2404.03508*. Retrieved from https://arxiv.org/abs/2404.03508

Caves, R. E., Frankel, J. A., & Jones, R. W. (2007). World Trade and Payments: An Introduction (10th ed.). Pearson Addison Wesley.

Chaney, T. (2008). "Distorted Gravity: The Intensive and Extensive Margins of International Trade." American Economic Review, 98(4), 1707–1721

Ethier, W. J. (1982). "National and International Returns to Scale in the Modern Theory of International Trade." American Economic Review, 72(3), 389–405

Eurasian Economic Commission (EEC). 2023. *Economic Outlook for the Eurasian Economic Union.* Moscow: Eurasian Economic Commission.

——— . (2024). "EEC Held a Seminar on the Application of Countertrade Procedures." EEC Official Website.

Fitzgerald, B. (1987). "Countertrade Reconsidered." Finance & Development.

Gopinath, G., Gourinchas, P. O., Presbitero, A. F., & Topalova, P. (2025). Changing global linkages: A new Cold War?. *Journal of International Economics,* 153, 104042.

Heckscher, E. (1919). "The Effect of Foreign Trade on the Distribution of Income." Ekonomisk Tidskrift, 21(4), 497–512.

Helpman, E., Melitz, M. J., & Yeaple, S. R. (2004). "Export versus FDI with Heterogeneous Firms." American Economic Review, 94(1), 300–316.

Hill, H. (1996). *The Indonesian economy since 1966: Southeast Asia's emerging giant.* Cambridge University Press.

Huh, K. M. (1983). Countertrade: Trade without cash? International Monetary Fund. https://doi.org/10.5089/9781616353551.05

Huszagh, S. M., & Huszagh, F. W. (1986). "International Barter and Countertrade." International Marketing Review.

Krugman, P. R. (1979). "Increasing Returns, Monopolistic Competition, and International Trade." Journal of International Economics, 9(4), 469–479.

Krugman, P. R. (1980). "Scale Economies, Product Differentiation, and the Pattern of Trade." American Economic Review, 70(5), 950–959.

Kostecki, M. M. (1987). The Economics of Countertrade. Macmillan Press.

Kuncoro, A. (2017). *Development of exports in Indonesian manufacturing: A look at micro data.* In L. Edwards & H. Hill (Eds.), *The Indonesian Economy* (1st ed., pp. 28). Routledge. https://doi.org/10.4324/9781315161976

Lebdioui, A. (2022). *Latin American trade in the age of climate change: impact, opportunities, and policy options*. Canning House-London School of Economics.

Libman, A., & Vinokurov, E. (2012). Eurasian Integration: Challenges of Transcontinental Regionalism. Palgrave Macmillan.

Manova, K. (2013). "Credit Constraints, Heterogeneous Firms, and International Trade." Review of Economic Studies, 80(2), 711–744.

Marino, M. (1990). "Bartering with the Bolsheviks: Guide to countertrading with the Soviet Union." Dickinson Journal of International Law, 8(2), 269–290.

Markusen, J. (2004). "Defense Procurement and Bilateral Trade: An Extension of the Brander-Spencer Model." International Economic Review, 45(3), 913–922.

Medeiros, E. S. (2009). China's International Behavior: Activism, Opportunism, and Diversification. RAND Corporation.

Melitz, M. J. (2003). "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity." Econometrica, 71(6), 1695–1725.

Melitz, M. J., & Ottaviano, G. I. P. (2008). "Market Size, Trade, and Productivity." Review of Economic Studies, 75(1), 295–316.

Melitz, M. J., & Redding, S. J. (2015). "New Trade Models, New Welfare Implications." American Economic Review, 105(3), 1105–1146.

Monteiro, L., & Lasserre, P. (2022). Global Strategic Management. Cambridge University Press.

Montague, A. A. (1989). "An Introduction to Countertrade." International Business Law, 17.

Neary, J. P. (2009). "Putting the 'New' into New Trade Theory: Paul Krugman's Nobel Memorial Prize in Economics." Scandinavian Journal of Economics, 111(2), 217–250

Ohlin, B. (1933). Interregional and International Trade. Harvard University Press.

Putri, S. M. (2024, 2024). Reducing risk, boosting trade: The case for Indonesia's Local Currency Settlement agreements. Modern Diplomacy. https://moderndiplomacy.eu/2024/06/24/reducing-risk-boosting-trade-the-case-for-indonesias-local-currency-settlement-agreements/

Palia, A. P., & Yoon, H. D. (1994). "Countertrade Practices in Korea." Industrial Marketing Management.

