# THE REVIVAL OF TRADE AGREEMENT BETWEEN INDONESIA AND SUDAN: AN ANALYTICAL APPROACH

by

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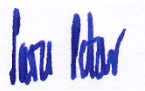

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Admissions Director

## Dedication

This research is dedicated to my family whom without them I could not succeed in completing the research.

**Acknowledgements**

I would like to thank my mentor, Dr. George Iatridis for his patience, guidance, and directives. I also would like to express my gratitude and appreciation to H.E. Mr. Sunarko, Ambassador of the Republic of Indonesia to the Republic of the Sudan as well as all my colleagues at the Indonesian Embassy in Port Sudan for a very supportive encouragement during the research.

ABSTRACT

THE REVIVAL OF TRADE AGREEMENT BETWEEN INDONESIA AND SUDAN: AN ANALYTICAL APPROACH

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Taking the result of bilateral consultation in 2015 between the government of Indonesia and Sudan to increase trade and the fact that existing trade agreement is dormant into consideration, the need to revive bilateral trade agreement which will facilitate trade between Indonesia and Sudan is now relevant.

The research then will assess the feasibility of a regional trade agreement (RTA) between Indonesia and Sudan using the Sussex Framework for assessing the RTA. Within the framework, the research then will measure the extent of feasibility of Indonesia and Sudan regional trade agreement. Afterward, the research will examine the competitiveness performance by measuring revealed comparative advantage and constant market share analysis indices. Based on these indices, the research will determine commodities that have the best performance and will be negotiated in tariff schedules within the proposed trade agreements. As the last step, the research will analyze the welfare impact of trade agreements by assessing the changes in trade policy, in this case the tariff reduction in the proposed trade agreements using a computable general equilibrium market simulation model.

Based on the analysis, the research concluded that the RTA between Indonesia and Sudan have the prospect to be a successful RTA since the difference in initial tariff and degree of asymmetry and the product mix in trade pattern are in conformity with principle in the Sussex Framework in assessing RTA. Meanwhile, by simulating tariff reduction the research concluded that tariff reduction on the Sudanese side will bring indirect welfare impact for the both countries.

Keywords: RTA, Sussex Framework, trade complementarity index, revealed comparative advantage, constant market share analysis, computable general equilibrium.

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# CHAPTER I
# INTRODUCTION

## 1.1. Background

World Gross Domestic Product is fluctuating but showed an increasing trend in the last decade from US$ 77.75 trillion in 2013 to US$ 101.22 trillion in 2022. Out of this GDP, the contribution of trade which consisted of total export and import of goods and service was also fluctuating from 59.21% GDP in 2013 to 62.50% in 2022 with average rate of 57.06 (World Bank, 2023a). This fact indicates that international trade is playing a significant role in the world economy.

However, as noted by McLaren (2013), the barriers to international trade such as tariff walls and immigration restrictions rose sharply in the first decade of the twentieth century. After World War II, the Allied, especially United States formed three institutions known as Bretton Woods System (Moon, 2000) in which the first and second institutions were the World Bank and International Monetary Fund (IMF) whose purpose was for providing funding and regulating monetary policy. The third institution was the International Trade Organization (ITO) whose purpose was to regulate and facilitate free international trade in order to support post-World War II reconstruction and development (Tackie, 2015).

Unlike the World Bank and IMF, as Bhagwati (2008) noted, ITO had never been realized; instead in 1947 it developed into the General Agreement on Tariffs and Trade (GATT) that negotiated between members until the establishment of the World Trade Organization in 1995. Now, WTO facilitates its members to use trade to raise living standards, create jobs and improve people's lives; operates the global system of trade rules and helps developing countries build their trade capacity; and provides forum for trade agreement negotiation as well as for trade dispute settlements among its members. In short terms, the international community is now seeking to liberalize cross border trade in order to enhance the livelihood of the people (WTO, 2022b). However, Bhagwati (2008) noted that the liberalization process through a multilateral trade system is hard to be realized, therefore countries, territories as well as regional groups tend to establish trade agreements among themselves to facilitate trade. Hence, the proliferation of bilateral or regional trade agreements is increasing.

Relating to the regional trade agreement, Lynch (2010) classified trade agreement based on its economic agreements as well as the level of preference to its members as follows:

1. Non-reciprocal preferential agreements, a unilaterally preferential trade agreements that usually given by developed countries to developing countries and part of General System of Preferences;
2. Preferential trade agreements that provide preferential tariffs between parties in mutually agreed sectors;
3. Free trade agreements that remove tariffs and other trade restrictions in all or partially goods, services, and investment;
4. Customs unions that adopt common external tariffs and harmonized regulation on imports from non-member countries, in addition to removal of tariffs and trade restrictions among members;
5. Common markets that eliminate internal barriers to trade of goods, services, investment, and labour; members also required to harmonize its respective regulations that affect market prices.
6. Economic union in which members agree to form single supranational economic policy making institution;
7. Monetary union in which members agree to have single currency and single central bank;
8. Political union in which members form supranational political decision-making institutions.

Moreover, Lynch (2010) argued that there are many definitions pertaining the trade agreement which will grant some degree of trade liberalisation in form of preferable tariff reduction or any other form of trade barrier removal and suggested the term of Regional Trade Agreements (RTAs). Jha (2021) as well as Dur and Elsig (2015) also use the term of regional trade agreement and define regional trade agreement as an agreement that exclusively agreed between two or more countries to reduce mutual trade barriers to improve their national welfare. Therefore, trade agreements referred to in the research will be termed as Regional Trade Agreements (RTAs) and are defined as any form of economic integration agreement that grants some degree of trade liberalisation.

Although RTAs seems violate the MFN rules of World Trade Organization, but they permitted under Article XXIV of the GATT under three conditions (Bagwell and Mavroidis, 2011): 1) it should not raise trade barriers on countries that are not members of the RTA; 2) it should eliminate trade barriers on all trade between members of the PTA within a specified time horizon; and 3) it should be reported to GATT signatories and approved by them as consistent with the requirements of Article XXIV. Therefore, RTAs is considered as a very

important force in international trade-policy setting, alongside the multilateral GATT/WTO process (Suranovic, 2015).

Bringing the international trade situation into the bilateral level, the Government of the Republic of Indonesia is eager to increase trade to the non-traditional market, especially to Africa. The Minister of Foreign Affairs of the Republic of Indonesia during 2017 annual press briefing (Kementerian Luar Negeri RI, 2017) said that Indonesia foreign policy will focus on, inter alia, intensifying development, trade, and investment cooperation with non-traditional and potential countries especially in Africa. The Foreign Minister reiterated the commitment in every annual press briefing until 2022 (Kementerian Luar Negeri RI, 2018, 2019, 2020, 2021, 2022). As one of the countries in Africa, Sudan should be considered as a non-traditional and potential partner in Africa.

During the bilateral consultation meeting on February 16$^{th}$ 2015, the government of the Republic of Indonesia represented by the Vice Minister for Foreign Affairs and the government of the Republic of the Sudan represented by Undersecretary for Foreign Affairs agreed to involve business people from both countries in exploring the opportunities and identifying the trade commodities that mutually needed in order to increase trade volume (Hidayat, 2015). Based on the data obtained from the Ministry of Trade of the Republic of Indonesia and Central Statistics Bureau of the Republic of Indonesia, total bilateral trade in 2021 reached US$136,841,500 or declined 24.77% compared to US$181,906,900 obtained in 2020. Indonesia's import from Sudan declined 76.03% year-on-year basis while Indonesia's export to Sudan increased 5.5% year-on-year basis. The bilateral total trade in 2021 consisted of US$ 120,656,400 of Indonesia's export and US$ 16,185,000 of Indonesia's import from Sudan compared to that of 2020 which consisted of US$114,371,300 of Indonesia export to Sudan and US$ 67,535,600 of Indonesia import from Sudan.

In bilateral trade, several obstacles are identified to bilateral trade such as: 1) no correspondence banks existed between the two countries; 2) relatively higher tariff for Indonesian products; 2) registration requirement for certain products from Indonesia that incurred high cost; 3) non-tariff technical barrier exists such as export documents legalization and 4) relatively higher logistic cost due to distance between Indonesia and Sudan. These obstacles represent tariff measurements, non-tariff measurements as well as non-technical barriers to trade (Kementerian Luar Negeri RI, 2011). In addition, several issues that hindered investment are also identified (Kementerian Luar Negeri RI, 2011), among other: 1) lack of investment promotion from respective authorities; 2) improvement of investment climate

especially in security, rule of law, and ease of doing business; 3) improvement of investment supporting infrastructure.

In order to further expand and strengthen trade and economic relations between Indonesia and Sudan, both governments signed a bilateral trade agreement on 10th February 1998 (Presiden Republik Indonesia, 1998). In the said agreement, both countries agreed to partially implement most favoured nations principle whereas exemption of MFN treatment applies preference and advantages of facilitating frontier or cross-border trade and of custom unions and/or free trade zone wherein respective countries may become member of. Both countries also agreed to exempt duties, taxes and other due upon importation or exportation for the goods which will be used for sample and advertising without commercial value, repair purposes and display during the fair or exhibition provided the said goods will be re-exported. However, this agreement does not rule any articles for tariff reduction.

Considering the 1998 agreement and the outcomes of the 2015 bilateral consultations, there is a clear need to revive and update the bilateral trade agreement between Indonesia and Sudan. This is especially relevant now that Sudan has been removed from the United States' list of state sponsors of terrorism, eliminating a significant obstacle to trade between the two countries (Abdelaziz, 2020). By addressing these barriers and updating their trade agreements, Indonesia and Sudan can enhance their bilateral trade relations and capitalize on the potential opportunities in their respective markets.

### 1.2. Motivation of the Research

Indonesia and Sudan share a longstanding history of diplomatic and economic relations, which provides a solid foundation for a more formalized trade relationship. Over the years, both countries have demonstrated a commitment to enhancing bilateral ties, as seen in various agreements and mutual visits by government officials. For instance, the 1998 bilateral trade agreement laid the groundwork for cooperation by agreeing to implement certain aspects of the most-favoured-nation (MFN) principle, although it fell short of addressing broader tariff reductions.

In recent years, Indonesia has prioritized diversifying its trade partnerships beyond traditional markets, with a particular focus on Africa. Sudan, being one of the key African nations, presents a significant opportunity for Indonesia to expand its influence in the region. This aligns with Indonesia’s foreign policy goals, as outlined by its Ministry of Foreign Affairs, which emphasizes intensifying trade and investment cooperation with non-traditional markets.

The trade between Indonesia and Sudan in the period of 2016 to 2021 showed an increase of 27.94% (Kementerian Perdagangan RI, 2022) which peaked in 2018 whereas bilateral trade between the two countries reached US$331,624,300. However, the potential trade relationship between two countries should be explored and be utilized to enhance the welfare of both nations. As both governments have agreed to increase bilateral trade, both governments should form trade policies that will be mutually beneficial. Therefore, both governments need a sound and applicable trade policy recommendations.

One of the primary motivations for establishing an RTA between Indonesia and Sudan is to address the various tariff and non-tariff barriers that currently hinder trade. These barriers, including high tariffs, cumbersome product registration requirements, and logistical challenges due to the distance between the two countries, have been well documented. By negotiating an RTA, both countries can work towards reducing these obstacles, thereby enhancing trade flows and economic cooperation.

The RTA could also serve as a platform for addressing non-tariff barriers, such as the need for better logistical infrastructure and more efficient customs procedures. Additionally, it could include provisions for investment promotion and protection, which would help attract foreign direct investment (FDI) into key sectors in both countries.

### 1.3. Importance of the Research to Bilateral Trade Relationship Between Indonesia and Sudan

The research will be useful in enhancing bilateral trade relationship between Indonesia and Sudan as it will provide insight in analysing the trade potential between two countries. In the field of international trade, the research will provide the analysis of trade policy between developing and least developing countries as well as insight in analysis of trade agreements between WTO member countries and non-WTO member countries.

The economic structures of Indonesia and Sudan, though different, offer complementarities that can be harnessed through an RTA. Indonesia’s economy, with its diverse industrial base, could provide Sudan with much-needed manufactured goods, while Sudan, with its rich natural resources, could supply Indonesia with raw materials. This complementarity is particularly evident in sectors where Sudan has a comparative advantage, such as agriculture and mining, and where Indonesia excels in manufacturing and services.

Moreover, the recent removal of Sudan from the United States' list of state sponsors of terrorism opens new avenues for trade and investment, making it a more attractive partner for

Indonesia. This geopolitical shift reduces the risk associated with doing business in Sudan, thereby encouraging Indonesian companies to explore opportunities in the Sudanese market.

An Indonesia-Sudan RTA would not only build on existing bilateral agreements but also align with broader regional trade frameworks. For example, Sudan's membership in the Common Market for Eastern and Southern Africa (COMESA, 2023) provides Indonesia with potential access to a larger regional market. Similarly, Indonesia's active participation in various ASEAN trade agreements (ASEAN Secretariat, 2022) could facilitate smoother integration with Sudanese markets through an RTA, promoting intra-regional trade.

Beyond economic benefits, an RTA between Indonesia and Sudan would carry significant strategic and political weight. For Indonesia, strengthening ties with Sudan aligns with its broader foreign policy objectives in Africa, enhancing its diplomatic influence in the region. For Sudan, the RTA could serve as a catalyst for its economic recovery and integration into the global economy, following years of political and economic isolation. Furthermore, the shared cultural and religious ties between Indonesia and Sudan could facilitate deeper political and social cooperation, reinforcing the RTA as more than just an economic tool but as a means of fostering broader bilateral relations.

Finally, the proposal to establish an Indonesia-Sudan RTA is well-founded, considering the economic complementarities, the need to overcome existing trade barriers, and the broader strategic and political benefits. By formalizing this trade relationship, both countries can capitalize on their respective strengths, promote economic growth, and strengthen their ties on multiple fronts. The RTA would not only enhance bilateral trade but also contribute to regional economic integration, aligning with global trends towards more interconnected and cooperative international trade frameworks.

### 1.4. Problem Statement

This research aims to assess the feasibility and potential impacts of establishing a Regional Trade Agreement (PTA) between Indonesia and Sudan, with a focus on enhancing bilateral trade relations, identifying competitive sectors, and evaluating the welfare implications for both countries. The research is guided by the following key questions:

1. To what extent is it feasible for Indonesia and Sudan to establish a Regional Trade Agreement, considering the bilateral relationship situations that influence bilateral trade relations between these two nations?

2. Which commodities demonstrate the highest levels of competitiveness and should be prioritized for inclusion in the tariff schedule of the proposed Indonesia-Sudan trade agreement?
3. How will the implementation of the trade agreement affect the overall welfare of Indonesia and Sudan, particularly in terms of economic growth, trade balance, and sectoral development?

### 1.5. Objective

The primary objective of this research is to assess the feasibility of establishing a Regional Trade Agreement (RTA) between Indonesia and Sudan. This research aims to evaluate the current state of bilateral trade relations between the two countries, identify potential sectors for growth, and analyse suitable forms of trade agreements that could enhance trade volume and mutual benefits. Furthermore, the research seeks to understand the broader economic, social, and political implications of such an agreement, including its impact on trade diversification, economic resilience, and regional integration.

Additionally, this research will address gaps in the existing literature by providing a detailed analysis of trade dynamics between a developing country (Indonesia) and a least-developed country (Sudan), particularly in the context of a WTO member state and a WTO observer nation. The research will explore the specific challenges and opportunities that arise in this unique context, offering insights into how RTAs can be effectively utilized as tools for economic development and international cooperation.

Moreover, the research will propose strategic policy recommendations for both governments, aimed at maximizing the benefits of the RTA while mitigating potential risks. These recommendations will be based on an in-depth analysis of trade patterns, economic complementarities, and existing barriers to trade, ensuring that the proposed agreement is both equitable and sustainable.

# CHAPTER II
# LITERATURE REVIEW

The literature review is divided into two parts: the first examines the international trade dynamics between the Republic of Indonesia and the Republic of Sudan, focusing on bilateral relationships, definitions, and membership in Regional Trade Agreements (RTAs). The second part delves into the analytical framework used to assess these RTAs.

## 2.1. International Trade Dynamics

In terms of bilateral trade between Indonesia and Sudan, the 1998 trade agreement is limited in scope, particularly regarding trade liberalization. The agreement established partial implementation of the Most Favoured Nation (MFN) principle, providing certain preferences for facilitating cross-border trade, customs unions, or free trade zones that the respective countries might join. Additionally, it allows for duty and tax exemptions on imports or exports of goods used for samples, advertising, repairs, and exhibitions, provided these goods are re-exported. However, this agreement does not include a schedule for tariff reduction or comprehensive trade liberalization. Based on Lynch's (2010) classification of trade agreements, it is clear that the existing 1998 agreement between Indonesia and Sudan needs to be revitalized to promote greater trade liberalization, thereby increasing trade volume and mutual economic benefits.

Research on Indonesia-Sudan bilateral trade relations remains limited. Kurniasih (2017) argues that the capacity-building programs outlined in the 2007 and 2015 Memoranda of Understanding between Indonesia and Sudan on marine and fisheries cooperation could eventually lead to enhanced market access for Indonesia's fisheries industry in Sudan. Other studies have analysed the indirect trade relationship between the two countries within the framework of the Organization of Islamic Conference (OIC), to which both Indonesia and Sudan belong. Wardani (2016) suggests that the ASEAN Free Trade Area (AFTA) has positively impacted Indonesia's trade performance with OIC members, including Sudan. Meanwhile, Hidayat (2016) and Raimi and Mobolaji (2008) argue that comprehensive trade liberalization and economic integration within the OIC would generate optimal benefits for all member states, including Indonesia and Sudan.

Sudan is currently a party to three RTAs: the Common Market for Eastern and Southern Africa (COMESA), the Global System of Trade Preferences among Developing Countries (GSTP), and the Pan-Arab Free Trade Area (PAFTA) (WTO, 2022a). Trade liberalization

between Sudan and neighbouring countries, such as Ethiopia (Eshetu, 2012) and Egypt (Ebaidalla, 2016), as well as tariff reductions (Elsheikh et al., 2015; Hansohm, 2009), have had positive impacts on Sudan's economy by enhancing basic infrastructure, promoting economic growth, and reducing poverty. On a broader regional level, scholars have noted that while COMESA's performance in fostering intra-regional trade has been moderate and below its potential (Ebaidalla and Yahia, 2014; Tumwebaze and Ijjo, 2015; Dimaranan and Mevel, 2008), the agreement still offers significant trade potential for Sudan, particularly in agricultural commodities. However, to fully realize this potential, Sudan must increase its agricultural sector's competitiveness by improving productivity, lowering production costs, and enhancing the investment climate (Elbushra et al., 2011). Similarly, while PAFTA has increased regional trade by 20% to 26% (Abedini and Peridy, 2008; Peridy and Abedini, 2014), issues such as a lack of integration (Peridy and Ghoneim, 2008), infrastructure gaps (Harb, 2009), and the region's dependence on oil (Abdmoulah, 2011) have hindered further welfare improvements. Therefore, Sudan must improve its domestic policies to maximize the benefits of its regional free trade agreements (Mohamed, 2011a, 2011b, 2011c).

Indonesia, on the other hand, is a party to 13 RTAs, including 7 as a member of ASEAN, GSTP, and 5 as an individual economy (WTO, 2022b). Most scholars agree that trade liberalization has had a positive effect on Indonesia's economy. The ASEAN Free Trade Area (AFTA), signed in 1992 and effective since 1993, aims to accelerate economic growth and development within the region (ASEAN Secretariat, 2022). AFTA has contributed positively to output growth and trade (Cahyaningrum, 2016; Mukhopadhyay and Thomassin, 2008) and economic welfare (Itakura, 2014), while also promoting regional economic integration (Pacheco et al., 2011). Bilaterally, the Indonesia-Chile RTAs are projected to result in trade and consumer surpluses (Sabaruddin and Marks, 2016), as well as GDP growth (Sidabutar, 2017). Indonesia has also benefited from increased trade volumes through RTAs with the European Free Trade Association (Pasaribu and Putri, 2021) and Japan (Hariyono, 2015), Australia (Moenardy et al., 2021), and Pakistan (Puska KPI Kemendag, 2016). However, some scholars argue that Indonesia needs to further capitalize on its RTAs with Japan (Darmastuti et al., 2022; Ningsih et al., 2018; Sandori, 2016).