Rafidi, Z., & Verikios, G. (2022). "The Determinants of Foreign Direct Investment: A Review and Re-analysis of Evidence from Australia." Australian Economic Review, 55(4), 399–421.

Rajski, J. (1986). "Some Legal Aspects of International Compensation Trade." International & Comparative Law Quarterly.

Reuters. (2017, February 15). *Indonesia to buy $1.14 billion worth of Russian jets.* Reuters. Retrieved from https://www.reuters.com/article/world/indonesia-to-buy-114-billion-worth-of-russian-jets-idUSKCN1B20UB/

Ricardo, D. (1817). On the Principles of Political Economy and Taxation. John Murray.

Shofa, J. N. (2024, October 31). "'Deal is Still On': Russia Hopes Indonesia Will Buy Its Su-35 Fighter Jets." The Jakarta Globe.

Sumer, M., & Chuah, J. (2007). "Emerging Legal Challenges for Countertrade Techniques in International Trade." International Trade Law and Regulation.

Taskinsoy, J. (2023). "Corporate-to-Corporate Barter in Global Trade: Historical Relevance and Contemporary Challenges." SSRN Working Paper.

Trade Map. (2024). Trade Statistics for International Business Development. International Trade Centre. 2024. https://www.trademap.org

Trading Economics. (2024). Russian Ruble US Dollar exchange rate. Retrieved from https://tradingeconomics.com

United Nations Conference on Trade and Development (UNCTAD). (1991). Countertrade: Origins, Development, and Implications. UNCTAD.

Verzariu, P. (1984). International Countertrade: A Guide for Managers and Executives. Government Printing Office.

World Bank. (2024). World Development Indicators. https://databank.worldbank.org/source/world-development-indicators

World Nuclear Association. (2024). Country profile: Uranium and nuclear power in Kazakhstan. Retrieved from https://www.world-nuclear.org

World Trade Organization (WTO). (1995). The Results of the Uruguay Round of Multilateral Trade Negotiations: The Legal Texts. WTO.

Technical Annexure

Countertrade in The Melitz Framework

This section integrates countertrade into the Melitz model of firm heterogeneity (Melitz, 2003) and international trade, presenting a general framework that accounts for varying firm productivity levels and their influence on trade mechanism choices. Building on subsequent heterogeneous-firm extensions (Helpman et al, 2004), the Melitz model describes a monopolistically competitive market where firms produce differentiated products, with consumer preferences represented by a constant elasticity of substitution (CES) utility function:

$$U = \left(\int_{\omega\in\Omega} q(\omega)^{\rho}\, d\omega\right)^{1/\rho}, \quad \rho \in (0,1),$$

where ω indexes product varieties, $q(\omega)$ is the consumption of variety ω, and p determines the elasticity of substitution, with $\sigma = \frac{1}{1-\rho}$. The corresponding demand for each variety is expressed as:

$$q(\omega) = p(\omega)^{-\sigma} P^{\sigma-1} Y,$$

where $p(\omega)$ represents the price of variety ω, P is the aggregate price index, and Y is total income. Firms differ in productivity ϕ, drawn from a Pareto distribution (Bernard et al., 2007; Chaney, 2008):

$$G(\phi) = 1 - \left(\frac{\phi_{min}}{\phi}\right)^{k},$$

With ϕ_{min} as the minimum productivity threshold and $k > 1$ governing the dispersion of productivity. Firms face fixed (f) and variable (τ) costs when engaging in international trade. Monetary trade involves fixed costs f_m and variable costs τ_m, associated with expenses such as establishing distribution networks and overcoming market entry barriers. Countertrade introduces additional complexities, resulting in higher fixed costs $(f_c > f_m)$ due to administrative burdens, compliance requirements, and the need to establish reciprocal arrangements. The variable costs of countertrade $(\tau_c > \tau_m)$ are also higher, reflecting inefficiencies in valuation, potential quality mismatches, and logistical challenges inherent in non-monetary exchanges. These added frictions can be likened to heightened credit or financing barriers (Ahn et al., 2011; Manova, 2013) which push some firms toward alternative trade mechanisms when traditional trade finance channels are less accessible.

The profit function for a firm engaging in monetary trade is:

$$\pi_m(\phi) = \left(\frac{\sigma-1}{\sigma}\right)\phi^{\sigma-1}{\tau_m}^{1-\sigma}P^{\sigma-1}Y - f_m$$

For countertrade, the profit function includes a strategic benefit component $B(\phi)$, capturing additional gains that certain firms can extract from countertrade, such as access to scarce resources, entry into protected markets, or offset-related advantages (Markusen, 2004). The profit function for countertrade is thus:

$$\pi_c(\phi) = \left(\frac{\sigma-1}{\sigma}\right)\phi^{\sigma-1}{\tau_c}^{1-\sigma}P^{\sigma-1}Y - f_c + B(\phi)$$

where $B(\phi) \geq 0$ and may vary with firm productivity ϕ.