In conclusion, both Indonesia and Sudan have established RTAs with various regional and international partners. While Indonesia's participation in RTAs has generally been beneficial, Sudan's experience has been more mixed, with significant potential yet to be realized. The existing trade agreement between Indonesia and Sudan, signed in 1998, falls short of comprehensive trade liberalization and needs to be revitalized to enhance trade relations

between the two countries. Given the positive impacts of RTAs observed in both countries, a renewed bilateral agreement that emphasizes trade liberalization could significantly boost trade volume and economic growth for both Indonesia and Sudan.

## 2.2. Analytical Framework in Assessing RTAs

Gilbert (2017) noted that economic implementation of RTA received consideration in economic literature and suggested three basic approaches in evaluating RTAs. First approach is using basic trade statistics and indicators to indirectly assess the likely or actual effect of proposed or implemented RTAs. Trade indicator is an index used to assess the state of trade flows and the pattern of trade for an economy or group of economies. Trade indicators are usually the first step in evaluating potential regional trading agreements and can provide useful insights into such issues as the complementarity of trade profiles. Indices relating to the overall degree of trade integration, and pattern in sectoral trade, provide useful insights into such issues as the complementarity of trade profiles.

In this case, Juventia et al. (2019) analysed the feasibility of regional trade agreement between Indonesia and Bangladesh using several trade indicators such as trade complementarity index (TCI) and revealed comparative advantage. The study found out that Indonesia had better complementarity index than that of Bangladesh. Furthermore, Indonesia had better comparative for certain agricultural commodities, mineral products, plastic, and rubber products as well as wood products. On the other hand, Bangladesh had better comparative for leather products, textile, and footwear.

Second approach is called a gravity model which utilizes historical trade flows as well as an econometric model in assessing the impact of RTAs. This model explains the determinant of trade flows based on analogy of law of gravity in physics (Hapsari and Mangunsong, 2006). In this approach, trade flow between two countries will be calculated depending on several variables such as gross domestic products, population, distance, language similarities, shared border, being landlocked, and the existence of RTAs (Foster-MacGregor and Stehrer, 2011). However, Gilbert (2017) emphasized that gravity models primarily are used to evaluate the impact of RTAs that have been implemented, not for proposed RTAs.

The third approach is the equilibrium simulation using both partial equilibrium or general equilibrium models. This approach predicts changes in several variables in the economic system due to changes in other variables. Partial equilibrium model uses a single sector to predict changes in trade, economic welfare, and other variables within that market. Meanwhile, the general equilibrium model will take a complete economic system into account to predict

changes in the structure of production, resource allocation and returns, and other economic variables.

In order to determine the feasibility of RTA between the two countries, Evans et al. (2006) suggested a systematic framework for the initial evaluation of RTAs called the Sussex Framework. First step of the framework is identify following key aspects in respective countries: 1) Nature of economic relations between partners (size of economy, tariff level and cost difference); 2) Intended format of trade agreement (Free Trade Area or Custom Union); 3) Extent of overlapping with other agreements; 4) Degree of difficulties in negotiation process; 5) Nature of barriers of trade both in tariff or NTMs; 6) Existence of elements of deep integration (investment, competition and labour movement regulation); 7) Compatibility to WTO Agreements; 8) Role of donor or political motivation driving the agreements.

Simultaneously, each key aspect must be assessed whether its extent can generate wealth in the form of trade creation or trade diversion. Furthermore, assessment should be done base on three key principles: 1) the likelihood of trade creation and trade diversion depends on the initial tariffs; 2) the likelihood of trade creation depends on the number of RTA partners and similarity of product mix in its members; and 3) the likelihood of welfare improvement of the RTA depends on the differences in comparative advantage and initial share of trade between RTA's partners.

In the Sussex Framework, it is insightful to consider a dimension that classifies RTAs by the level of economic development of the member countries. This classification uses the terms North to denote developed countries and South to denote less developed or developing countries. Within this framework, RTAs can be categorized into three distinct groups:

1) North-North RTAs: Agreements between developed countries.
2) North-South RTAs: Agreements between developed and developing countries.
3) South-South RTAs: Agreements between developing countries.

The critical distinctions between these categories revolve around the economic development levels of the member countries and the depth of integration they typically pursue. North generally refers to the developed member countries of the Organisation for Economic Co-operation and Development (OECD), while South refers to countries classified as developing by international standards (Bhagwati and Panagariya, 1996).

North-North RTAs typically involve deep economic integration, reflecting the similar levels of economic development and institutional frameworks among member countries. Examples include the European Union (EU) and the North American Free Trade Agreement (NAFTA), now replaced by the United States-Mexico-Canada Agreement (USMCA). These

agreements often go beyond mere tariff reductions, encompassing harmonization of regulations, labor standards, and environmental protections, which facilitate higher levels of economic cooperation and integration (Venables, 2003).

North-South RTAs involve a partnership between a developed country and one or more developing countries. These agreements are particularly significant because they often feature an element of deep integration, which includes not just the reduction of tariffs but also the adoption of standards and practices that can facilitate economic development in the South. These RTAs can offer substantial benefits to the developing members by providing access to larger markets, advanced technologies, and better regulatory practices from their developed counterparts. A notable example of a North-South RTA is the Economic Partnership Agreements (EPAs) between the European Union and various African, Caribbean, and Pacific (ACP) countries (Baldwin, 2006).

In contrast, South-South RTAs typically involve countries at similar stages of development and generally focus on more limited or shallow integration. These agreements might prioritize tariff reductions and basic trade facilitation measures without delving into deeper areas like regulatory convergence or standards harmonization. The primary motivation behind South-South RTAs is often to increase trade within the developing world and to build collective bargaining power in international negotiations. An example of a South-South RTA is the Southern African Development Community (SADC) (WTO, 2011).

The depth of integration and the resulting economic benefits vary significantly across these categories. North-North RTAs, due to their comprehensive nature, tend to maximize economic efficiencies and create highly integrated markets. North-South RTAs, while more complex, hold the potential for significant developmental gains for the South members by fostering economic convergence and providing access to broader markets (Venables, 2003). However, they can also present challenges, such as the risk of developing countries being unable to compete with the advanced economies of their Northern partners (Baldwin, 2006).

On the other hand, South-South RTAs, while valuable for fostering regional cooperation and collective self-reliance, may not offer the same level of economic gains as North-South RTAs. The limited integration and lower economic complementarities among developing countries often result in more modest trade and investment flows (WTO, 2011).

While South-South RTAs are valuable for fostering regional cooperation and collective self-reliance, they may not offer the same level of economic gains as North-South RTAs due to the limited integration and lower economic complementarities among developing countries. The effectiveness of South-South RTAs is often constrained by the economic and

infrastructural limitations of the member states, which can hamper the potential for significant increases in trade and investment flows. However, these agreements play a critical role in strengthening regional ties, enhancing political stability, and providing a platform for addressing common challenges faced by developing countries.

Moreover, South-South RTAs can serve as stepping stones for deeper integration and cooperation with other regions. By building regional markets and improving economic governance, these agreements can help developing countries prepare for more comprehensive trade agreements with developed nations. They also offer an opportunity for developing countries to experiment with policy innovations and build institutional capacities that are necessary for successful participation in the global economy (WTO, 2011).

At the same work, Evans et al. (2006) applied further the Sussex Framework in the assessment of European Union (EU) – Egypt RTAs that signed in 2004 as ex-post analysis and of EU – Caribbean Forum (CARIFORUM) countries RTAs that signed in 2008 as ex-ante analysis. In ex-post analysis, Evans et al. (2006) demonstrated the respective steps and concluded that the EU – Egypt Free Trade Agreement may provide limited market access benefits for Egypt and lead to deeper integration. However, current trade patterns and low intra-industry trade and FDI levels pose challenges. Furthermore, although regulatory harmonization is possible, immediate gains are minimal. The agreement's potential benefits for Egypt are uncertain, but it could lay the groundwork for future integration.

On the other hand, in ex-ante analysis of EU – CARIFORUM FTA Evans et al. (2006) concluded that while an Economic Partnership Agreement (EPA) holds potential for trade benefits in the Caribbean region, uncertainties remain regarding its specifics and potential welfare gains. Shallow integration may not yield significant improvements, but a broader integration package could offer more promising outcomes. Ultimately, the success of the EPA will depend on its design and the level of support it receives.

Jackson's (2007) study applied the Sussex framework to evaluate the Turkey – EU Customs Union (CU), examining shallow and deep integration aspects. Shallow integration metrics indicated trade creation, driven by reduced MFN tariff rates, and increased Turkish imports from the EU, notably in agriculture, textiles, and clothing. While deep integration signals were less prominent, low FDI and GDP per capita hinted at potential benefits. The study emphasized the necessity for further probing into deeper integration effects, advocating for descriptive statistics' utility in assessing RTAs.

Gasiorek et al. (2007a) studied the Economic Partnership Agreement (EPA) between EU with African, Caribbean and Pacific (ACP) countries using Sussex Framework and discovered

that the extent of liberalization should be adjusted for each party due to the geographical proximity of each country with EU. The study identified that Caribbean countries have better trade dynamic with the United States, while African countries have better dynamic with the EU. The study further argued that EU should liberalize 100% of its tariff while most of ACP countries should liberalize 80% of their respective tariff in order to get optimal welfare impact of the EPA.

The study by Gasiorek et al. (2007b) based on the framework concluded that FTA between India and the EU may result in both trade creation and diversion, leading to an uncertain net welfare effect for India, influenced by sectoral dynamics. Despite the potential for increased trade with the EU, India's significant imports from non-EU countries pose a risk of trade diversion, while the declining share of the EU in India's imports signals changing trade patterns that could be affected by the agreement. Furthermore, FTA led trade liberalisation and investment promotion may increase intra industry trade, foreign direct investment, and productivity.

Another study of EU – India FTA utilizing the framework by Winters (2009) revealed that the outcome of EU – India trade agreement largely depends on the coverage of sectors and on the extent of which agreement can look at the harmonisation of issues of deep integration. Partial and general equilibrium analysis both pointed to ambiguous benefits for India and modest benefit for the EU from a potential agreement especially if services are not covered. Therefore, a potential agreement should go beyond shallow integration issues such as traditional tariff reduction to deep integration and beyond borders issues if both parties wish for more positive implications.

Mańk (2014) also studied the EU – India FTA using the framework and highlighted that though the stakeholders may not fully perceive its benefits, the EU-India FTA as a promising opportunity. The EU stood to gain from deep integration, requiring greater standard convergence and reduced trade barriers in India. On the other hand, Indian side resisted the deep integration due to concerns over potential domestic governance infringements and the perceived cost of reforms amidst fiscal challenges. Despite the EU's consistent stance on issues like sustainable development and FDI liberalization, its trade policy effectiveness was questioned due to the lack of substantial concessions from India on contentious elements. Moreover, limited EU visibility in India and negative stakeholder perceptions of the FTA further challenge its legitimacy and negotiation effectiveness.

The study on the feasibility and impact of EU – Armenia FTA using the framework by Maliszewska et al. (2008) noted that due to the relatively low pre-FTA tariff protection in

Armenia, the forthcoming reduction of tariff barriers through the EU-Armenia FTA was predicted to offer limited potential for either trade creation or trade diversion within the Armenian economy. However, considerable obstacles such as physical, regulatory, and political barriers particularly that of with Azerbaijan and Turkey, significantly elevate trade costs in Armenia, leading to notable disruptions in trade volumes and structure. Substantial welfare improvements are more likely to stem from regional political and economic stability, as well as deeper integration with the EU.

On the other hand, Wulf et al. (2009) examined the impact and advancement of the Euro-Mediterranean Free Trade Agreement (FTA) between the EU and five Mediterranean nations (Egypt, Israel, Jordan, Morocco, and Tunisia), aiming to inform future policy directions. The Sussex framework analysis encompassed trade, investment, sectoral strengths and weaknesses, and policy recommendations, pinpointing challenges such as slow tariff reductions, non-tariff barriers, and limited sectoral coverage and stressed the importance of enhancing the business environment and implementing commitments efficiently, proposing measures like expanding sectoral coverage, simplifying diagonal cumulation procedures, harmonizing technical standards and SPS, and fostering initiatives for better business climate and competition policy. Moreover, the study underscored the necessity for capacity-building and EU-Mediterranean cooperation to effectively address barriers to investment and trade facilitation.

The study by Paczynski et al. (2011) utilizing the framework revealed that while the EU's overall production and export impacts from prospective integration scenarios with ASEAN are minimal. Certain sectors, particularly vehicles and parts, could experience significant export market losses. The ASEAN-Japan agreement poses the greatest risk to EU exports in ASEAN, with other ASEAN+1 FTAs having weaker negative impacts due to differences in export structures and tariff preferences. Successful completion of the Doha Round negotiations could mitigate or eliminate these potential adverse effects of exclusion from Southeast Asian integration initiatives for the EU.

Gor (2011) also used the framework to assess the welfare impact of the East African Community (EAC) trade agreement on its partner states by examining factors that promote trade creation over trade diversion. Moreover, Gor found that the region's openness to trade, although currently a small share of GDP, suggests overall welfare enhancement. Additionally, Gor noted that there is significant overlap in the goods produced by partner states, indicating potential for trade creation, as shown by the Trade Concentration Index. Lastly, differences in production costs between partner states, as measured by the Bilateral Revealed Comparative Advantage, implied the potential for greater gains from trade creation due to these disparities.

Rollo et al. (2013) evaluated the potential impact of EU-US Trans-Atlantic Trade and Investment Partnership (TTIP) economic integration on trade in goods for 43 low-income countries (LICs) utilizing the framework and focusing on the removal of tariff and non-tariff barriers. The study highlighted that while the EU and US are major export destinations for these countries, the MFN tariffs vary significantly, posing risks in certain sectors, particularly textiles, clothing, and footwear. However, the analysis suggested that the smaller LIC traders, focusing on raw materials and SPS-regulated products, face fewer risks due to lower MFN tariffs. The study also discussed limited policy options for LICs to address potential trade access issues arising from the TTIP, suggesting lobbying for preferences, engaging in WTO dispute settlement mechanisms, and focusing on domestic competitiveness and multilateral negotiations for long-term benefits.

On the other study, Rollo (2014) analysed EU-Australia Free Trade Agreement (FTA) utilizing the framework and did not advocate strongly for deep integration, but suggested that such an FTA would likely not lead to significant trade diversion due to relatively low tariff barriers between Europe and Australia. Despite Australia's heavy reliance on commodity exports to the EU, there were competitive products in pharmaceuticals and manufacturing sectors showing growing intra-industry trade (IIT), indicating potential benefits from mutual recognition of regulatory regimes. The main argument for an FTA was to provide a stronger institutional basis compared to the current EU-Australia Partnership Framework, with services being an essential consideration for future agreements.

Manzano and Martin (2014) demonstrated the application of the framework in the analysis of the US - Philippine Free Trade Agreement. The study explores the implications of TPP negotiations for the Philippines, assessing potential economic impacts and missed opportunities. Using the Sussex framework, it evaluates the welfare effects and preference erosion of a possible Philippine-US Free Trade Agreement within the TPP context. While such an FTA could boost bilateral trade, especially in sectors with high barriers, the study suggests limited benefits due to already low US tariffs. It highlights the risk of trade diversion and preference erosion on Philippine exports to the US without TPP membership. The research urges policymakers to consider both direct trade benefits and competitive pressures, though it acknowledges limitations in focusing solely on goods trade and suggests further comprehensive studies for informed decision-making on TPP participation.

The study on the impact of integrated process upon small economies in European Union done by Azzopardi (2013) noted that the perceived advantages for small states like Malta and Cyprus in joining economic integration projects, emphasizing their historical relationship with

the European Community and the expectation of minimal changes from full EU membership. While dynamic effects depend on internal reforms and commitments, data limitations hinder a comprehensive assessment of post-accession impacts. The research focuses on nontraditional effects influencing stakeholders' expectations, including the EU's role as a lock-in mechanism and provider of opportunities, particularly significant for small states due to their size. Overall, the study underscores the broader considerations beyond immediate economic impacts for small economies navigating regional trading agreements, suggesting that membership in strong economic blocs enhances their potential and widens their opportunities.

Le (2017) examined the anticipated welfare effects of the EU-Vietnam Free Trade Agreement using the Sussex Framework. The analysis suggested potential trade gains for Vietnam due to reduced tariffs and the EU being a key export destination, although the EU may benefit more due to dissimilar production patterns. Deep integration could offer substantial welfare gains through the removal of non-tariff barriers, particularly in sectors like agriculture and services, and commitments to issues like intellectual property rights and sustainable development. Recommendations for Vietnam include supporting firms with market information and quality standards, revising domestic policies, and improving product quality to align with EU standards and explore new markets within the EU. Overall, the agreement presents mutual benefits for both economies.

The analysis using the framework of trade dynamics between the Eurasian Economic Union (EEU) and the European Union (EU) by Zhelev and Garashchuk (2019) indicated a primarily inter-industry trade pattern, with the EEU exporting mostly primary commodities and importing manufactured goods from the EU. With already low tariffs in place, the potential for shallow integration effects from a hypothetical EEU-EU Regional Trade Agreement (RTA) seems limited, with trade diversion being more probable than trade creation due to increasing competitiveness from non-EU countries. Despite differing export profiles and comparative advantages, the limited overlap in export structures could facilitate trade negotiations. However, economic restructuring, particularly in the automotive sector, may present challenges. While the current analysis focuses on static effects, the dynamic effects of RTAs, including technological diffusion and pro-competitive gains, are significant considerations for such an agreement. Beyond tariff elimination, an effective EEU-EU RTA would need to address non-tariff barriers, technical regulations, trade in services, competition rules, intellectual property rights, and other key factors. Given their geographical proximity and existing trade ties, both the EEU and the EU have mutual interests in enhancing trade cooperation, with potential benefits extending to third countries like Ukraine, Georgia,

Moldova, and Serbia. For the global economy, such an RTA could signal a commitment to opposing protectionism and supporting a rules-based multilateral trade system.

Jibrin (2021) studied the welfare impact of regional trade agreement between Nigeria and China using the framework and found out that if the two economies could focus on trade in the goods with highest RCA, trade will be created and welfare achieved. More so, the RTA leads to deep economic integration. The study further recommended Nigeria and China should hasten the signing of RTA agreement for mutual benefits.

Regional economic integration can also impact the trade performance of participating countries. In the case of the Southern African Development Community (SADC), Mapuva and Muyengwa-Mapuva (2014) evaluated the success of regional economic integration in the context of globalisation. The study found that SADC countries have made limited progress in achieving integration due to internal challenges, including political instability, poor infrastructure, and policy misalignments. The study recommended stronger political commitment, improved infrastructure, and better policy coordination to enhance regional integration in SADC.

While evaluating the potential gains from regional economic integration, Falkowski (2022) analysed the trade potential between the EU and Central Asia. The study utilized trade indicators, such as the trade complementarity index and revealed comparative advantage, to assess the trade potential between the two regions. The analysis revealed that while the EU had a comparative advantage in certain sectors, such as machinery and chemicals, Central Asia had a comparative advantage in energy and raw materials. The study concluded that there was significant potential for enhancing trade between the EU and Central Asia, particularly in energy and raw materials.

Understanding the trade creation and diversion effects of RTAs is crucial for assessing their economic impact. Viner (1950) as cited in Freund and Ornelas (2010), first introduced the concepts of trade creation and trade diversion to explain the effects of customs unions and free trade agreements. Trade creation occurs when an RTA leads to increased trade between member countries by replacing higher-cost domestic production with lower-cost imports from other members. On the other hand, trade diversion occurs when an RTA causes a shift in trade from more efficient non-member countries to less efficient member countries due to tariff preferences.

The trade creation and diversion effects of RTAs have been widely studied in the literature. For instance, Frankel et al. (1997) found that trade creation was more likely to occur when member countries had similar economic structures and trade patterns, while trade diversion

was more likely when member countries had different economic structures. Similarly, Freund and Ornelas (2010) argued that trade creation is more likely when RTAs are formed between countries with high levels of trade integration and when tariffs are relatively low before the agreement.

The welfare effects of trade creation and diversion have been extensively analysed in the literature. Bhagwati (1971) argued that trade diversion could lead to welfare losses if it results in the replacement of more efficient non-member suppliers with less efficient member suppliers. This view highlights the potential downside of regional trade agreements (RTAs) when they shift trade patterns away from the most efficient global producers. However, Baldwin and Venables (1995) offered a different perspective, suggesting that trade diversion can also lead to welfare gains if it stimulates investment and production within member countries. This stimulation can result in economies of scale and increased productivity, thus counterbalancing the negative effects typically associated with trade diversion.

Further empirical analysis, such as the study by Hidayat (2016) on the proposed Indonesia-OIC Preferential Trade Agreement (PTA), sheds light on these dynamics. In this study, the researcher employed the Global Trade Analysis Project (GTAP) standard model to simulate the impact of reduced import tariffs under various scenarios. The analysis focused on four key areas: the potential effects on macroeconomic conditions, export-import activities and trade balance, industrial output, and workforce employment. The findings from this model provide a more nuanced understanding of how trade liberalization can impact different aspects of an economy, particularly within the context of a specific trade agreement.

Siddiq (2011) expanded the discussion by including Indonesia in a distinctive East Asian group along with China, Japan, and Korea, based on trade linkages with Sudan. Using the GTAP 6 Africa Database model, Siddiq aggregated 39 regions into 12 regions and 57 sectors into 16 sectors to simulate the impact of European Union economic sanctions on Sudan. The model revealed that while sanctions would negatively affect Sudan, they would generate welfare gains for East Asian countries, including Indonesia. This contrasts with Hidayat's (2016) approach, which included Sudan as part of the non-D8 OIC member countries in the GTAP 8 model. In Hidayat's simulation of partial and full trade liberalization among 57 OIC member countries, the results indicated that partial liberalization would lead to welfare losses for Indonesia, OIC D8 members, and other OIC members, including Sudan. However, under a full liberalization scenario, all OIC members, including Indonesia, would experience welfare gains.

These findings are further supported by Krugman et al. (2018), who explored the broader implications of trade liberalization in developing countries. Their study highlighted two primary effects: an increase in the volume of trade and a shift in the nature of trade from agriculture and mining to manufactured goods. Additionally, trade liberalization was found to contribute to economic growth, as noted by Kim et al. (2014).

Overall, the literature suggests that the economic impact of RTAs depends on the balance between trade creation and trade diversion effects. The Sussex Framework in particular, provides a valuable tool for assessing this balance and identifying the potential benefits and costs of RTAs.

In terms of evaluating competitiveness performance, the procedure for forming a trade agreement is crucial. Ragimun et al. (2022) proposed using a combination of the revealed comparative advantage (RCA) index and the constant market share (CMS) index to categorize traded commodities between trade partners. This approach mirrors the Boston Consulting Group (BCG) Matrix, which was originally developed to guide companies in prioritizing their various business units (Drummond et al., 2008). By applying a similar matrix to trade analysis, researchers can better understand the competitive positioning of different commodities within international trade agreements.

# CHAPTER III
# METHODOLOGY

## 3.1. Overview of the Research Problems

When a government decides to enter a trade agreement that introduces new regulations, it is engaging in a form of public policy, as defined by Dye (2017). The process of establishing such an agreement involves several critical steps before, during, and after the agreement is signed. According to Dye (2017), these steps include defining the problem, formulating policy options, and building legitimacy for the agreement. This process is crucial for ensuring that the agreement aligns with national interests and gains the necessary support from stakeholders.

In the context of Indonesia and Sudan, both governments must carefully evaluate the feasibility of reviving the trade agreement that was originally signed in 1998. This evaluation is not only about assessing economic benefits but also about providing strong arguments to stakeholders that the agreement will yield positive outcomes for their respective countries and for neighboring nations and trade partners. This research aims to provide these governments with policy options that can serve as a foundation for implementing the trade agreement. Additionally, it offers tools for assessing the impact of the proposed agreement, ensuring that it meets the intended goals.

The research is structured around three key questions: the overall feasibility of a Regional Trade Agreement (RTA) between Indonesia and Sudan, the identification of competitive commodities that should be prioritized in the tariff schedule, and the welfare impact of the RTA on both countries. This multi-dimensional approach ensures a comprehensive understanding of the potential economic integration between the two nations.

The first research question focuses on evaluating the overall feasibility of establishing a Preferential Trade Agreement (PTA) between Indonesia and Sudan. This evaluation considers a range of factors, including initial tariff levels, the number of RTA partners, disparities in comparative advantage, similarities in product mix, and trade shares. These factors are critical in determining whether the PTA would be beneficial and sustainable for both countries.

The second research question involves identifying commodities with strong export competitiveness that should be prioritized in the PTA. This part of the research aims to provide a detailed list of commodities from both Indonesia and Sudan that should be considered for inclusion in the tariff schedule. By focusing on these commodities, the PTA can be designed to maximize mutual benefits, enhancing trade flows and economic cooperation between the two countries.

The third research question examines the welfare impacts of the proposed PTA. In this stage, the research simulates tariff reductions and analyzes the potential effects on welfare in both Indonesia and Sudan. The goal is to provide governments with evidence of potential welfare gains or losses, allowing them to make informed decisions about whether to proceed with the RTA.

The findings from this research will offer valuable insights into the potential economic benefits and challenges of a PTA between Indonesia and Sudan. Policymakers can use this information to guide their decisions on trade negotiations and economic integration strategies. Moreover, the research contributes to the broader literature on regional trade agreements (RTAs) and their impact on developing economies, offering lessons that can be applied to similar contexts.

In conclusion, this research provides a comprehensive feasibility analysis of the proposed Indonesia-Sudan PTA by addressing the feasibility, competitive commodities, and welfare impacts. The insights gained will aid in the formulation of effective trade policies and economic strategies between the two countries. This research is not only a step towards deepening economic ties between Indonesia and Sudan but also a contribution to the understanding of RTAs in the context of developing economies, ensuring that such agreements deliver tangible benefits for all parties involved.

### 3.2. Operationalization of Theoretical Construct

The research will assess the feasibility of establishing a bilateral trade agreement between Indonesia and Sudan, focusing on the application of the Sussex Framework. This framework provides a comprehensive method for evaluating the potential benefits and practicality of regional trade agreements (RTAs), particularly when such agreements involve countries at different stages of economic development. In this research, the feasibility of the Indonesia-Sudan RTA will be determined by examining key macroeconomic and trade indicators, including revealed comparative advantage (RCA), trade similarity, and inter-industry trade indices. These indicators will provide insights into the economic compatibility of the two countries and the potential gains from a trade agreement. Additionally, the research will analyze the impact of macroeconomic factors on export performance and benchmark these indicators against other RTAs to assess how the proposed agreement compares in a broader context.

The Sussex Framework is particularly relevant for assessing RTAs between countries like Indonesia and Sudan, where the disparity in economic development poses unique challenges

and opportunities. The framework's objective is to evaluate the feasibility and potential benefits of RTAs by examining key metrics such as initial average tariff rates, the number of existing RTAs, RCA indices, product mix similarity indices, trade intensity indices, and trade-to-GDP ratios. These metrics are crucial for determining whether the preliminary state of bilateral trade between the two countries is conducive to trade creation, which is a primary indicator of a beneficial RTA (Evans et al., 2006).

Data required for the application of the Sussex Framework will be sourced from reputable international organizations. Tariff data will be obtained from the World Trade Organization (WTO), trade statistics from Trade Map and Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC) database, and economic reports from the World Bank, International Monetary Fund (IMF), and the United Nations (UN). These sources will provide the foundational data necessary for calculating the key metrics that will inform the feasibility analysis. The research will then perform weighted factor system analysis which involved the trade indicators of the Indonesia-Sudan RTA with those of other 228 bilateral RTAs in force listed by the WTO and involved 88 countries. This weighted factor system analysis will help determine the extent of the proposed RTA's feasibility.

The next phase of the research involves a detailed analysis of trade indicators to assess the economic viability of the Indonesia-Sudan RTA. Key indicators such as RCA, trade similarity, and inter-industry trade indices will be calculated to evaluate the comparative and competitive advantages of specific commodities. These indicators will help identify which sectors are most likely to benefit from tariff reductions and increased market access under the proposed RTA.

Moreover, the research will employ regression analysis to examine the influence of trade indicators on export performance. According to Wooldridge (2016), regression analysis is a robust method for exploring the relationship between trade indicators and trade outcomes. In this research, the dependent variable will be the value of exports, while the independent variables will include the trade indices that has been investigated prior, namely revealed comparative advantage index, trade similarity index and inter-industrial index. By analyzing these relationships, the research will provide a quantitative framework for understanding the factors that drive international trade flows between Indonesia and Sudan. The results will offer valuable insights for policymakers, helping them to craft trade policies and economic strategies that enhance export performance.

The research will also assess the competitiveness of Indonesia and Sudan in the global market by calculating RCA and constant market share (CMS) indices. The RCA index will reveal the proportion of exports of specific commodities from Indonesia to Sudan relative to

their export to the world, highlighting areas of comparative advantage. The CMS index, on the other hand, will measure the competitiveness of these commodities in the Sudanese market, providing a nuanced understanding of which sectors could thrive under the proposed RTA.

Data for this analysis will be sourced from Trade Map, which provides comprehensive bilateral export and import data, as well as global trade data. By analyzing these indices, the research will identify the commodities that should be prioritized in tariff negotiations, ensuring that the proposed RTA focuses on sectors with the highest potential for growth and competitiveness.

Finally, the research will evaluate the welfare impact of the proposed RTA using computable general equilibrium (CGE) models. These models simulate the effects of various trade policy scenarios, providing a detailed analysis of the potential economic outcomes of the Indonesia-Sudan RTA. The research will develop scenarios in which tariffs on Indonesian exports to Sudan are reduced, while Indonesia maintains its import tariffs on Sudanese commodities. The CGE model will then analyze the impact of these scenarios on GDP, bilateral import quantities, welfare, trade creation, and trade diversion.

Data for the CGE modeling will be obtained from the GTAP database, a widely used resource for global trade analysis. By assessing the changes in key economic indicators under different tariff scenarios, the research will provide a comprehensive evaluation of the welfare impact of the proposed RTA. This analysis will offer valuable insights into the potential benefits and drawbacks of the agreement, helping to inform policy decisions and negotiations.

The operationalization of these theoretical constructs—through the Sussex Framework, regression analysis, RCA and CMS indices, and CGE modeling—provides a structured and comprehensive approach to assessing the feasibility, competitiveness, and welfare impact of the Indonesia-Sudan RTA. By integrating these methods, the research will offer in-depth insights into the economic viability of the proposed trade agreement, helping to guide policymakers in their efforts to enhance bilateral trade relations and promote economic growth in both countries.

### 3.3. Research Design

This section will delve into the research methodology, following the guidelines laid out by Sekaran (2003). Specifically, it will discuss the purpose of the research, the type of investigation conducted, the time horizon of the study, the extent of researcher interference, the study setting, and the unit of analysis.

The primary objective of this research is to conduct a descriptive analysis aimed at exploring and comprehending the dynamics of bilateral trade between Indonesia and Sudan. By applying a descriptive study, the research seeks to elucidate the characteristics of this trade relationship, focusing on recent developments and trends. The analysis will involve the calculation of various trade indicators, which will help to paint a clearer picture of the trade environment between the two countries. The end goal of this exploration is to generate practical recommendations for both the Indonesian and Sudanese governments regarding how they can effectively negotiate tariff reductions under a potential Regional Trade Agreement (RTA).

According to Sekaran (2003), this research employs a correlational investigation, where the relationships between trade indicators are analyzed to construct a coherent argument about the feasibility of an RTA between Indonesia and Sudan. This investigation extends beyond mere exploration, aiming to establish whether there is a significant correlation between the trade indicators, which could support the case for or against the feasibility of an RTA. Additionally, the research will examine the competitiveness of trade commodities by linking these indicators, providing insights into which sectors are likely to benefit most from a potential trade agreement. The research will also incorporate a simulation of the welfare effects of the RTA, using correlational relationships to measure the impact of changes in exogenous variables within the economic system.

To gain a comprehensive understanding of trade dynamics between Indonesia and Sudan, the research adopts a longitudinal approach. This involves analyzing trade data spanning five years, both at the bilateral and global levels. Longitudinal data allows the research to track trends over time, providing a more nuanced understanding of how trade relations between Indonesia and Sudan have evolved and how they might continue to develop under an RTA. The trade data will be categorized into two primary criteria: trade data by partner country and trade data by commodities. Furthermore, the commodities data will use 2-digit Harmonized System codes or HS2 in the analysis of trade flows and the specific commodities that could be impacted by an RTA.

Given that this research primarily relies on secondary data obtained from established databases, the extent of researcher interference is minimal. The role of the researcher is largely confined to obtaining, processing, analyzing, and interpreting the existing data. This approach aligns with Sekaran's (2003) guidelines for conducting a descriptive and correlational study in a non-contrived setting, where the researcher does not manipulate any variables but rather observes and analyzes the data as it exists. The reliance on secondary data also ensures that the

findings are based on objective and verifiable information, which enhances the reliability of the research outcomes.

The research is conducted in a non-contrived setting, meaning that the research is based on real-world data without any experimental manipulation. This naturalistic approach is essential for ensuring that the findings are applicable to real-world scenarios, particularly in the context of international trade relations. The unit of analysis for this research is the country level, specifically focusing on Indonesia and Sudan. The variables measured in this research will primarily be indices, such as the Revealed Comparative Advantage (RCA) and Constant Market Share (CMS) indices, which will provide insights into the competitive and comparative advantages of the two countries in various trade sectors.

The research design integrates a multi-method approach to thoroughly assess the feasibility, competitiveness, and welfare impacts of a potential Indonesia-Sudan RTA. By employing the Sussex Framework for initial feasibility analysis, RCA and CMS analysis for competitiveness, and a Computable General Equilibrium (CGE) model with GTAP application for welfare impact assessment, the research ensures a comprehensive evaluation of the potential trade agreement. This rigorous approach, combining descriptive analysis with quantitative methods, will produce a robust set of findings that can inform policy decisions regarding the proposed RTA. The insights gained from this research will be crucial for both countries as they consider the economic implications of closer trade ties.

### 3.4. Research Objectives

The primary goal of this research is to assess the feasibility of establishing a Regional Trade Agreement (RTA) between Indonesia and Sudan. This research undertakes a comprehensive evaluation of economic and trade indicators to provide informed policy recommendations for both governments. Several specific sub-objectives guide this analysis:

1. Comparative Analysis: The research aims to perform a detailed comparison of the economic and trade indicators between Indonesia and Sudan. This comparison focuses on identifying key areas where trade creation is most likely, providing essential insights into the potential benefits of the RTA.
2. Feasibility Assessment: A weighted factor system will be applied to assess the extent of RTA's feasibility. In its process, the research also investigated influence of crucial trade indicators, such as comparative advantage, trade similarity, and trade structure, on export performance. This analysis will help to identify the underlying factors that

drive trade between the two nations, offering a clear understanding of what makes the RTA viable.

3. Competitiveness Analysis: The research seeks to identify and evaluate the commodities that display the highest trade competitiveness between Indonesia and Sudan. This evaluation will guide both countries in prioritizing sectors during RTA negotiations, ensuring the agreement benefits their most competitive industries.
4. Welfare Impact Evaluation: By simulating different tariff reduction scenarios, the research aims to calculate the potential welfare effects of the RTA. This simulation provides critical insights into the broader economic impacts for both nations, ensuring that the agreement promotes sustainable and equitable economic growth.

These objectives are designed to offer a holistic evaluation of the RTA, equipping policymakers with the necessary data and analysis to make informed decisions regarding the economic cooperation between Indonesia and Sudan.

### 3.5. Data Collection and Sampling

This research utilizes a dataset with both time series and cross-sectional components, known as panel data (Koop, 2005). Panel data is particularly valuable in economic research because it allows for the examination of dynamic changes over time while accounting for individual heterogeneity. The primary source of data for this research is the Trade Map database managed by the International Trade Centre (ITC). As noted by Gilbert (2017), ITC's Trade Map data is highly versatile, offering compatibility with various other crucial data sources such as tariff schedules and export competition indicators. The data is updated regularly on a monthly and quarterly basis, providing a reliable resource for analyzing trade flows.

The research specifically focuses on Indonesia-Sudan bilateral trade data from 2013 to 2022, a period long enough to allow the calculation of essential trade indicators such as the trade similarity index, revealed comparative advantage (RCA), and constant market share (CMS) analysis indices. These indicators are crucial in assessing trade dynamics between the two countries, highlighting potential areas of economic cooperation, and evaluating the feasibility of a Regional Trade Agreement (RTA).

In addition to ITC Trade Map data, the research incorporates a wide range of economic and demographic indicators from other databases. Macroeconomic and demographic data are collected from the World Bank, International Monetary Fund (IMF), and United Nations (UN) databases, offering a comprehensive view of the broader economic environment in Indonesia

and Sudan. This data is essential for understanding how macroeconomic factors influence trade patterns and bilateral trade relations between these two countries.

Moreover, the research draws on economic indicators provided by the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC), a body under the Organisation of Islamic Cooperation (OIC). This data offers additional perspectives on the economic landscape, particularly in the context of Indonesia and Sudan as members of the OIC. Such information allows for a more nuanced understanding of how membership in international organizations influences trade dynamics and opportunities for economic cooperation.

The Central Intelligence Agency's (CIA) World Factbook is another important source, providing detailed information on the geographical and general situation of both Indonesia and Sudan. This data helps in analyzing how geography and other natural factors might influence trade flows. Geographical features, such as proximity to ports or natural resources, can play a crucial role in shaping trade patterns and affect the cost and feasibility of exporting goods between the two nations.

Regional trade agreements and economic integration efforts are also analyzed in this research. The research collects data from international organizations such as the World Trade Organization (WTO), the United Nations Conference on Trade and Development (UNCTAD), the Common Market for Eastern and Southern Africa (COMESA), and the Association of Southeast Asian Nations (ASEAN). These organizations provide insight into the trade agreements that could either facilitate or complicate the establishment of an RTA between Indonesia and Sudan. Understanding the broader landscape of regional economic integration helps in determining how external trade policies might affect bilateral agreements.

Despite the extensive use of secondary data sources, it is critical to recognize the limitations that come with this approach. Secondary data, while useful, can sometimes contain errors or inaccuracies (Malhotra and Birks, 2007). To minimize the risk of inaccuracies, the data obtained from ITC and other sources are cross-verified against mirrored datasets. If a dataset for a particular variable is found to be less than 75% complete, as suggested by Sekaran (2003), that variable is excluded from the analysis to ensure the research maintains its integrity and reliability.

The computable general equilibrium (CGE) model used in this research is supported by data from the Global Trade Analysis Project (GTAP) 11 database, managed by Purdue University's Center for Global Trade Analysis. The GTAP database is widely recognized as a comprehensive source of global economic data, containing detailed information on bilateral

trade patterns, commodity production, and consumption. It also includes data on the use of commodities and services across multiple sectors. This allows for a more sophisticated, sector-based analysis of trade relations between Indonesia and Sudan.

To tailor the GTAP data for this research, the GTAPAgg2 application is employed, ensuring the model reflects the specific scenarios relevant to Indonesia-Sudan trade. Simulations are then run using the RunGTAP3.75 application, allowing for an accurate analysis of the potential economic impacts of a bilateral RTA between the two countries. This methodological rigor ensures that the simulations align closely with real-world economic conditions, providing reliable insights into the feasibility of trade agreements.

An important aspect of the research involves the detailed analysis of Indonesia-Sudan trade data at the 2-digit Harmonized System code (HS2) level. The HS2 code structure provides an organized way to categorize traded goods and services, allowing for a more granular analysis of trade flows. Key trade indicators such as RCA, trade similarity, and intra-industry indices are calculated using HS2-level data, offering a clear picture of the trade relationship between the two nations. This detailed assessment forms the foundation for making policy recommendations and conducting further research.

The research's analytical approach opens the possibility of calculating trade indicators for all countries or economies worldwide, which, according to Trade Map data, amounts to 236 economies. To ensure a reliable and manageable analysis, the research applied Krejcie and Morgan's (1970) table for determining sample size, as suggested by Sekaran (2003). Based on this well-established table as seen in Appendix 1, a population of 236 economies requires a sample size of approximately 144 to 148, ensuring a 95% confidence level with a 5% margin of error. This sample size is deemed sufficient to yield reliable, representative findings while maintaining feasibility for practical data collection and analysis.

In conclusion, the data collection process in this research is both comprehensive and diverse, drawing from a range of reliable secondary sources and databases. By combining data from the ITC, GTAP, SESRIC, and various international organizations, the research offers a well-rounded view of the trade relationship between Indonesia and Sudan. Moreover, by employing rigorous methodologies such as panel data analysis and computable general equilibrium modeling, the research provides a strong foundation for evaluating the feasibility of an RTA between the two countries. Despite the challenges associated with using secondary data, cross-verification and the exclusion of incomplete datasets ensure the accuracy and reliability of the findings. Ultimately, this research offers valuable insights that can inform future policy decisions and enhance economic cooperation between Indonesia and Sudan.