A firm engages in monetary trade if $\tau_m(\phi) > 0$ and in countertrade if $\tau_c(\phi) > 0$. The productivity threshold for monetary trade is derived from the condition $\tau_m(\phi) = 0$, yielding:

$$\phi_m^* = \left(\frac{f_m}{\left(\frac{\sigma-1}{\sigma}\right)\tau_m{}^{1-\sigma}P^{\sigma-1}Y}\right)^{\frac{1}{\sigma-1}}.$$

For countertrade, the productivity threshold is influenced by the strategic benefit $B(\phi)$. The condition $\pi_c(\phi) = 0$ implies:

$$\phi_c^* = \left(\frac{f_c - B(\phi)}{\left(\frac{\sigma-1}{\sigma}\right)\tau_c{}^{1-\sigma}P^{\sigma-1}Y}\right)^{\frac{1}{\sigma-1}}.$$

Since $f_c > f_m$ and $\tau_c > \tau_m$, without significant strategic benefits $B(\phi)$, the threshold ϕ_c^* would be higher than ϕ_m^*, making countertrade less accessible to firms. However, firms with higher productivity levels may derive substantial strategic benefits that effectively reduce the fixed cost burden, lowering the threshold ϕ_c^*.

The sorting mechanism among firms, based on their productivity levels, aligns with the standard Melitz model. Low-productivity firms $(\phi_c^* < \phi_m^*)$ are unable to cover the fixed costs of international trade and thus remain confined to the domestic market. Medium productivity firms $(\phi_m^* \leq \phi < \phi_c^*)$ engage in monetary trade, benefiting from its lower fixed and variable costs. They may not derive enough strategic benefits from countertrade to offset its higher costs, making it unprofitable for them. High-productivity firms $(\phi \geq \phi_c^*)$ have the capability to absorb the higher costs of countertrade and may gain from its strategic advantages. These firms engage in countertrade when the strategic benefits outweigh the additional costs, allowing them to secure long-term gains not available through monetary trade.

This framework underscores that countertrade is more suitable for firms that can capitalize on its strategic advantages to offset higher costs. It highlights how firm heterogeneity—in terms of productivity and size—shapes the choice of trade mechanisms. Small and medium-sized enterprises (SMEs) are less likely to benefit from countertrade due to resource limitations and the lack of significant strategic gains. Large firms, including state-owned enterprises (SOEs) with government backing, may engage in countertrade under certain conditions, particularly if they receive moderate strategic benefits. Super-Large firms, potentially multi-sector conglomerates with the highest productivity levels, are best positioned to utilize countertrade effectively, given their capacity to manage higher costs and leverage considerable strategic benefits.

Understanding these dynamics is crucial when examining specific international trade relationships, such as between Indonesia and the Eurasian Economic Union (EAEU). The trade context between Indonesia and the EAEU presents unique opportunities for firms of varying sizes to engage in countertrade agreements. Super-large Indonesian firms might explore countertrade to access EAEU markets, secure energy resources, or participate in large infrastructure projects. Large firms, including SOEs, could leverage countertrade to advance national strategic interests or to enter new sectors within the EAEU. While SMEs may find direct participation in countertrade challenging, they could benefit indirectly through supply chains or by focusing on enhancing their competitiveness in monetary trade.

By integrating countertrade into the Melitz framework with higher fixed and variable costs, along with potential strategic benefits for firms with higher productivity, we obtain a theoretical basis for understanding firm behaviour in international trade. This approach not only aligns with empirical observations that countertrade is often utilized in largescale transactions involving firms capable of managing its complexities but also highlights the inherent challenges and limitations of such mechanisms. Recognizing the role of firm heterogeneity and strategic considerations offers valuable insights into how countertrade may shape global trade patterns. However, it also underscores that countertrade is not universally advantageous and may pose significant obstacles for many firms due to its higher costs and operational complexities.

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Kaurna acknowledgement
We acknowledge and pay our respects to the Kaurna people, the original custodians of the Adelaide Plains and the land on which the University of Adelaide's campuses at North Terrace, Waite, and Roseworthy are built. We acknowledge the deep feelings of attachment and relationship of the Kaurna people to country and we respect and value their past, present and ongoing connection to the land and cultural beliefs. The University continues to develop respectful and reciprocal relationships with all Indigenous peoples in Australia, and with other Indigenous peoples throughout the world.