### 3.6. Data Analysis

#### 3.6.1. Analyzing the feasibility of regional trade agreement between Indonesia and Sudan

In determining the feasibility of a Regional Trade Agreement (RTA) between Indonesia and Sudan, this research leverages the Sussex Framework, a methodology extensively detailed by Evans et al. (2006). This framework is instrumental in assessing the potential for trade creation or diversion by examining the economic structures of both countries and exploring the relationships between economic variables and export performance. Given that Indonesia and Sudan are both classified as developing countries, the nature of their RTA is likely to be characterized by shallow integration, typically in the form of preferential trade agreements (PTAs) or free trade agreements (FTAs). Evans et al. (2006) suggest that RTAs between developing countries often involve such shallow integration, which makes the analysis of their economic structures and trade policies even more critical for assessing the feasibility of an agreement.

In assessing feasibility of shallow integrated RTAs, Evans et al. (2006) suggested the Ricardian and Heckscher-Ohlin model approach in determining the trade creation process. Therefore, the research will focus on the assessment of the rules of thumb based on Ricardian approach. The first rule of thumb is about the pre-existing tariff difference, whereas the higher tariff difference between RTAs partner will likely produce trade creation.

The second rule of thumb is related to the partners in the RTAs whereas the more partners in the agreements, the trade creation will likely increase. In the case of bilateral RTA, the research will assess other RTAs in which both partners are involved.

The third rule of thumb is related to the comparative advantage of the respective partners. The wider differences in comparative advantage, the more possibility for trade creation. In this case, the research will calculate the revealed comparative advantage.

Following fourth rule of thumb determined that the more similar of traded commodities between partners, the greater likeliness of the trade creation. Nonetheless, in Ricardian approach the trade creation will be determined by the difference in the type of the commodities. Therefore, the research will calculate the trade similarity index and determine that the lower trade similarity, the more possibility for the trade creation.

Fifth rule of thumb determined that the higher the percentage of trade with potential partners the higher likeliness of trade creation. Therefore, the research will assess trade structure that indicated by the intra-industry trade by calculating the intra-industry trade index.

Moreover, based on Ricardian approach, the research determined that inter industry trade will likely produce trade creation.

Finally, the sixth rule of thumb dictated that the smaller share of trade to the GNP, the more likely there will be trade creation. The research then will obtain data on the trade and the GNP of respective partners and compare them to determine whether RTA will be trade creating or trade diverting.

Based on the rules of thumb, the research will calculate several trade indicators to determine the feasibility of the RTA. These indicators include the Balassa Index, also known as the Revealed Comparative Advantage (RCA) index, the Finger-Kreinin Index, also known as the Trade Similarity Index, and the Grubel-Lloyd Index, also known as the Intra-Industry Trade (IIT) index. These calculations are applied to bilateral trade data at the 2-digit Harmonized System (HS) code level. By analyzing these indicators, the research provides a comprehensive assessment of the potential for trade creation or diversion under an RTA between Indonesia and Sudan, offering valuable insights into the feasibility and potential benefits of such an agreement.

The Revealed Comparative Advantage (RCA) index, introduced by Balassa (1965), is a fundamental tool in international trade analysis that measures a country's relative advantage or disadvantage in a specific industry. The RCA index is calculated by comparing the share of a particular commodity in a country's total exports with the share of that commodity in global exports. An RCA value greater than one indicates that a country has a comparative advantage in that commodity, while a value less than one suggests a comparative disadvantage.

The RCA index is a pivotal tool in international trade analysis, offering insights into the specialization patterns of a country's exports. According to the formula proposed by Balassa (1965), the RCA index is calculated as follows:

$$\text{RCA} = \frac{\frac{x_{irW}}{x_{rW}}}{\frac{X_{iW}}{X_W}}$$

Whereas:

$x_{irW}$ is the total export of commodities *i* from country *r* to the world;

$x_{rW}$ denotes of total export of country *r* to the world;

$X_{iW}$ is the total export of commodities *i* to the world;

$X_W$ denotes total export to the world.

The RCA index measures the degree of specialization of a country's export products which reflects the market share of certain commodities produced by certain countries in the global

market (Aisya et al., 2005), with a value greater than 1 indicating that the country has a comparative advantage in that commodity, and a value below 1 suggesting under-specialization (Tobing et al., 2020; Laursen, 2015).

In addition to the RCA, the Finger-Kreinin Index (FKI), also known as the Trade Similarity Index, is another critical tool used in international trade analysis (Finger and Kreinin, 1979). The FKI measures the similarity between the export structures of two countries, providing insight into the level of competitiveness and complementarity between them (Mikic and Gilbert, 2009). The FKI is calculated using the formula:

$$\text{FK} = \left\{ \sum_i \min \left( \frac{x_{irW}}{X_{rW}}, \frac{x_{ipW}}{X_{pW}} \right) \text{ x } 100 \right\}$$

whereas:

$x_{irW}$ is the total export of commodities *i* from country *r* to the world;

$X_{rW}$ denotes of total export of country *r* to the world;

$x_{ipW}$ is the total export of commodities *i* from country *p* to the world;

$X_{pW}$ denotes total export from country *p* to the world.

This index, as noted by Mikic and Gilbert (2009) is particularly useful in studying the level of competitiveness and complementarity between trading partners and is widely applied in empirical trade analysis. The FKI ranges from 0 to 100, where a value of 100 indicates identical export structures between the two countries, and a value closer to 0 indicates no similarity at all.

In shallow integration analysis, the more dissimilar of the traded commodities, the greater chance for trade creation as both partners will exchange commodities that it does not produce domestically and hence in line with Ricardian model as well as Heckscher-Ohlin model of international trade. On the contrary, in deep integration analysis, a higher similarity index suggests greater potential for intra-industry trade, as countries with similar export structures are likely to trade similar goods. This similarity can enhance the elasticity of supply, thereby increasing the potential for trade creation within an RTA. Countries with similar export structures can benefit from economies of scale and more efficient resource allocation, which in turn promotes deeper economic integration.

The Grubel-Lloyd Index (GLI), also known as the Intra-Industry Trade Index, measures the extent of intra-industry trade, which involves the simultaneous import and export of similar goods within the same industry or product group (Mikic and Gilbert, 2009). The GLI is calculated as:

$$GL = \sum(1 - \frac{|x_{irW} - m_{irW}|}{x_{irW} + m_{irW}})(\frac{x_{irW} + m_{irW}}{X_{rW} + M_{rW}})$$

Whereas:

$x_{irW}$ is the total export of commodities *i* from country *r* to the world;

$m_{irW}$ denotes of total import of commodities *i* from country *r* to the world;

$X_{rW}$ denotes the total export of country *r* to the world;

$M_{rW}$ denotes the total import of country *r* from the world.

Mikic and Gilbert (2009) noted that this index is particularly useful in studying the level of product differentiation and the degree of intra-industry specialization between trading partners and is widely applied in empirical trade analysis. The GLI ranges from 0 to 1, where 0 indicates that all trade between the two countries is intra-industry trade, and 1 indicates pure inter-industry trade.

For shallow integration analysis, the higher value of the index, the greater there is to be trade creation. In Ricardian model and Heckscher-Ohlin model of international trade, inter-industry trade will likely boost the trade between two partners. Similar to previous index, a higher GLI value suggests a greater proportion of inter-industry trade, which can be indicative of a more diversified trade relationship between the two countries. In the context of deep integration, a higher level of intra-industry trade (lower GLI) is often associated with trade creation, as it reflects a more integrated and specialized production process between the countries involved.

Overall, these indices—the RCA, FKI, and GLI—are essential tools for assessing the feasibility and potential impact of an RTA. They provide insights into the comparative advantages, export structure similarities, and intra-industry trade levels between countries, all of which are critical factors in determining the likelihood of trade creation and the overall success of the RTA. By applying these indices, policymakers can make informed decisions that maximize the benefits of trade agreements while minimizing potential trade diversion effects.

At the conclusion of the analysis, the research synthesizes the potential for trade creation by compiling and assessing each indicator within a structured framework. This method, as illustrated by Manzano and Martin (2014), involves setting a rule of thumb for each criterion, identifying the relevant indicators, and establishing critical points to guide the assessment of a Regional Trade Agreement (RTA) between Indonesia and Sudan as seen in table 3.1. The objective is to determine whether the RTA would likely result in more trade creation than trade diversion, ultimately leading to a net welfare gain for both countries.

The final assessment of the RTA's feasibility hinges on these indicators. If the pre-RTA bilateral trade dynamics between Indonesia and Sudan show a greater possibility for trade creation, as opposed to trade diversion, the RTA can be considered economically beneficial. Each criterion in the matrix is designed to measure different aspects of trade relations, such as initial trade barriers, the number of involved partners, comparative advantages, and trade structure similarities. A comprehensive analysis of these factors will provide insights into whether the RTA will likely result in a positive economic impact, leading to increased trade flows, greater efficiency, and improved welfare for both countries. Therefore, the research's conclusion will rely on whether the cumulative indicators suggest that the benefits of trade creation outweigh the risks of trade diversion, thereby justifying the feasibility of the proposed RTA.

Table 3.1 Compilation of RTA assessment

| No. | Criteria | Indicator | Critical point |
|---|---|---|---|
| 1. | The higher the initial tariffs or barriers, the greater the effects of both trade creation and diversion. | Pre-RTAs tariff and non-tariff measures | A higher difference in tariffs or barriers between RTA partners indicates a greater possibility for trade creation. |
| 2. | The higher the number of RTA partners, the higher the likelihood of trade creation over diversion, enhancing the welfare effects of the RTA. | Number of RTA partners | More parties involved in the RTA suggest a better possibility for trade creation. |
| 3. | Wider disparities in comparative advantage between RTA partners are more likely to improve welfare through the RTA. | Revealed Comparative Advantage Index (RCA) | Larger RCA differences between partners enhance the possibility for trade creation. |
| 4. | The lower similarity in traded commodities will increase the likelihood of trade creation. | Trade similarity index (Finger-Kreinin Index) | Lower value of FK indices between partners suggest a higher possibility for trade creation. |
| 5. | A higher trade share with potential partners increases the welfare potential of an RTA. | Intra-industrial index (Grubel-Lloyd index) | Leniency towards inter industry trade indicates a greater possibility for trade creation. |
| 6. | RTAs may yield greater welfare benefits when trade initially constitutes a small portion of GNP. | Trade contribution to GNP | A lower contribution of trade to GNP in each partner suggests a greater possibility for trade creation. |

To enhance the clarity and depth of the research, the integration of unique trade indicators into a weighted factor system addresses the challenge of the subjective nature of the Sussex frameworks' "rules of thumb." The lack of a precise threshold for "how wide" the differences

need to be is a significant limitation. By converting these differences into a more structured system—based on comparative advantage, trade similarity, and trade structure—the analysis becomes more tailored and nuanced. This allows for a more context-sensitive approach, enhancing the ability to measure multidimensional concepts that cannot be captured by a single indicator (Bartelmus, 2008).

The research begins by structuring a weighted factor system that considers the unique features of the parties involved. These features are essential to trade negotiations between Indonesia and Sudan, providing a tailored solution that accounts for economic disparities. Comparative advantages, trade similarities, and trade structural factors are all critical elements that can be incorporated into this framework to better understand the feasibility of a Regional Trade Agreement (RTA). As suggested by Booysen (2002), identifying the relevant features ensures that the framework is context-specific and provides a more comprehensive analysis.

The next step in the process involves normalizing the data for each factor. This is crucial to ensure comparability across different metrics. Data normalization ensures that different measures, such as comparative advantage and trade structure, can be assessed on a common scale. This avoids skewing the results due to differing units or magnitudes of the variables. A widely used method for normalization is min-max normalization as seen below, which scales the data between a set range, such as 0 to 1 or -1 to 1, allowing the research to proceed with a unified set of comparable values (Helmy, 2017).

$$Normalized\ value = \frac{(original\ value - min\ value)}{(max\ value - min\ value)}$$

Once the data is normalized, weights are assigned to each factor based on their relative importance. Trade similarities, for instance, might be given more weight than trade structure, given their direct impact on economic capacity. Conversely, trade structure may hold a lower, though still significant, weight. To determine these weights, the research will employ statistical tests to measure the impact of comparative advantage, trade similarities, and trade structure on export performance. This weighting ensures that each factor is appropriately emphasized according to its influence on trade outcomes (Wacziarg, 2001).

To ensure empirical rigor, the research performs a regression analysis across 88 countries that are parties to 228 RTAs currently in force (WTO, 2023a). The regression model specifies the relationship between export performance and several key economic indicators, including the Revealed Comparative Advantage (RCA) index, the Finger-Kreinin Index (FKI), and the Gruber-Lloyd Index (GLI). The model used for the analysis is as follows:

$$NExp = \beta_0 + \beta_1 NRCA + \beta_2 NFKI + \beta_3 GLI + \mu$$

Whereas;

$NExp$ denotes normalized export value;

$\beta_0$ denotes coefficients;

$NRCA$ denotes normalized revealed comparative advantage index;

$NFKI$ denotes normalized Finger-Kreinin index;

$GLI$ denotes Gruber-Lloyd index;

$\mu$ denotes error

This regression model provides a quantitative means of determining how various factors influence the feasibility of an RTA. However, to ensure the robustness of the model, several diagnostic checks are performed. Multicollinearity is tested using the Variance Inflation Factor (VIF), heteroskedasticity is checked using the Breusch-Pagan test, and autocorrelation is assessed using the Durbin-Watson test. Additionally, the residuals are examined to ensure they are normally distributed and homoscedastic, as suggested by Kutner et al. (2004).

If the Ordinary Least Squares (OLS) regression model violates the assumptions of multicollinearity, heteroskedasticity, or autocorrelation, the research will employ a Generalized Least Squares (GLS) model. The GLS model adjusts for heteroskedasticity by applying a variance function and accounts for autocorrelation using an autoregressive correlation structure (Greene, 2020). This step ensures that the results remain reliable even in cases where the OLS model may falter due to assumption violations.

Once the model has been tested and validated, the research will interpret the results by examining the p-values and the coefficients of the independent variables. The significance of these variables will provide insights into the relative importance of each factor in influencing trade outcomes. For instance, a high p-value for RCA may suggest that comparative advantage plays a crucial role in determining export performance. By contrast, a lower p-value for FKI might indicate that trade similarity has a less pronounced impact on trade between Indonesia and Sudan. These insights will offer actionable policy recommendations for RTA negotiations (Bluman, 2023).

After interpreting the results of the regression model, the research will apply the weighted factors to calculate a composite score for each country. The formula for calculating the weighted score is as follows:

$$Weighted\ score = (normalized\ RCA\ x\ RCA\ weight) + (normalized\ FK\ index\ x\ FK\ index\ weight) + (normalized\ GL\ index\ x\ GL\ index\ weight)$$

This weighted score provides a quantitative measure of the differences between Indonesia and Sudan. A larger difference in the weighted scores between the two countries suggests a deeper level of disparity in their trade relationships. By calculating this difference, the research can provide insights into how "deep" the economic differences are and how they might affect the feasibility of an RTA.

In the final stages of the research, the weighted scores are combined into a composite index, which reflects the overall depth of the differences between the two countries. This composite index can be used to interpret the feasibility of an RTA by providing a comprehensive picture of how the various factors—comparative advantage, trade similarity, and trade structure—interact to shape the trade relationship.

The research also considers socio-economic factors, such as Human Development Index (HDI) and GDP per capita, which may further complicate RTA negotiations. For instance, even if trade indicators suggest an opportunity for economic collaboration, disparities in socio-economic factors like Sudan's lower HDI and GDP per capita compared to Indonesia may present significant challenges that must be addressed. These socio-economic differences must be factored into the RTA negotiations to ensure that both countries can benefit from the agreement.

In conclusion, the research adopts a comprehensive and structured approach to evaluating the feasibility of an RTA between Indonesia and Sudan. By incorporating trade indicators into a weighted factor system, the research provides a nuanced analysis of the economic differences between the two countries. Through regression analysis, diagnostic tests, and the creation of a composite index, the research offers a rigorous and empirically grounded methodology for assessing the feasibility of the RTA, providing policymakers with valuable insights for future negotiations.

### 3.6.2. Identifying commodities with best competitiveness performance

The research delves into the competitiveness of commodities traded between Indonesia and Sudan by examining the Revealed Comparative Advantage (RCA) index and the Competitive Market Share (CMS) index. These indices provide a nuanced understanding of the trade dynamics and the competitive position of each country in the bilateral trade relationship.

This index is crucial for understanding how well Indonesia and Sudan are positioned in specific commodity markets on a global scale. If the RCA for a particular commodity exceeds 1, it implies that Indonesia or Sudan is more specialized in producing and exporting that

commodity compared to the global average, which could inform strategic decisions in trade negotiations and policy-making.

In addition to the RCA index, the research employs the CMS analysis to further explore the export growth and competitiveness of commodities traded between Indonesia and Sudan. As outlined by Richardson (1971) and later expanded by Gilbert (2017), the CMS model decomposes trade growth into several components that shed light on the underlying forces driving export performance.

The CMS analysis decomposes export growth into four key components:

1. World Growth Effect: The portion of export growth attributable to the overall increase in world exports.
2. Commodity Composition Effect: The growth of exports related to the commodities that are increasingly demanded in the global market.
3. Market Distribution Effect: The growth driven by the demand in specific regions or countries.
4. Competitiveness Effect: The residual growth that reflects changes in a country's ability to compete in the global market.

Leamer and Stern (1970) argue that export growth is influenced by these factors, and they propose the following decomposition formula:

$$
\begin{aligned}
x_{irp}^{1} - x_{irp}^{0} = \quad & \sum_i \left(\frac{X_W^1}{X_W^0} - 1\right) x_{irp}^{0} \text{ (world growth effect)} \\
& + \sum_i \left(\frac{X_{iW}^1}{X_{iW}^0} - 1\right) x_{irp}^{0} - \sum_i \left(\frac{X_W^1}{X_W^0} - 1\right) x_{irp}^{0} \text{ (commodity composition effect)} \\
& + \sum_i \sum_p \left(\frac{x_{iWp}^1}{x_{iWp}^0} - 1\right) x_{irp}^{0} - \sum_i \left(\frac{X_{iW}^1}{X_{iW}^0} - 1\right) x_{irp}^{0} \text{ (market distribution effect)} \\
& + \sum_i \sum_p x_{irp}^{1} - \sum_i \sum_p x_{irp}^{0} - \sum_i \sum_p \left(\frac{x_{iWp}^1}{x_{iWp}^0} - 1\right) x_{irp}^{0} \text{ (competitiveness effect)}
\end{aligned}
$$

Whereas:

$x_{irp}^{1}$ is export of commodities *i* from country *r* to country *p* at current period;

$x_{irp}^{0}$ is export of commodities *i* from country *r* to country *p* at previous period;

$X_W^1$ is export of the world at current period;

$X_W^0$ is export of the world at previous period;

$X_{iW}^1$ is export of commodities *i* from the world at current period;

$X_{iW}^0$ is export of commodities *i* from the world at previous period;

$x_{iWp}^1$ is export of commodities *i* from the world to country *p* at current period;

$x_{iWp}^{0}$ is export of commodities $i$ from the world to country $p$ at previous period;

The result of decomposition of export growth provides insight on how much growth is affected by world growth, commodity composition, market distribution and competitiveness. Further, the studies will take competitiveness effects into account to determine competitive advantage of given commodities.

The decomposition of export growth through CMS analysis provides a detailed view of the factors driving the export performance of Indonesia and Sudan. By breaking down export growth into its components, the research can identify whether growth is primarily driven by global trends (world growth effect), the composition of commodities being exported (commodity composition effect), demand in specific markets (market distribution effect), or the intrinsic competitiveness of the exporters (competitiveness effect). This breakdown is crucial for understanding not only how exports are growing but also why they are growing, which in turn can inform strategies to enhance competitiveness in international markets.

The competitiveness effect, in particular is of significant interest as it directly measures the ability of a country to compete in the global market. If Indonesia or Sudan shows strong performance in this area, it suggests that they are improving their market position relative to other competitors, which could be a strong indicator of the potential success of an RTA between the two countries.

By combining the insights from both the RCA and CMS analyses, the research offers a comprehensive assessment of the trade dynamics between Indonesia and Sudan. The RCA index provides a snapshot of the specialization patterns, while the CMS analysis offers a more dynamic view of how trade performance is evolving over time. Together, these tools allow for a nuanced understanding of the competitiveness of traded commodities, which is essential for evaluating the potential benefits of deepening trade ties through an RTA.

This analytical framework will enable policymakers and stakeholders to make informed decisions regarding trade policies and agreements, ensuring that they are based on a solid understanding of the competitive landscape and the specific strengths and weaknesses of the commodities in question. By focusing on both the revealed comparative advantages and the factors driving export growth, the research provides a robust foundation for assessing the feasibility and potential impact of a closer trade relationship between Indonesia and Sudan.

The third step in analyzing the competitiveness of commodities traded between Indonesia and Sudan involves classifying these commodities based on a framework developed by Ragimun et al. (2022). This classification distinguishes commodities according to their

comparative and competitive advantages, offering a nuanced understanding of how these commodities perform in the global market.

Ragimun et al. (2022) outline four distinct categories for classifying commodities based on their trade competitiveness performance:

1. Commodities with high comparative advantage and high competitive advantage: These commodities are both specialized and competitive in international markets, indicating that the country excels in producing these goods efficiently while also maintaining a strong market position.
2. Commodities with high comparative advantage and low competitive advantage: These are commodities in which the country specializes but struggles to maintain or grow its market share, indicating potential issues in competitiveness, possibly due to factors like pricing, quality, or external competition.
3. Commodities with low comparative advantage and high competitive advantage: Despite not being specialized in these commodities, the country still manages to perform well in the global market, perhaps due to innovative strategies, marketing, or other competitive strengths.
4. Commodities with low comparative advantage and low competitive advantage: These commodities are neither specialized nor competitive, suggesting that the country might consider divesting from these markets or re-evaluating its strategy for these goods.

This classification is integral to the research as it allows for the identification of commodities that are crucial for trade between Indonesia and Sudan. By analyzing which commodities fall into each of these categories, policymakers and businesses can make informed decisions about where to focus their resources and efforts.

To further refine the analysis, the research applies the Boston Consulting Group (BCG) Matrix, a strategic tool that classifies products into four quadrants based on market share and market growth (Drummond et al., 2008). The original BCG Matrix is used by companies to allocate resources among different business units or products based on their competitive position and market potential. In this research, the BCG Matrix is adapted to classify commodities based on their revealed comparative advantage (RCA) and competitive market share (CMS) indices, which correspond to the matrix's axes.

1. Market Growth (Vertical Axis): In the adapted matrix, market growth is represented by the CMS index, which indicates the competitiveness of a commodity. High CMS

values suggest that a commodity is gaining market share or is performing well in growing markets.

2. Market Share (Horizontal Axis): The RCA index represents market share, reflecting the degree of specialization and comparative advantage a country has in producing a specific commodity. High RCA values indicate that the country is specialized in producing the commodity relative to global production.

Based on these adaptations, the commodities are categorized into four quadrants:

1. GREAT (Stars): Positioned in the upper-left quadrant, these are commodities with both high RCA and high CMS indices. They represent market leaders with strong comparative and competitive advantages. These commodities are critical for both Indonesia and Sudan, as they are expected to bring in significant profits and warrant continued investment to maintain their market leadership.
2. SUNRISE (Cash Cows): Located in the lower-left quadrant, these commodities have high RCA but low CMS indices. They are leaders in low-growth markets, indicating that while they are specialized, their competitive edge may be waning. For these commodities, the focus should be on maximizing profits while minimizing additional investment, as their growth potential is limited.
3. MATURE (Question Marks): Found in the upper-right quadrant, these commodities have low RCA but high CMS indices. They are in high-growth markets but lack strong comparative advantages. This category requires careful strategic consideration—whether to invest in these commodities to improve their specialization or to divest due to the challenges in maintaining a competitive position.
4. SATURATED (Dogs): Positioned in the lower-right quadrant, these commodities have both low RCA and low CMS indices. They are in low-growth markets and lack both comparative and competitive advantages. The research suggests that these commodities may be candidates for divestment or a significant strategy shift, as their market potential is minimal.

By mapping the classified commodities into this modified BCG Matrix, as illustrated in Figure 3.1, the research provides a clear visual representation of where each commodity stands in terms of trade competitiveness. This matrix becomes a powerful tool for decision-makers, enabling them to prioritize investments and policy initiatives that will bolster trade performance and economic growth in Indonesia and Sudan.

The categorization not only highlights the current strengths and weaknesses of each commodity but also offers a roadmap for future strategies, ensuring that both countries can

maximize the benefits of their trade relationship. The integration of RCA and CMS indices with the BCG Matrix approach provides a comprehensive framework for analyzing and improving trade competitiveness in the context of Indonesia-Sudan trade relations.

Wilson and Gilligan (2005) suggest four distinct strategies for addressing the quadrants in the original BCG Matrix, each tailored to maximize business outcomes based on the market conditions of the products within those quadrants.

Figure 3.1 Modified BCG Matrix

Competitive advantage (CMSA) → high / Low

| | |
|---|---|
| SUNRISE<br>Commodities that have:<br>high comparative advantage;<br>low competitive advantage | GREAT<br>Commodities that have:<br>high comparative advantage;<br>high competitive advantage |
| SATURATED<br>Commodities that have:<br>low comparative advantage;<br>low competitive advantage | MATURE<br>Commodities that have:<br>low comparative advantage;<br>high competitive advantage |

low → high
comparative advantage (RCA)

The first strategy is to build or increase market share, particularly for products in the "question mark" quadrant. These products have high market growth potential but low market share, so the focus should be on capturing more of the market to maximize future earnings. Investing resources to turn these "question marks" into "stars" can yield significant long-term returns.

The second strategy is to hold or maintain the current market share and investment levels for products in the "cash cow" quadrant. These products already have a high market share in low-growth markets, so the aim is to sustain their profitability without significant new investment. By maintaining their current position, businesses can continue to generate steady revenue streams.

The third strategy is to harvest or increase short-term cash flow from products, even at the expense of long-term prospects. This approach is suitable for both "cash cows" and "question marks" with low projected future prospects, as well as for products in the "dog" quadrant. The goal here is to maximize immediate financial returns from these products before their market potential diminishes further.

The final strategy is to divest or discontinue investment in products that drain resources, particularly those in the "dog" quadrant or underperforming "question marks." These products

have low market share and low growth potential, making them less viable for continued investment. Divesting allows businesses to reallocate resources to more promising areas.

In the context of the Indonesia-Sudan bilateral RTA, the research will apply these strategies by identifying commodities according to their respective quadrants in the BCG Matrix. For the negotiation process, it is suggested that both countries prioritize tariff reductions for commodities classified in the GREAT and SUNRISE quadrants during the initial phase. These commodities represent strong trade opportunities and should be targeted for immediate benefit. Meanwhile, tariff reductions for commodities in the MATURE and SATURATED quadrants can be considered in subsequent negotiation phases, as these products may require more cautious investment and strategic planning.

### 3.6.3. Measuring the welfare impact of the trade agreement between Indonesia and Sudan

To evaluate ex-ante trade policies, Gilbert (2017) emphasizes the utility of simulation methods, particularly computable general equilibrium (CGE) models. These models are powerful tools that simulate how an entire economic system might respond to changes, though they are not predictive forecasts of specific outcomes. The core assumption of CGE models is that any change in one part of the economic system triggers adjustments across the system, ultimately leading to a new equilibrium. Burfisher (2016) further elaborates that an economy is considered in equilibrium when supply and demand are balanced at a set of prices, and there are no pressures for change in these variables.

Dixon and Parmenter (1996) describe the comprehensive nature of CGE models, which include various economic variables such as commodity and factor demands and supplies, prices, taxes, subsidies, trade balances, technological coefficients, and more. During simulations, Burfisher (2016) categorizes these variables into exogenous variables, which remain fixed initially and do not change during the simulation process, and endogenous variables, which are determined as solutions to the equations within the CGE model. The interactions between these variables occur under conditions where demands equal supplies, prices equal costs, and demands depend on relative prices and expenditure levels.

In CGE models, the process begins by creating a "disequilibrium" through an exogenous shock—such as a policy change—introduced by the modeler (Hertel, 1997). The key equations used in CGE models include:

1. Household demand equations which determine household consumption based on income, preferences, and relative prices.

$$C_i^h = \alpha_i^h \left(\frac{P_i}{P_h}\right)^{-\sigma_h} Y_h$$

Where $C_i^h$ is the consumption of good *i* by household *h*, $\alpha_i^h$ is the share parameter, $P_i$ is the price of good *i*, $P_h$ is the price index for household *h*, $\sigma_h$ is the elasticity of substitution, and $Y_h$ is the income of household *h*.

2. Production functions that express the relationship between inputs (labor, capital) and outputs in production.

$$Q_j = \int (L_j, K_j, T_j)$$

Where $Q_j$ is the output of sector *j*, $L_j$ is labor input, $K_j$ is capital input, and $T_j$ represents technology.

3. Market equilibrium conditions which ensure that supply equals demand in each market.

$$Q_i = \sum_h C_i^h + \sum_j I_i^j + X_i - M_i$$

Where $Q_i$ is the total supply of good *i*, $I_i^j$ is the investment demand by sector *j*, $X_i$ is exports, and $M_i$ is imports.

4. Trade equations that capture the relationship between domestic and international markets, often modeled through Armington elasticity.

$$M_i = \int (\frac{P_i^M}{P_i})$$

Where $M_i$ is the import of good *i*, $P_i^M$ is the import price, and $P_i$ is the domestic price.

5. Factor market equations which determine the allocation and prices of factors like labor and capital.

$$W_L = \int (\frac{L_s}{L_d})$$

Where $W_L$ is the wage rate, $L_s$ is the supply of labor, and $L_d$ is the demand for labor.

Through these equations, CGE models provide insights into how an economy might adjust to policy changes, offering valuable guidance for policymakers.

The research will employ the RunGTAP 3.75 application, which is equipped with the GTAP 11 Database, developed by the Center for Global Trade Analysis at Purdue University, to simulate the effects of tariff reductions on various economic components. The GTAP 11 Database, representing 2017 data, comprises 160 regions or countries, 65 sectors, and 8 factors. This extensive dataset allows for a detailed analysis of the global economy and its interactions.

Burfisher (2016) suggests that data aggregation should be tailored to the specific needs of the simulation. In this research, the data is aggregated into three country groups: Indonesia (IDN), Sudan (SDN), and the Rest of the World (ROW), enabling a focused analysis on bilateral trade between Indonesia and Sudan within a global context.

For the commodity analysis, the research aggregates Indonesian export commodities into two groups: GRSUN, which includes goods with both high comparative and competitive advantages (GREAT commodities) as well as those with low comparative but high competitive advantages (SUNRISE commodities), and MASAT, consisting of goods with low comparative advantages but varying levels of competitive advantage (MATURE and SATURATED commodities). These aggregations are crucial for understanding how different categories of goods might be impacted by tariff changes. The factors of production are aggregated into Land, Labor, Capital, and Natural Resources to simplify the analysis of economic impacts across different sectors.

The research follows a simulation scenario suggested by Kim et al. (2014), in which Sudan reduces tariffs on GRSUN commodities by 11.73%, 5.87%, and 1.9%, while Indonesia maintains its current Most Favored Nation (MFN) tariff schedule. This scenario is designed to assess the potential welfare effects of a proposed bilateral Regional Trade Agreement (RTA). The CGE analysis is expected to provide insights into how these tariff reductions would affect trade flows, production, and overall economic welfare in both countries, offering a basis for policy recommendations on the RTA.

The simulation in RunGTAP3.75 application uses a 2-good, 3-region and 4-factor aggregation. Closures will be amended accordingly. In the dataset, regions are divided into 3 regions:

IDN : Indonesia

SDN : Sudan

ROW : Rest of the World

the commodities are divided into 2 groups:

GRSUN : commodities with high comparative advantage and high competitive advantage and commodities with low comparative advantage and high competitive advantage

MASAT : commodities with low comparative advantage and high/low competitive advantage

the factors are divided into 4 factors:

LAND : land

LABOR : tech_aspros clerks service_shop off_mgr_pros ag_othlowsk

CAPITAL : capital

NATRES : natural resources

The basic experiments in this simulation are the reduction of the import tariff on GREAT and SUNRISE commodities imported by the SDN at:

- 50% reduction of initial import tariff;
- 75% reduction of initial import tariff;
- reduction whereas SDN final import tariff equals IDN import tariff;

With following step:

Variable to shock : tms source-specific change in tax on imports of i from r to s

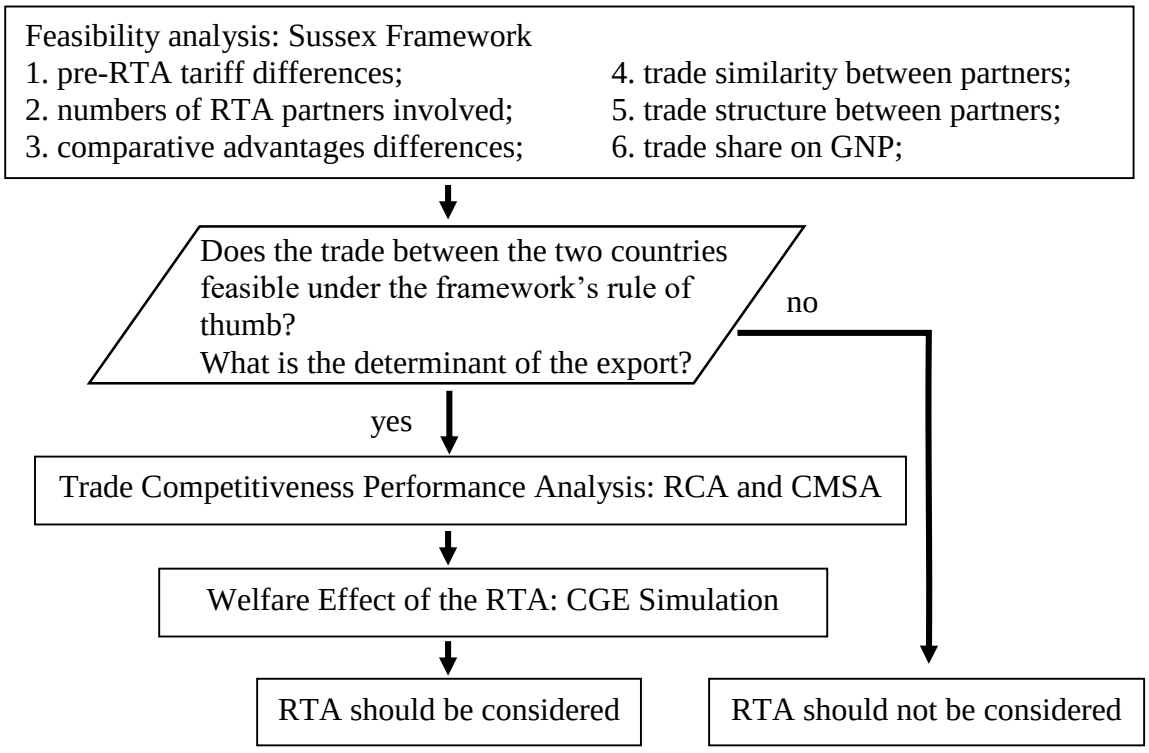
Dimensions : TRAD_COMM*REG*REG

Elements to shock : GRSUN IDN SDN

Solution method for policy analysis is Gragg 2-4-6 extrapolation -- with automatic accuracy if large shocks are undertaken.

The model of the research is best described in the Figure 3.2:

Figure 3.2. Research model



# CHAPTER IV
# RESULT

## 4.1 The Feasibility of Indonesia and Sudan Regional Trade Agreement

### 4.1.1. Rule of thumb 1: tariff differences between RTA partners

Based on WTO (2023b) data, Indonesia simple average final bound tariff is 37.1% for all commodities, but specifically the tariff for agricultural commodities is 47.1% while for non-agricultural commodities is 35.5%. The bound tariff covers 96.3% of Indonesia's imported commodities and specifically it covers 95.8% of Indonesia's total non-agricultural commodities, while it covers all agricultural commodities. For imported agricultural commodities, tariff quotas are applied in 1% of all commodities while special safeguards are applied for 0.7% of all commodities.

Meanwhile since 2019, Indonesia's simple average Most Favoured Nation (MFN) applied tariff has been 8.1% for generally all commodities and specifically 8.7% for agricultural commodities and 8.0% for non-agricultural commodities. Indonesia applied 0 – 5% MFN tariff to half or exactly 50.5% non-agricultural commodities that it imported. Additionally, Indonesia also applied 0 – 5% MFN tariff to 76.7% agricultural commodities that it imported.

In the commodities point of view, Indonesia applied average final bound duties or tariff to its imported agricultural commodities in range from 37.4% for cotton products to 81.3% beverages and tobacco products. In addition, it applied maximal final bound tariff in range from 40% for cotton product to 210% for dairy product. As for non-agricultural commodities, Indonesia applied average final bound tariff in range from 26.4% for textile products to 40.0% for fish products and petroleum. On the other hand, Indonesia applied maximal final bound tariff in general 40% for all non-agricultural commodities except 50% for leather and footwear products as well as 60% for chemical products.

In case of MFN tariff, Indonesia applied tariff in range of 4.0% for cotton products to 43.7% for beverage and tobacco products. Additionally, Indonesia applied maximal MFN tariff in range of 5% for cotton and other agricultural products to 150% for cereal and preparation product as well as for beverage and tobacco products. For non-agricultural commodities, Indonesia applied MFN tariff in range of 26.4% for textile products to 40.0% for fish and petroleum products. Moreover, Indonesia applied maximal MFN tariff of 40% for all non-agricultural commodities except 50% for leather and footwears products and 60% for chemical products. The detailed information of Indonesia's import tariff and duties are shown in table 4.1.

Table 4.1. Indonesia's import tariff and duties

**Part 4.1.1 Tariffs and imports: Summary and duty ranges**

| Summary | Total | Ag | Non-Ag | WTO member since | | 1995 |
|---|---|---|---|---|---|---|
| Simple average final bound | 37.1 | 47.1 | 35.5 | Binding coverage: | Total | 96.3 |
| Simple average MFN applied (2019) | 8.1 | 8.7 | 8.0 | | Non-Ag | 95.8 |
| Trade weighted average (2019) | 5.7 | 5.5 | 5.7 | Ag: Tariff quotas (in %) | | 1.0 |
| Imports in billion US$ (2019) | 170.1 | 20.0 | 150.1 | Ag: Special safeguards (in % ) | | 0.7 |

| Frequency distribution | Duty-free | 0<= 5 | 5<=10 | 10<=15 | 15<=25 | 25<= 50 | 50<=100 | >100 | NAV in % |
|---|---|---|---|---|---|---|---|---|---|
| | Tariff lines and import values (in %) | | | | | | | | |
| Agricultural products<br>Final bound | 0 | 0 | 0.6 | 0 | 0 | 87.5 | 8.6 | 3.2 | 0 |
| MFN applied 2019 | 8.5 | 76.5 | 4.5 | 0.8 | 5.1 | 2.3 | 1.2 | 1.0 | 1.4 |
| Imports 2019 | 36.4 | 48.6 | 10.6 | 0.7 | 3.2 | 0.3 | 0.1 | 0.1 | 7.8 |
| Non-agricultural products<br>Final bound | 2.8 | 0 | 0.0 | 3.6 | 0 | 89.3 | 0.0 | 0.0 | 0 |
| MFN applied 2019 | 13.8 | 50.1 | 16.2 | 10.1 | 8.9 | 0.9 | 0 | 0.0 | 0.0 |
| Imports 2019 | 37.8 | 35.0 | 14.0 | 8.5 | 3.3 | 1.3 | 0 | 0.0 | 0.0 |

**Part 4.1.2 Tariffs and imports by product groups**

| Product groups | Final bound duties | | | | MFN applied duties | | | Imports | |
|---|---|---|---|---|---|---|---|---|---|
| | AVG | Duty-free in % | Max | Binding in % | AVG | Duty-free in % | Max | Share in % | Duty-free in % |
| Animal products | 43.7 | 0 | 50 | 100 | 7.1 | 8.1 | 30 | 0.9 | 2.7 |
| Dairy products | 74.0 | 0 | 210 | 100 | 5.5 | 0 | 10 | 0.7 | 0 |
| Fruit, vegetables, plants | 45.6 | 0 | 60 | 100 | 5.7 | 5.6 | 20 | 1.5 | 0.2 |
| Coffee, tea | 45.3 | 0 | 60 | 100 | 13.2 | 0 | 20 | 0.6 | 0 |
| Cereals & preparations | 44.8 | 0 | 160 | 100 | 7.4 | 9.6 | 150 | 2.8 | 57.6 |
| Oilseeds, fats & oils | 39.9 | 0 | 60 | 100 | 4.4 | 12.0 | 10 | 2.1 | 77.6 |
| Sugars and confectionery | 58.3 | 0 | 95 | 100 | 7.5 | 0 | 20 | 1.0 | 0 |
| Beverages & tobacco | 81.3 | 0 | 150 | 100 | 45.9 | 0 | 150 | 0.5 | 0 |
| Cotton | 37.4 | 0 | 40 | 100 | 4.0 | 20.0 | 5 | 0.7 | 99.9 |
| Other agricultural products | 40.7 | 0 | 60 | 100 | 4.1 | 17.1 | 5 | 1.1 | 31.9 |
| Fish & fish products | 40.0 | 0 | 40 | 100 | 6.3 | 1.4 | 20 | 0.2 | 14.6 |
| Minerals & metals | 38.8 | 0.1 | 40 | 97.7 | 7.1 | 17.7 | 30 | 17.8 | 39.2 |
| Petroleum | 40.0 | 0 | 40 | 100 | 0.2 | 95.8 | 5 | 11.0 | 98.8 |
| Chemicals | 37.9 | 0.1 | 60 | 96.0 | 5.3 | 14.9 | 150 | 13.4 | 22.4 |
| Wood, paper, etc. | 39.4 | 0 | 40 | 100 | 5.0 | 31.1 | 25 | 2.7 | 44.0 |
| Textiles | 26.4 | 0 | 40 | 99.7 | 11.5 | 0.9 | 35 | 4.8 | 1.7 |
| Clothing | 35.0 | 0 | 40 | 100 | 23.9 | 0 | 25 | 0.5 | 0 |
| Leather, footwear, etc. | 39.7 | 0 | 50 | 99.4 | 9.9 | 14.4 | 30 | 2.1 | 13.1 |
| Non-electrical machinery | 35.0 | 6.5 | 40 | 98.3 | 5.4 | 16.2 | 30 | 15.7 | 22.1 |
| Electrical machinery | 30.5 | 23.2 | 40 | 96.5 | 6.0 | 24.9 | 20 | 11.5 | 52.7 |
| Transport equipment | 38.8 | 0 | 40 | 52.8 | 13.5 | 29.2 | 50 | 4.9 | 17.1 |
| Manufactures, n.e.s. | 35.4 | 9.4 | 40 | 87.0 | 7.5 | 8.0 | 25 | 3.5 | 15.8 |

(Source: WTO, 2022b)

On the contrary, WTO (2023b) data on Sudanese tariff profile is very limited whereas simple average final bound tariff is not available. Nonetheless, WITS World Bank data showed that in 2017, simple average tariff of all commodities was 14.28% with coverage of 40% of all commodities imported by Sudan.

Table 4.2. Sudan's import tariff and duties

**Part 4.2.1 Tariffs and imports: Summary and duty ranges**

| Summary | Total | Ag | Non-Ag | Non-WTO member | | |
|---|---|---|---|---|---|---|
| Simple average final bound | n/a | n/a | n/a | Binding coverage: | Total | n/a |
| Simple average MFN applied (2017) | 21.5 | 30.3 | 20.1 | | Non-Ag | n/a |
| Trade weighted average (2017) | 16.0 | 14.9 | 16.4 | Ag: Tariff quotas (in %) | | n/a |
| Imports in billion US$ (2017) | 9.8 | 2.2 | 7.7 | Ag: Special safeguards (in % ) | | n/a |

| Frequency distribution | Duty-free | 0<= 5 | 5<=10 | 10<=15 | 15<=25 | 25<= 50 | 50<=100 | >100 | NAV in % |
|---|---|---|---|---|---|---|---|---|---|
| | Tariff lines and import values (in %) | | | | | | | | |
| Agricultural products Final bound | | | | | | | | | 0 |
| MFN applied 2017 | 3.8 | 5.0 | 6.6 | 0 | 29.1 | 55.4 | 0 | 0 | 0 |
| Imports 2017 | 8.7 | 38.3 | 4.8 | 0 | 30.3 | 17.9 | 0 | 0 | 0 |
| Non-agricultural products Final bound | | | | | | | | | |
| MFN applied 2017 | 8.3 | 21.5 | 21.7 | 0 | 14.3 | 34.2 | 0 | 0 | 0 |
| Imports 2017 | 19.3 | 10.3 | 34.8 | 0 | 8.3 | 27.3 | 0 | 0 | 0 |

**Part 4.2.2 Tariffs and imports by product groups**

| Product groups | Final bound duties | | | | MFN applied duties | | | Imports | |
|---|---|---|---|---|---|---|---|---|---|
| | AVG | Duty-free in % | Max | Binding in % | AVG | Duty-free in % | Max | Share in % | Duty-free in % |
| Animal products | | | | | 34.7 | 4.5 | 40 | 0.1 | 22.2 |
| Dairy products | | | | | 38.7 | 0 | 40 | 0.9 | 0 |
| Fruit, vegetables, plants | | | | | 36.2 | 1.9 | 40 | 1.9 | 38.3 |
| Coffee, tea | | | | | 28.8 | 0 | 40 | 1.3 | 0 |
| Cereals & preparations | | | | | 24.0 | 8.5 | 40 | 9.3 | 6.7 |
| Oilseeds, fats & oils | | | | | 23.6 | 0 | 40 | 3.4 | 0 |
| Sugars and confectionery | | | | | 24.5 | 0 | 40 | 4.2 | 0 |
| Beverages & tobacco | | | | | 40.0 | 0 | 40 | 0.3 | 0 |
| Cotton | | | | | 3.0 | 0 | 3 | 0.0 | 0 |
| Other agricultural products | | | | | 22.8 | 8.8 | 40 | 0.8 | 63.9 |
| Fish & fish products | | | | | 39.6 | 0 | 40 | 0.1 | 0 |
| Minerals & metals | | | | | 23.3 | 2.7 | 40 | 8.1 | 12.9 |
| Petroleum | | | | | 8.4 | 4.8 | 40 | 8.7 | 50.7 |
| Chemicals | | | | | 7.7 | 4.4 | 40 | 12.9 | 19.1 |
| Wood, paper, etc. | | | | | 25.3 | 0.5 | 40 | 3.4 | 0.0 |
| Textiles | | | | | 27.2 | 0.7 | 40 | 4.3 | 1.9 |
| Clothing | | | | | 40.0 | 0 | 40 | 1.8 | 0 |
| Leather, footwear, etc. | | | | | 26.4 | 0 | 40 | 2.3 | 0 |
| Non-electrical machinery | | | | | 7.7 | 47.8 | 40 | 13.3 | 39.1 |
| Electrical machinery | | | | | 16.0 | 2.0 | 40 | 6.0 | 15.8 |
| Transport equipment | | | | | 17.3 | 13.4 | 40 | 14.5 | 1.7 |
| Manufactures, n.e.s. | | | | | 21.3 | 10.4 | 40 | 2.5 | 24.8 |

(Source: WTO, 2022b)

Moreover, Sudan applied simple average MFN tariff for generally all commodities of 21.6%, while it applied the tariff of 30.7% for agricultural commodities and 20.2% for non-agricultural commodities that it imported. Furthermore, Sudan applied MFN tariff of 25 – 50% for 59.4% of agricultural commodities it imported. On the other hand, Sudan applied MFN 25 – 50% for 34.5% of non-agricultural commodities it imported.

In the commodities point of view, Sudan applied MFN tariff for agricultural commodities it imported in range of 3.0% for cotton products to 40.0% for beverages and tobacco products. In addition, Sudan applied maximal MFN tariff of 40% for all agricultural products except 3% for cotton products. Moreover, Sudan applied MFN tariff for non-agricultural commodities it imported in range of 7.7% for chemical products to 40.0% for clothing products. Meanwhile it applied maximal MFN tariff of 40% for all non-agricultural products except 10% for petroleum. The detailed information of Sudan's import tariff and duties are shown in table 4.2.

As comparison, the data showed by GTAP 11 notes that Sudan imposed higher tariff for Indonesian products, even higher than tariff imposed by Sudan to import from the rest of the world. Sudan applied 26.35% tariff on Indonesian agricultural commodities, 20.09% on manufacture commodities, while it imposed 14.50% on world's agricultural commodities and 14.34% on its manufacture commodities. On the contrary, Indonesia imposed low tariff for Sudanese commodities in as much as 4.33% for Sudanese agricultural commodities which is higher than tariff imposed by Indonesia for the import from the rest of the world for agricultural commodities of 3.78%. Moreover, Indonesia imposed 1.03% tariff for manufacture commodities imported from Sudan which is lower than 1.6% tariff imposed on manufacture commodities that Indonesia imported from the rest of the world. Details of the import tariff data showed in the table 4.3.

Table 4.3 Import tariff of destination from source

| Commodities | SDN tariff for | | IDN tariff for | | ROW tariff for | | |
|---|---|---|---|---|---|---|---|
| | IDN | ROW | SDN | ROW | SDN | IDN | ROW |
| Agriculture | 26.35 | 14.50 | 4.33 | 3.78 | 1.24 | 6.25 | 5.67 |
| Manufacture | 20.09 | 14.34 | 1.03 | 1.60 | 0.06 | 2.10 | 1.99 |
| Services | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 46.43 | 28.85 | 5.36 | 5.39 | 1.30 | 8.35 | 7.65 |

(Source: GTAP v11 database and author calculation)

In conclusion, pre-RTA tariff disparities between Indonesia and Sudan are significant, with Sudan imposing higher tariffs on Indonesian exports, while Indonesia applies relatively lower tariffs on Sudanese goods. According to the first Sussex Framework's rule of thumb, these tariff differences create a favorable condition for trade creation between the two countries. By reducing these barriers through an RTA, both nations stand to benefit from increased market access and enhanced trade flows, fostering economic growth and strengthening bilateral ties. This dynamic sets the stage for a mutually beneficial trade agreement that capitalizes on these existing disparities.

### 4.1.2. Rule of thumb 2: the number of RTAs partners

According WTO data (2022a), Sudan is a member of three Regional Trade Agreements (RTAs) namely the Common Market for Eastern and Southern Africa (COMESA), the Global System of Trade Preferences among Developing Countries (GSTP), and the Pan-Arab Free Trade Area (PAFTA). Among these, COMESA is particularly significant. Established by the COMESA Treaty, which was signed on November 5, 1993, and came into force on December 8, 1994, the agreement originally included Sudan and 16 other economies from Eastern and Southern Africa. The treaty laid out a framework for regional economic integration, with member states agreeing to a six-year transition period for implementing a free trade area and a ten-year period for establishing a customs union (COMESA, 2023).

COMESA's trade liberalization efforts focus primarily on tariff reduction and elimination. According to Article 46 of the COMESA Treaty, member states committed to gradually reducing and eventually eliminating tariffs on goods traded within the common market. Additionally, the treaty established rules of origin, which require that goods be either wholly produced within a member state or undergo substantial transformation there to qualify for preferential treatment. This ensures that the benefits of the free trade area are limited to products genuinely originating within the region (WTO, 2022a).

The treaty also addresses non-tariff measures, with member states agreeing to harmonize regulations related to standards, sanitary and phytosanitary measures, and customs procedures. In certain cases, member states are allowed to impose safeguard measures on imports from other members for up to one year, with the possibility of extension pending approval by the COMESA Council. Additionally, the treaty permits anti-dumping and countervailing measures if a member state can demonstrate that another member's trade practices are causing material harm to its domestic industry (WTO, 2022a).

Furthermore, member states may impose temporary prohibitions or restrictions on trade in sensitive commodities, such as arms, ammunition, and items critical to national security, public health, and morality. The COMESA Council of Ministers is also empowered to regulate competition among member states to maintain fair trade practices within the region. To resolve disputes, the COMESA Court of Justice was established, tasked with ensuring compliance with, and proper interpretation of, the COMESA Treaty (WTO, 2022a).

Beyond trade, the COMESA Treaty promotes cooperation in various other sectors, including monetary and financial policy, transportation, communication, industrial development, energy, health, natural resources, agriculture, and tourism. Member states are

also encouraged to harmonize macroeconomic policies to attract investment within the common market, further deepening economic integration (WTO, 2022a).

Despite these ambitious goals, the realization of the COMESA customs union has faced challenges. Although a free trade area was established on October 31, 2000, with nine initial members, and later expanded to include Burundi and Rwanda in 2004, the customs union has not been fully implemented. The customs union was officially launched during the 2009 COMESA Summit in Victoria Falls, Zimbabwe, but difficulties in aligning and harmonizing customs regulations across member states have delayed its full realization (COMESA, 2023).

The Agreement on the Global System of Trade Preferences Among Developing Countries (GSTP), established in 1988, serves as a crucial framework for enhancing trade relations among developing nations. By 2023, the agreement has been ratified or acceded to by 43 countries, including Algeria, Argentina, Bangladesh, Brazil, India, Indonesia, Iran, Malaysia, Mexico, Nigeria, Pakistan, Sudan, Thailand, and Zimbabwe, among others (UNCTAD, 2023). The GSTP's primary objective is to foster increased trade among its member states through the exchange of trade preferences, promoting economic cooperation and development.

One of the key features of the GSTP is its preferential trade agreement structure, which is based on a formula of concession. Member countries are encouraged to offer tariff reductions of at least 20% on approximately 70% of the goods exported within the group. This arrangement aims to make trade more favorable among the signatory nations, allowing them to access each other’s markets with lower barriers, thus stimulating economic growth and diversification (UNCTAD, 2023).

The GSTP agreement also facilitates the expansion of its scope through bilateral, plurilateral, and multilateral negotiations, with the goal of further reducing trade barriers and enhancing cooperation. Additionally, the agreement includes provisions for non-tariff measures, such as safeguard actions to protect domestic industries from serious injury and measures to address significant balance-of-payments difficulties.

Special provisions are also made for least-developed countries, offering them preferential treatment such as duty-free access, the removal of non-tariff barriers, and the negotiation of long-term contracts, thereby supporting their integration into the global trading system (WTO, 2022a). Through these mechanisms, the GSTP provides a platform for developing countries to collaborate more effectively, strengthening their economic ties, and increasing their collective bargaining power in the global economy.

The Pan Arab Free Trade Area (PAFTA), initially signed as the Arab Free Trade Area Agreement on February 19, 1997, by 16 Arab nations, sought to establish a regional free trade

area over a decade following its enforcement on January 1, 1998. The original signatories included Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, the UAE, and Yemen. Later, Algeria and the Palestinian Authority also joined PAFTA (WTO, 2022a).

PAFTA required its members to eliminate non-tariff barriers (NTBs), such as administrative, monetary, financial, and technical barriers, to enhance inter-regional trade. The agreement also stipulated a gradual reduction of tariff barriers, with a 10% annual reduction from 1998 to 2003 and a 20% reduction in 2004 and 2005. The goal was to achieve a fully operational free trade zone by 2007. However, during the 2002 Arab Summit, it was decided to accelerate the process, aiming for zero tariffs among Arab States by 2005, with special preferential treatment for the least developed member states (WTO, 2022a).

Indonesia is a party to thirteen Regional Trade Agreements (RTAs), categorized into regional, bilateral, and multilateral agreements (WTO, 2022a). Within the regional category, Indonesia participates as a member of ASEAN in the ASEAN Free Trade Area (AFTA), alongside RTAs with countries like Australia, New Zealand, China, India, Hong Kong, Japan, and South Korea. Bilaterally, Indonesia has agreements with Chile, EFTA, Australia, Pakistan, and Japan. Multilaterally, Indonesia is part of the Global System of Trade Preferences Among Developing Countries (GSTP).

AFTA, established by the ASEAN Free Trade Agreement signed on December 15, 1995, and effective from May 17, 2010, aims to create a free trade area and promote economic integration in Southeast Asia. The agreement sought to form a single market, attract investment, and enhance intra-regional trade. The core mechanism of AFTA was the Common Effective Preferential Tariff (CEPT) Scheme, which required ASEAN members to lower tariffs on intra-ASEAN trade to a range of 0-5%. By 2010, tariffs were eliminated for most products, with extended deadlines until 2015 for Cambodia, Lao PDR, Myanmar, and Vietnam. The CEPT was later replaced by the ASEAN Trade in Goods Agreement (ATIGA) in 2010, which also addressed technical barriers to trade, sanitary and phytosanitary measures, and temporary concessions (WTO, 2022a; Medina, 2021).

The ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA), signed in 2014 and effective from March 1, 2019, is a key initiative for enhancing economic ties among ASEAN, Australia, and New Zealand. This agreement eliminates tariffs on 90% of goods traded between the member countries, significantly boosting trade volumes. It includes clear rules of origin, specifying that products qualify for preferential treatment if they are wholly produced, have at least 40% regional content value, or undergo a substantial transformation at

the four-digit HS code level. The AANZFTA also addresses non-tariff measures (NTMs) such as customs procedures, sanitary and phytosanitary (SPS) measures, and safeguard measures, which are crucial for facilitating trade and protecting the economic interests of the member states. Additionally, the agreement covers non-trade issues like electronic commerce, intellectual property rights, and dispute resolution, providing a comprehensive framework for deeper economic integration (Medina, 2021).

The ASEAN-China Framework Agreement on Comprehensive Economic Cooperation, signed in November 2002, and amended in 2017, aims to eliminate tariffs on 94.6% of traded commodities. The agreement's rules of origin provisions require that products must be wholly obtained or produced in member states, have at least 40% regional content value, or undergo significant transformation to qualify for tariff reductions. The agreement also addresses NTMs, including SPS measures, technical barriers to trade (TBT), and safeguard measures, ensuring the smooth flow of goods and services. Furthermore, it covers areas such as trade in services, investment protection, and economic cooperation, making it a well-rounded agreement that supports broader economic goals (WTO, 2022a).

The ASEAN-India Framework Agreement on Comprehensive Economic Cooperation, signed in 2003, led to the ASEAN-India Trade in Goods Agreement in 2009, which came into effect on January 1, 2010. This agreement aims to open market access by reducing tariffs to 5% on 10% of traded commodities and eliminating tariffs on 75% of goods. The rules of origin provisions require products to be wholly obtained, produced, or have at least 35% regional content value to benefit from preferential treatment. The agreement also tackles NTMs, including SPS measures, TBTs, and safeguard measures, and includes provisions on dispute settlement, investment, and cooperation in empowering small and medium enterprises (SMEs) (WTO, 2022a).

The ASEAN-Hong Kong, China Free Trade Agreement (AHKFTA), signed on November 12, 2017, and implemented on July 4, 2020, aims to eliminate tariffs on 85% of commodities traded between Hong Kong and select ASEAN countries. For sensitive commodities, the agreement seeks to reduce tariffs to less than 5%, covering 10% of traded commodities with some countries and 20% with others. The rules of origin provisions require products to be wholly produced or have at least 40% regional content value. AHKFTA also includes provisions on NTMs like SPS measures, TBTs, safeguard measures, and anti-dumping measures. Additionally, the agreement covers trade in services, intellectual property rights, economic and technical cooperation, and dispute settlement, further strengthening economic ties between ASEAN and Hong Kong (WTO, 2022a).

The ASEAN-Japan Comprehensive Economic Partnership (AJCEP) was established through a framework agreement signed on October 8, 2003, with the formal agreement signed on April 14, 2008, and entering into force on December 1, 2008. This agreement aimed to eliminate tariffs on 84.5% of commodities traded between ASEAN and Japan. To qualify for these tariff reductions, products must either be wholly produced, comply with specific product rules, have at least 40% regional content, or undergo a substantial change in tariff classification at the four-digit HS code level. The agreement also addresses non-tariff measures, including sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBT), safeguard mechanisms, balance-of-payments measures, and dispute resolution processes. Additionally, it includes provisions on trade in services, investment, intellectual property rights, competition, state-owned enterprises, environmental concerns, and economic cooperation (WTO, 2022a).

Similarly, the ASEAN-Korea Comprehensive Economic Cooperation Framework Agreement was signed on December 13, 2005, and took effect on July 1, 2006. It encompasses the ASEAN-Korea Trade in Goods Agreement, Trade in Services Agreement, and Investment Agreement, with the goal of eliminating tariffs on 90% of traded commodities by 2018. The rules of origin under this agreement are similar to that of AJCEP, requiring products to be wholly produced, comply with specific product rules, contain 40% regional content, or undergo significant tariff classification changes. The agreement also covers SPS, TBT, safeguard measures, anti-dumping measures, countervailing measures, subsidies, and provisions on trade in services, investment, intellectual property, environment, and support for small and medium enterprises (WTO, 2022a).

The Indonesia-Chile Comprehensive Economic Partnership Agreement (CEPA) was signed on December 14, 2017, and implemented on August 10, 2019. This agreement seeks to eliminate tariffs on 89.6% of traded commodities between the two countries. According to the agreement, products must be wholly produced, undergo a significant transformation in tariff classification, follow specific manufacturing processes, or be entirely made from non-originating materials to qualify for preferential treatment. Additionally, the agreement covers non-tariff measures such as sanitary and phytosanitary measures (SPS), technical barriers to trade (TBT), safeguard measures, balance-of-payments measures, anti-dumping, countervailing measures, subsidies, and tariff classification and transposition. A Committee on Trade in Goods was also established to ensure the smooth implementation of the agreement. Beyond trade, the agreement addresses investment, dispute settlement, intellectual property rights, environment, labor, and gender empowerment (WTO, 2022a).

The Indonesia-European Free Trade Association (EFTA) CEPA was signed on December 16, 2018, and came into effect on November 1, 2021. This agreement aims to enhance market access between Indonesia and the EFTA countries, which include Liechtenstein, Switzerland, Iceland, and Norway. The agreement provides for tariff elimination on 93.5% to 99.94% of traded goods. It also covers various non-tariff measures, such as SPS, TBT, safeguard measures, balance-of-payments measures, anti-dumping, countervailing measures, subsidies, and state aid. The agreement includes provisions on dispute settlement, government procurement, intellectual property rights, competition, sustainable development, environment, labor, e-commerce, gender, development cooperation, and capacity building, making it a comprehensive trade and cooperation framework (WTO, 2022a).

Subsequently, the Indonesia-Australia CEPA, signed on March 4, 2019, and implemented on July 5, 2020, aims at reducing or eliminating tariffs in accordance with a scheduled timeline. For Indonesia, the agreement stipulates a maximum transition period of 20 years, while Australia immediately eliminated tariffs on all commodities imported from Indonesia upon the agreement's entry into force. Indonesia, on the other hand, committed to gradually eliminating tariffs on 94.9% of its imports from Australia within the 20-year transition period. The rules of origin provisions dictate that products must be wholly obtained or produced, comply with specific product rules, or be entirely produced using originating materials to benefit from preferential treatment. The agreement also includes provisions on SPS, TBT, safeguard measures, anti-dumping and countervailing measures, subsidies, state aid, customs procedures, trade facilitation, and sector-specific provisions. Furthermore, the agreement extends to trade in services and investment, dispute settlement, government procurement, intellectual property rights, competition, environment, labor, e-commerce, and technical cooperation, thereby establishing a robust partnership framework (WTO, 2022a).

The Indonesia-Pakistan Preferential Trade Agreement (PTA) was signed on February 3, 2012, and came into force on September 1, 2013. The Protocol to Amend the PTA was later signed on January 27, 2018, and implemented on March 1, 2019. The agreement primarily focuses on tariff elimination, where Indonesia agreed to eliminate tariffs on 33.7% of commodities imported from Pakistan, while Pakistan committed to eliminating tariffs on 2.7% of commodities from Indonesia. Additionally, the agreement provides for tariff reductions on 0.4% of commodities imported by Indonesia and 42.2% of commodities imported by Pakistan. The rules of origin under this agreement require products to be wholly obtained or produced, or to have at least 40% local content value to qualify for preferential treatment (WTO, 2022a).

The Indonesia-Japan Economic Partnership Agreement (IJEPA), signed on August 20, 2007, and effective from July 1, 2008, aims to eliminate tariffs on 92.9% of Indonesian imports from Japan and 82.9% of Japanese imports from Indonesia. Indonesia retains tariffs on 618 out of 8,735 tariff lines, ranging from 1.7% to 134.4%, while Japan maintains tariffs on 963 out of 8,912 tariff lines, with rates between 6.9% and 25.8%. To benefit from the agreement, products must be wholly obtained or produced in either country, comply with product-specific rules, or be made entirely from non-originating materials that meet specific criteria. The agreement also includes provisions on sanitary and phytosanitary measures, technical barriers to trade, balance-of-payment measures, safeguard measures, anti-dumping and countervailing measures, subsidies, and state aid. Additionally, it covers trade in services and investment, competition, government procurement, intellectual property rights, environment, and sector-specific and institutional provisions (WTO, 2022a).

The Indonesia-Republic of Korea Comprehensive Economic Partnership Agreement (IK-CEPA) was signed on December 18, 2020, and took effect on January 1, 2023. This agreement seeks to eliminate tariffs on 92% of Korean imports from Indonesia and 95.5% of Indonesian imports from Korea. Products must meet rules of origin criteria, which stipulate that they be wholly obtained or produced in either country, comply with product-specific rules, or be entirely produced from non-originating materials. The agreement also addresses sanitary and phytosanitary measures, technical barriers to trade, safeguard measures, anti-dumping, and countervailing measures, and includes provisions on trade in services and investment, competition, intellectual property rights, the environment, small and medium enterprise empowerment, and economic cooperation (WTO, 2022a).

In conclusion, an Indonesia-Sudan RTA would likely generate indirect benefits for up to 75 other countries and economies involved in broader trade agreements such as PAFTA, COMESA, GSTP, and ASEAN FTA, as well as bilateral RTAs that include Indonesia. According to the second Sussex Framework's rule of thumb, this RTA would likely enhance welfare not only for Indonesia and Sudan but also for these other nations by facilitating broader trade networks and cooperation. By fostering deeper economic ties, the agreement could promote mutual growth and development on a regional and global scale, amplifying its positive impact.

### 4.1.3. Rule of thumb 3: comparative advantage between RTA partners

The Balassa's revealed comparative advantage (RCA) calculation sheds light on the significant comparative differences in the main export commodities between Indonesia and

Sudan. By examining the accumulated trade data over a ten-year period, the research reveals notable discrepancies between the two nations' export profiles. According to the analysis, Indonesia's cumulative RCA for HS2 commodities over the decade amounted to 171.39, while Sudan's cumulative RCA reached 161.59. On average, Indonesia exhibited an RCA of 1.77, slightly higher than Sudan's 1.67. These figures reflect the overall trade patterns and the relative strengths each country holds in certain sectors, suggesting that Indonesia, with its broader industrial base, tends to have a marginally greater comparative advantage in its main exports compared to Sudan.

Moreover, the research identified 13 key commodities that Indonesia exports to Sudan, each contributing more than 1% of Indonesia's total exports to Sudan. The findings indicate that across these 13 commodities, there are wide comparative differences between Indonesia's RCA and Sudan's RCA. On average, the comparative difference between the two countries' RCAs across these commodities is 3.25, with a total comparative difference of 42.27. This gap underscores the competitive advantage Indonesia holds in specific industries when trading with Sudan, further reflected in the RCA analysis provided in Table 4.4. Notable examples include commodity groups like vegetable oils (HS15) and electrical machinery (HS85), where Indonesia's RCA values are substantially higher than Sudan's, illustrating the vast differences in specialization between the two nations.

For instance, Indonesia's export of animal, vegetable, or microbial fats and oils (HS15) to Sudan amounted to $385 million, with an RCA of 20.97, compared to Sudan's RCA of 1.36 for the same commodity. This significant disparity highlights Indonesia's dominance in the export of this commodity, primarily driven by its extensive palm oil industry. The wide comparative difference of 19.61 emphasizes Indonesia's strong competitive edge in this sector. Similarly, for electrical machinery and equipment (HS85), Indonesia's RCA of 0.36, though relatively modest, remains considerably higher than Sudan's RCA of 0.00. This showcases Indonesia's established industrial capacity in electronics and machinery, areas where Sudan's capabilities are far more limited.

In addition to the significant export commodities, Indonesia's competitive advantage extends to products like paper (HS48), apparel (HS62), and machinery (HS84). In each of these categories, Indonesia's RCA values far exceed those of Sudan, underscoring its stronger foothold in these industries. On the other hand, some of Sudan's RCA values, though lower, indicate that Sudan is still competitive in certain niche industries. For example, Sudan's RCA for rubber and articles thereof (HS40) stands at 3.44, higher than Indonesia's, suggesting that Sudan holds a competitive advantage in this particular sector. Despite these occasional outliers,

Indonesia's overall comparative advantage across the 13 commodities remains significant. The calculation of comparative differences between Indonesia's main export commodities to Sudan is shown in Table 4.4.

Table 4.4. Revealed Comparative Advantage Index for Indonesia export to Sudan

| No | HS | Product label | Indonesia's exports to Sudan | | RCA IDN | RCA SDN | Δ RCA |
|---|---|---|---|---|---|---|---|
| | | | US$ 000 | % | | | |
| 1 | 15 | Animal, vegetable or microbial fats and oils and their cleavage products; ... | 385,377 | 42.74 | 20.97 | 1.36 | 19.61 |
| 2 | 85 | Electrical machinery and equipment and parts thereof; sound recorders and reproducers... | 174,210 | 19.32 | 0.36 | 0.00 | 0.36 |
| 3 | 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard | 69,133 | 7.67 | 2.40 | 0.02 | 2.38 |
| 4 | 62 | Articles of apparel and clothing accessories, not knitted or crocheted | 49,427 | 5.48 | 2.11 | 0.00 | 2.11 |
| 5 | 84 | Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof | 41,258 | 4.58 | 0.27 | 0.00 | 0.27 |
| 6 | 21 | Miscellaneous edible preparations | 29,683 | 3.29 | 1.51 | 0.02 | 1.49 |
| 7 | 54 | Man-made filaments; strip and the like of man-made textile materials | 19,224 | 2.13 | 2.24 | 0.01 | 2.23 |
| 8 | 40 | Rubber and articles thereof | 18,829 | 2.09 | 3.44 | 0.00 | 3.44 |
| 9 | 29 | Organic chemicals | 17,895 | 1.98 | 0.66 | 0.05 | 0.60 |
| 10 | 39 | Plastics and articles thereof | 13,843 | 1.54 | 0.41 | 0.02 | 0.39 |
| 11 | 61 | Articles of apparel and clothing accessories, knitted or crocheted | 12,728 | 1.41 | 1.87 | 0.00 | 1.87 |
| 12 | 55 | Man-made staple fibres | 12,172 | 1.35 | 5.83 | 0.02 | 5.80 |
| 13 | 34 | Soap, organic surface-active agents, washing preparations, lubricating preparations... | 9,114 | 1.01 | 1.73 | 0.03 | 1.70 |

Turning to Sudan's main export commodities to Indonesia, the analysis focuses on three key commodities that account for more than 1% of Sudan's total exports to Indonesia. The findings highlight that Sudan has relatively wide comparative differences in these key export sectors compared to Indonesia, with an average comparative difference of 6.84 and a total comparative difference of 20.21, as shown in Table 4.5. These figures reflect the specialized nature of Sudan's economy, which is more dependent on a narrow range of export commodities, particularly in the primary sector.

For example, Sudan's export of mineral fuels and oils (HS27) to Indonesia amounted to $266 million, with an RCA of 1.20, significantly higher than Indonesia's RCA of 0.47 for the same commodity. This indicates that Sudan has a strong comparative advantage in the export of mineral fuels, which is consistent with its resource-rich economy. Similarly, in the oil seeds and oleaginous fruits category (HS12), Sudan's RCA is 19.84, far surpassing Indonesia's RCA of 0.30. This is indicative of Sudan's prominence in agricultural exports, particularly in oil

seeds and related products, where its natural resources and agricultural capacity give it a clear competitive advantage over Indonesia.

However, the research also shows that Sudan's RCA values in other sectors, such as vehicles (HS87), remain relatively low, with an RCA of 0.01, indicating limited competitiveness. Nonetheless, Sudan's RCA for vehicles is still higher than Indonesia's RCA of 0.50, suggesting that despite its smaller industrial base, Sudan is still able to compete in certain industrial sectors, albeit on a much smaller scale than Indonesia.

Overall, the research highlights the asymmetrical nature of the trade relationship between Indonesia and Sudan, with Indonesia holding a stronger comparative advantage in a broader range of commodities. Indonesia's more diversified industrial base allows it to maintain a competitive edge in sectors such as machinery, textiles, and chemicals, while Sudan's comparative advantage is concentrated in a few key sectors, particularly in the export of raw materials and agricultural products. The revealed comparative advantage analysis demonstrates that Indonesia's exports to Sudan are characterized by higher RCA values across multiple industries, reflecting its more developed and diverse economy, whereas Sudan's exports to Indonesia are dominated by a narrower set of commodities with high RCA values.

The research's findings, particularly the RCA values and comparative differences, underscore the structural differences between the two economies. While Indonesia benefits from a diversified industrial economy that allows it to compete in a wide array of sectors, Sudan's economy is more specialized, relying heavily on its natural resources and agricultural output. These differences are reflected in the wide gaps between their respective RCA values, particularly in industries where Indonesia has a well-established industrial base. As a result, the bilateral trade relationship between Indonesia and Sudan is shaped by these comparative differences, with Indonesia exporting a broader range of industrial goods and Sudan focusing on the export of primary goods and raw materials. The calculation of comparative differences between Sudan's main export commodities to Indonesia is shown in Table 4.5.

Table 4.5. Revealed Comparative Advantage Index for Sudan Export to Indonesia

| No | HS | Product label | Sudan's exports to Indonesia | | RCA SDN | RCA IDN | Δ RCA |
|---|---|---|---|---|---|---|---|
| | | | US$ 000 | % | | | |
| 1 | 27 | Mineral fuels, mineral oils and products of their distillation; ... | 266,557 | 50.50 | 1.20 | 1.67 | 0.47 |
| 2 | 12 | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; | 233,530 | 44.24 | 19.84 | 0.30 | 19.55 |
| 3 | 87 | Vehicles other than railway or tramway rolling stock, and parts and accessories thereof | 18,597 | 3.52 | 0.01 | 0.51 | 0.50 |

In conclusion, the revealed comparative advantage analysis offers valuable insights into the trade dynamics between Indonesia and Sudan. It highlights the areas where each country holds a competitive edge and how these advantages shape the flow of trade between the two nations. By identifying the key commodities where these comparative differences exist, the research provides a clearer understanding of the trade relationship and the potential opportunities for each country to leverage its strengths in future trade agreements.

### 4.1.4. Rule of thumb 4: trade similarity between RTA partners

The research furthermore focused on analyzing the trade dynamics between Indonesia and Sudan over a period of 10 years, employing two key indices: the Finger-Kreinin Index (FKI), often referred to as the Trade Similarity Index (TSI), and the Grubel-Lloyd Index (GLI). These indices provide insights into the trade similarities and the extent of intra-industry trade between the two countries.

The Finger-Kreinin Index measures the similarity in trade structures between countries. In this research, the FKI data for Indonesia and Sudan ranged significantly over the 10-year period, with values fluctuating from as low as 0.35 in 2020 to as high as 12.25 in 2015. The average FKI value over the period was calculated to be 2.04. This broad range and relatively low average value suggest that, in general, the trade structures of Indonesia and Sudan are not highly similar, with a few years displaying extreme values. The high value of 12.25 in 2015 could indicate a temporary spike in trade similarity between the two countries during that particular year, while the low value of 0.35 in 2020 suggests a significant divergence in their trade patterns.

The FKI data also exhibits a strong positive skewness of 2.221. Positive skewness means that the distribution is skewed to the right, with a concentration of lower values and a few exceptionally high values. This is consistent with the wide range observed, as most FKI values are relatively low, except for a few outliers like 2015 and 2022 (with an FKI of 4.36). The kurtosis value of 5.291 indicates a leptokurtic distribution, meaning that the dataset is more peaked than a normal distribution and contains more extreme values or outliers. This suggests that, while trade similarity between Indonesia and Sudan is typically low, there are certain years where their trade structures align more closely, but these occurrences are relatively rare.

### 4.1.5. Rule of thumb 5: intra-industry trade between RTA partners

In terms of intra-industry trade, the Grubel-Lloyd Index (GLI) was used to evaluate the trade between Indonesia and Sudan. For Indonesia's exports to Sudan, the GLI values ranged

between 0.52 and 0.58 over the 10-year period, with an average value of 0.55. This suggests a moderate level of intra-industry trade between the two countries, as Indonesia both exports and imports goods that are classified within the same industry. The GLI for Indonesia shows relatively stable intra-industry trade over the period, with only slight fluctuations. The data also reveals a slightly positive skewness of 0.49 and a negative kurtosis value of -0.13, indicating a platykurtic distribution, which means that the distribution has lighter tails than a normal distribution. In other words, there are fewer extreme values, and the data is more spread out, reflecting a stable level of intra-industry trade.

For Sudan's exports to Indonesia, however, the story is quite different. The GLI values for Sudan ranged from 0.06 to 0.24, with an average value of 0.12. This indicates a low level of intra-industry trade from Sudan's side, suggesting that Sudan primarily exports goods in industries where it has a comparative advantage, while importing goods from different industries. The lower GLI values suggest that Sudan's trade with Indonesia is more characterized by inter-industry trade, where the two countries exchange goods that are very different in nature. The data also shows a positive skewness of 0.89 and a positive kurtosis of 0.47, indicating a slightly heavier tail distribution. This means there are a few years with significantly higher GLI values for Sudan, but overall, intra-industry trade remains low.

The differences in GLI indices column, representing the difference between Indonesia's and Sudan's GLI values, further highlight the asymmetry in trade between the two countries. The differences fluctuate between 0.35 and 0.47, demonstrating that while Indonesia engages in moderate intra-industry trade with Sudan, the same is not true for Sudan's exports to Indonesia. This discrepancy reinforces the conclusion that Indonesia has a more diversified and complex trade structure, engaging in both imports and exports within the same industry, while Sudan remains more specialized, focusing on exports from industries where it has a comparative advantage and importing goods it does not produce domestically.

Overall, the combined analysis of the FKI and GLI data over the 10-year period provides a nuanced picture of the trade relationship between Indonesia and Sudan. The low average FKI value indicates that the two countries have different trade structures, with occasional periods of increased similarity. The GLI data reveals that Indonesia's exports to Sudan involve more intra-industry trade, reflecting a more developed industrial base and diversified economy. In contrast, Sudan's trade with Indonesia is largely inter-industry, characterized by a focus on exporting goods in which it has a strong comparative advantage and importing those it does not produce.

The positive skewness and kurtosis observed in both indices reflect the underlying nature of the trade relationship—one where outliers and occasional spikes in similarity or intra-industry trade occur, but the overall pattern is characterized by consistent differences in trade structures and patterns between the two nations. The data implies that while Indonesia's trade with Sudan involves more industrial diversification, Sudan's trade is more narrowly focused, leading to the observed differences in trade indices over the period studied. The data on Finger-Kreinin indices and Gruber Lloyd indices is shown in table 4.6. The complete data on RCA, GLI and FKI of Indonesia and Sudan can be seen in Appendix 2.

Table 4.6. Trade Similarity Index and Intra Industry Trade between Indonesia and Sudan

| Year | Finger-Kreinin Index | Gruber Lloyd Index Indonesia | Gruber Lloyd Index Sudan | Δ Gruber Lloyd Indices |
|---|---|---|---|---|
| 2013 | 1.48 | 0.56 | 0.07 | 0.47 |
| 2014 | 5.07 | 0.58 | 0.24 | 0.35 |
| 2015 | 12.25 | 0.53 | 0.06 | 0.47 |
| 2016 | 1.09 | 0.52 | 0.13 | 0.39 |
| 2017 | 0.90 | 0.53 | 0.13 | 0.41 |
| 2018 | 1.78 | 0.55 | 0.11 | 0.44 |
| 2019 | 1.73 | 0.55 | 0.10 | 0.46 |
| 2020 | 0.35 | 0.52 | 0.08 | 0.44 |
| 2021 | 0.43 | 0.54 | 0.15 | 0.39 |
| 2022 | 4.36 | 0.56 | 0.18 | 0.37 |

Upon observing the trade indicators, the research concludes that the state of bilateral trade between Indonesia and Sudan aligns with the prerequisites for trade creation as outlined in the Sussex Framework's rules of thumb. The trade dynamics, as reflected in the Revealed Comparative Advantage Index, Finger-Kreinin Index and Grubel-Lloyd Index values, suggest that the countries meet the necessary conditions for trade creation, indicating increased efficiency and benefits from trade integration.

### 4.1.6. Rule of thumb 6: trade share to GNP differences between RTA partners

Indonesia's export share to GNP varied between 15.45% and 22.76% over the period of 2013 - 2022, while the import share fluctuated between 13.75% and 21.08%. The total trade share to GNP (the sum of exports and imports as a percentage of GNP) for Indonesia ranged from a low of 29.61% in 2020 to a high of 41.70% in 2013. This trend suggests that Indonesia's trade activity in relation to GNP remained relatively stable, though with a general decline until 2020, likely due to both global and domestic economic factors, before rebounding in 2021 and 2022.

In 2013, Indonesia recorded its highest trade share to GNP at 41.70%, indicating a peak in its trade openness. However, this figure gradually decreased in subsequent years, reaching its lowest point in 2020, a period marked by the global COVID-19 pandemic, which significantly impacted international trade. Despite this downturn, Indonesia's trade share showed a notable recovery in 2021 and 2022, with figures of 37.02% and 41.27%, respectively, suggesting resilience and an eventual return to pre-pandemic levels.

Sudan's trade share to GNP exhibited more volatility compared to Indonesia's, with larger fluctuations, especially in export share. Sudan's export share was highest in 2013 at 64.73%, while the lowest point was observed in 2016 at 9.56%. Sudan's import share to GNP also varied widely, ranging from a low of 16.64% in 2015 to a high of 34.99% in 2020. The total trade share to GNP for Sudan was highest in 2013, at 81.49%, but subsequently declined, hitting a low of 27.69% in 2015 before fluctuating across the years. The data on Indonesian and Sudanese trade share to GNP are described in Table 4.7.

Table 4.7. Indonesian and Sudanese trade share to GNP

| Year | Indonesia | | | Sudan | | |
|---|---|---|---|---|---|---|
| | Export to GNP | Import to GNP | Trade to GNP | Export to GNP | Import to GNP | Trade to GNP |
| 2013 | 20.62% | 21.08% | 41.70% | 64.73% | 16.76% | 81.49% |
| 2014 | 20.45% | 20.70% | 41.14% | 12.78% | 20.00% | 32.77% |
| 2015 | 18.06% | 17.14% | 35.20% | 11.05% | 16.64% | 27.69% |
| 2016 | 16.02% | 15.04% | 31.06% | 9.56% | 24.60% | 34.17% |
| 2017 | 17.17% | 15.96% | 33.12% | 10.70% | 25.93% | 36.63% |
| 2018 | 17.82% | 18.66% | 36.48% | 11.86% | 34.35% | 46.21% |
| 2019 | 15.45% | 15.78% | 31.24% | 13.63% | 26.60% | 40.23% |
| 2020 | 15.86% | 13.75% | 29.61% | 16.29% | 34.99% | 51.28% |
| 2021 | 20.06% | 16.95% | 37.02% | 17.16% | 27.36% | 44.52% |
| 2022 | 22.76% | 18.51% | 41.27% | 11.98% | 20.78% | 32.75% |

Overall, Indonesia's trade share to GNP appears more stable, with minor fluctuations and a steady recovery post-pandemic. In contrast, Sudan's trade share is more volatile, particularly in exports, showing sensitivity to internal and external shocks. Indonesia's trade ratios suggest a balanced trade relationship with the global market, while Sudan's dependency on imports and fluctuating export share highlights its vulnerability to economic and political instability.

In conclusion, while both countries experienced fluctuations in trade shares to GNP, Indonesia's trade remained comparatively steady with modest growth. Sudan, however, demonstrated significant variability, especially in its export sector, which reflects the structural differences between the two economies and the challenges Sudan faces in maintaining

consistent trade levels. Based on the last Sussex Framework's rule of the thumb, differences in trade share to GNP might lead to trade creation for Sudan and Indonesia.

The Sussex Framework's rules provide a robust foundation for this analysis, and the summary of findings, which confirm the presence of these trade creation factors, is presented in Table 4.8.

Table 4.8. Summary of analysis based on the Sussex Framework's rules of thumb

| Indicator | Results |
|---|---|
| Pre-RTAs tariff and non-tariff measurements | High difference in tariff where: Sudan implies 26.36% for agriculture and 20.06% for manufacture products from Indonesia while Indonesia implies 4.21% for agriculture and 2.83% for manufacture products from Sudan. |
| The number of RTA partners | The proposed RTA will only involve Indonesia and Sudan.<br>However, Sudan is party to three RTA, while Indonesia is party to thirteen RTAs in different categories which indirectly will connect to other 75 countries/economies. |
| Revealed Comparative Advantage Index (RCA) | The summation of Indonesia RCA based on accumulative 10-years trade data for HS2 commodities reached 171.19 while the summation of that of Sudan were 160.62. The difference between both countries' RCA was 10.57. |
| Trade similarity index or Finger-Kreinin Index | Trade Similarity showed that for 10 years it has average value of 2.04 with range between 12.25 to 0.35. |
| Inter-industrial index or Grubel-Lloyd index | Grubel-Lloyd indices for Indonesia export to Sudan fluctuated between 0.52 and 0.58 with average value of 0.55.<br>Grubel-Lloyd indices for Sudan export to Indonesia had range of 0.06 to 0.24 with average value of 0.12. |
| Trade contribution to GNP or GDP | Indonesian trade contribution to GNP in 2013 – 2018 ranged between 31.06% – 41.70% with average value of 37.78%. Sudanese trade contribution to GNP at the same period ranged between 27.69% to 81.49% with average value of 42.78%.<br>The Indonesia's share of trade to GDP reached 42.21% in average for period of 2013 to 2022 with range of 32.97% to 49.58%. The share of trade to Sudan GDP was 16.89% in average within range between 2.70% to 26.86% for the same period. |

### 4.1.7. The extent of feasibility of RTA between Indonesia and Sudan

To assess the feasibility of a Regional Trade Agreement (RTA) between Indonesia and Sudan, a systematic weight factor approach was developed, focusing on three key trade indicators: the Revealed Comparative Advantage (RCA) Index, Trade Similarity Index (Finger-Kreinin Index), and Inter-Trade Index (Grubel-Lloyd Index). These indicators provide critical insights into the comparative advantage, trade alignment, and intra-industry trade between the two countries.

The first step in this process was normalizing the indices to allow for meaningful comparisons. The research normalized export performance by dividing export value by total world export value. For the Finger-Kreinin Index and Grubel-Lloyd Index, which have

maximum values of 100 and 1, respectively, normalization was straightforward. The average Finger-Kreinin Index value was 2.04, which was normalized to 0.024. For the Grubel-Lloyd Index, Indonesia's average value was 0.55, while Sudan's was 0.12, reflecting differing levels of intra-industry trade between the two nations.

The RCA Index required a more complex normalization process due to its theoretically infinite maximum value. To address this, a study of 148 countries/economies was conducted to find the maximum RCA average value, which was determined to be 6.78. Using this as a benchmark, Indonesia's average RCA was normalized to 0.26, while Sudan's was 0.24, allowing for a direct comparison of each country's comparative advantage in different sectors. The data of RCA and GLI of 148 countries/economies can be seen in Appendix 3.

After normalization, the next step was to determine the weight assigned to each indicator in the overall RTA feasibility assessment. To achieve this, an Ordinary Least Squares (OLS) regression model was employed to the trade data of 224 bilateral RTAs in order to explore the relationship between normalized export performance and the three normalized trade indicators: Normalized Revealed Comparative Advantage (NRCA), Normalized Finger-Kreinin Index (NFKI), and Grubel-Lloyd Index (GLI). In this model, export performance was the dependent variable, while NRCA, NFKI, and GLI were the independent variables. The regression analysis provided insights into the relative influence of each factor on export performance. The data of 224 bilateral RTAs can be seen in Appendix 4.

The research then utilized R-Studio application to perform OLS regression model and the results using the application are described below.

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---|---|---|---|---|
| -0.0012016 | -0.0003363 | -0.0000957 | 0.0000770 | 0.0156282 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(>\|t\|) |
|---|---|---|---|---|
| (Intercept) | -0.0001122 | 0.0002525 | -0.444 | 0.657 |
| NRCA | -0.0008638 | 0.0006912 | -1.250 | 0.212 |
| NFKI | 0.0032217 | 0.0005652 | 5.700 | 2.19e-08 *** |
| GLI | -0.0002164 - | 0.0003454 | 0.627 | 0.531 |

Significance. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.001211 on 444 degrees of freedom

Multiple R-squared: 0.0966, Adjusted R-squared: 0.0905

F-statistic: 15.83 on 3 and 444 DF, p-value: 8.567e-10

The results of the ordinary least squares (OLS) regression model indicate how well the variables NRCA, NFKI, and GLI predict the export values. The model's residuals, which represent the differences between the observed and predicted export values, are relatively small, with a minimum of -0.0012 and a maximum of 0.0156. The median residual is close to zero, which suggests that the model's predictions are reasonably accurate for most data points.

Looking at the coefficients, the intercept of -0.0001122 is not statistically significant (p = 0.657), meaning that the baseline level of exports when all predictor variables are zero does not provide much explanatory power. The variable NRCA has a negative coefficient (-0.0008638), but it is also not statistically significant (p = 0.212), indicating that NRCA does not significantly affect export levels in this model. Similarly, GLI has a negative coefficient (-0.0002164) and is also not significant (p = 0.531), meaning its impact on exports is likely negligible.

In contrast, NFKI is the standout predictor in this model. With a positive coefficient of 0.0032217 and a highly significant p-value (2.19e-08), NFKI has a strong positive effect on exports, suggesting that as NFKI increases, exports tend to rise, holding other factors constant. This finding is reflected in the t-value of 5.700, which is much larger than the t-values for the other predictors, indicating that NFKI is the primary driver of export variation in this model.

The model's overall fit, as indicated by the R-squared value of 0.0966, is modest, suggesting that about 9.66% of the variability in exports can be explained by NRCA, NFKI, and GLI together. The adjusted R-squared of 0.0905, which accounts for the number of predictors, confirms that this is not a very strong model in terms of explanatory power. However, the F-statistic of 15.83 and its associated p-value (8.567e-10) indicate that the model as a whole is statistically significant, meaning that, collectively, the predictors provide some useful information about export levels, even if the fit is not very high.

Moreover, the research performed classic assumption tests to ensure that the results of the OLS model can serve as best estimator. The research performed Durbin-Watson test, Breusch-Pagan test and VIF test for autocorrelation, heteroskedasticity and multicollinearity. The test results are described below.

dwtest(ols_model)

Durbin-Watson test

data: ols_model

DW = 1.9276, p-value = 0.2017

alternative hypothesis: true autocorrelation is greater than 0

bptest(ols_model)

studentized Breusch-Pagan test

data: ols_model

BP = 9.9855, df = 3, p-value = 0.01869

vif(ols_model)

| NRCA | NFKI | GLI |
|---|---|---|
| 1.368670 | 1.413794 | 1.752702 |

The results of the Durbin-Watson test, Breusch-Pagan test, and variance inflation factor (VIF) values provide insight into how well the OLS model meets the assumptions of classical linear regression. Starting with the Durbin-Watson test, the test statistic (DW = 1.9276) falls close to 2, indicating little to no evidence of autocorrelation in the residuals. The p-value of 0.2017 further supports this conclusion, as it is not statistically significant, meaning we fail to reject the null hypothesis of no autocorrelation. This suggests that the residuals are independent, a desirable property for a well-fitting OLS model.

Next, the Breusch-Pagan test was performed to check for heteroscedasticity, which is when variance of residuals changes across different levels of the predictors. The test statistic (BP = 9.9855) and its associated p-value of 0.01869 suggest that heteroscedasticity is present in the model, as the p-value is below the conventional significance level of 0.05. This violation of the homoscedasticity assumption implies that the variance of the residuals is not constant, which can potentially affect the efficiency of the coefficient estimates, leading to biased standard errors.

Finally, the VIF values for the predictor variables—NRCA (1.37), NFKI (1.41), and GLI (1.75)—indicate that multicollinearity is not a major concern in this model. Typically, VIF values below 5 are considered acceptable, and all three predictors have VIFs well within this range. This means that the explanatory variables do not exhibit problematic levels of correlation with each other, ensuring that the individual coefficients can be reliably interpreted without concerns of inflated standard errors due to multicollinearity.

In summary, while the model passes the tests for autocorrelation and multicollinearity, the Breusch-Pagan test reveals some issues with heteroscedasticity. Addressing this could involve using robust standard errors or considering a transformation of the dependent variable to stabilize the variance, which may lead to more reliable inferences from the model. The adjustments to cope with heteroskedasticity could involve employing Generalized Least Squares (GLS) or robust standard errors to ensure more efficient estimates. Nonetheless, the significant positive roles of NFKI and GLI provide a solid foundation for discussions around

the feasibility of a bilateral trade agreement between the two nations. The complete documentation of the OLS model can be seen in Appendix 5.

The research applied 15 Generalized Least Squares (GLS) models to identify the most suitable weights for each key aspect of the analysis. To determine the best model, several criteria were rigorously evaluated, including the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), log-likelihood, parameter significance (p-values), residual standard error, and the correlation structure. These factors enabled a comprehensive assessment in selecting the model that provided optimal fit, precision, and reliability. A comparative summary of these models is presented in Table 4.9, illustrating which model best aligns with the research's analytical objectives and offers the most robust weighting approach.

Tabel 4.9. The Comparation of GLS Models

| Model | AIC | BIC | Log Likelihood | Residual Std. Error | Significant Variables |
|---|---|---|---|---|---|
| model_gls | -4681.86 | -4661.40 | 2345.938 | 0.001211498 | NFKI ($p < 0.001$), NRCA and GLI are not significant |
| model_gls_het | -5462.59 | -5442.1 | 2736.294 | 688.2111 | NFKI, GLI (both highly significant, $p < 0.001$) |
| model_gls_auto | -4680.55 | -4655.98 | 2346.277 | 0.001211496 | NFKI ($p < 0.001$), NRCA and GLI are not significant |
| model_gls_corr | -4680.55 | -4655.98 | 2346.277 | 0.001211496 | NFKI ($p < 0.001$), NRCA and GLI are not significant |
| model_gls_no_varpower | -4680.55 | -4655.98 | 2346.277 | 0.001211496 | Same as above |
| model_gls_no_corAR1 | -5549.08 | -5524.5 | 2780.538 | 3835.287 | NRCA, NFKI, GLI (all highly significant, $p < 0.001$) |
| model_gls_alt_opt | -5180.25 | -5151.58 | 2597.126 | 45.52418 | NRCA, GLI ($p < 0.001$), NFKI is marginally significant ($p = 0.0912$) |
| model_simple_no_weights | -4681.88 | -4661.4 | 2345.938 | 0.001211498 | NFKI ($p < 0.001$), NRCA and GLI are not significant |
| model_gls_no_correlation | -5549.08 | -5524.5 | 2780.538 | 3835.287 | NRCA, NFKI, GLI (all highly significant, $p < 0.001$) |
| model_gls_log | -5180.07 | -5151.39 | 2597.032 | 143.4608 | NRCA, log_NFKI, log_GLI (all significant) |
| model_gls_more_iter | -5180.25 | -5151.58 | 2597.126 | 45.52418 | NRCA, GLI ($p < 0.001$), NFKI (marginally significant, $p = 0.0912$) |

| | | | | | |
|---|---|---|---|---|---|
| model_gls_custom_ctrl | -5180.25 | -5151.58 | 2597.126 | 45.52421 | Same as model_gls_more_iter |
| model_gls_simplified | -6688.24 | -6307.33 | 3437.122 | $3.63291*10^{-5}$ | NRCA, NFKI, GLI (all highly significant, $p < 0.001$) |

Finally, the research selected model_gls_simplified as the best estimator due to its optimal combination of a low Akaike Information Criterion (AIC), high log-likelihood, and statistically significant predictors. This model effectively captures data patterns through its variance structure across countries, leading to notably low residual errors. The rigorous evaluation showed that model_gls_simplified aligns well with the research's analytical objectives, providing a robust, reliable weighting approach that enhances the model's predictive accuracy. The details of this model, including parameter estimates and error structure, are outlined below to demonstrate its suitability for the research objectives.

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | 4.552720e-06 | 2.078718e-09 | 2190.16 | 0 |
| NRCA | -1.615858e-05 | 6.379137e-09 | -2533.03 | 0 |
| NFKI | 5.689926e-05 | 1.735935e-09 | 32777.30 | 0 |
| GLI | -1.200266e-05 | 3.979858e-09 | -3015.85 | 0 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.966 | | |
| NFKI | -0.363 | 0.163 | |
| GLI | -0.950 | 0.840 | 0.519 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.821881336 | 0.005270591 | 0.174348874 | 0.983790515 | 4.076155983 |

Residual standard error: 3.632909e-05

Degrees of freedom: 448 total; 444 residual

The model fit metrics, including the AIC (-6688.243), BIC (-6307.331), and log-likelihood (3437.122), suggest that the model provides a good balance between complexity and fit to the data, with lower AIC and BIC values indicating a better overall fit. The presence of the AR(1) correlation structure indicates an autoregressive component, addressing the potential serial correlation in the data, particularly in the time series dimension, where the order of data matters. Here, the model assumes that errors from consecutive observations for a given country are

correlated, and the estimated correlation parameter (Phi = 0.23396) suggests the degree of this autocorrelation.

The model incorporates a variance structure where different standard deviations are estimated per stratum (country). The variance function in the model estimates for each country and the estimations indicate the relative spread or variability in the residuals for each country and ultimately reflecting the model's adaptation to the differences in export behavior across diverse economies.

The coefficients for the variables of interest (NRCA, NFKI, and GLI) give us insights into their relationships with exports. The intercept coefficient is incredibly small but statistically significant, likely because of the centering and scaling in the model to handle large variance. The negative coefficient for NRCA (-1.61586e-05) indicates an inverse relationship between NRCA and exports. As NRCA values increase, export performance slightly decreases, controlling for the other variables. However, NFKI shows a positive relationship (5.68993e-05), suggesting that as NFKI increases, exports increase. Similar to NRCA, GLI has a negative coefficient (-1.20027e-05), implying that higher GLI levels lead to lower exports.

One noteworthy observation is the strength of these relationships as reflected in the t-values: NRCA, NFKI, and GLI exhibit exceptionally high t-values in absolute terms (-2533.03, 32777.30, and -3015.85, respectively), indicating that these variables have an incredibly significant impact on the dependent variable, exports. The p-values for all coefficients are effectively zero, underlining their statistical significance.

Another critical aspect of this model is the correlation between explanatory variables. NRCA and NFKI, for instance, have a modest positive correlation (0.163), suggesting that while related, they measure distinct aspects of trade that do not overlap substantially. However, NRCA and GLI are more highly correlated (0.840), suggesting some multicollinearity might be present, though this is not excessively problematic in GLS if properly accounted for.

The residuals from this model are well-behaved, as indicated by the standardized residuals, where the minimum and maximum values are relatively close to zero (-1.82188 to 4.07616). The residual standard error of 3.63e-05, coupled with the high degree of freedom (444), suggests that the model fits the data well, despite minor deviations. The fact that the residuals show only slight deviation from zero in the lower quantiles (Q1 = 0.00527) also points to a good model fit, capturing the underlying patterns in the data.

Ultimately, the GLS model with the AR(1) correlation structure and heterogeneous variance across countries offers a flexible and effective framework to explore the impact of NRCA, NFKI, and GLI on exports. It corrects for potential biases caused by heteroskedasticity

and serial correlation, which might distort the relationships between variables in simpler OLS models. This sophisticated approach thus provides more reliable inferences about the factors affecting exports across countries with varying levels of economic development and trade dynamics.

Eventually, the research decided the weight of each factor based on the GLS model equation which is

Normalized Export = $4.552720*10^{-6} - 1.615858*10^{-5}$ NRCA + $5.689926*10^{-5}$ NFKI – $1.200266*10^{-5}$ GLI;

Based on this equation, the research concluded that trade similarity which indicated by normalize FKI has the strongest relationship that reached 0.00005689926 while comparative advantage that indicated by normalized RCA and trade structure indicated by GLI have inverted relationship that reached 0.00001615858 and 0.00001200266 respectively. The complete documentation of the GLS models can be seen in Appendix 6.

The next step was to normalize these coefficients and convert them into absolute values. This allowed for the removal of negative signs, ensuring all values reflected their absolute influence. The coefficients were then summed, resulting in a total sum of 0.0000850605. Each coefficient was divided by this total sum to determine the weight assigned to each indicator. The weight values obtained were as follows: NRCA received a weight of 0.18997, NFKI was assigned 0.66893, and GLI was given the lowest weight at 0.14111. This indicates that trade similarity, as measured by the Finger-Kreinin Index, plays the most dominant role in determining RTA feasibility between two countries.

With these weights determined, the next phase involved applying them to the normalized values of each indicator for both Indonesia and Sudan. The process began by calculating the weighted scores for each country. For Indonesia, the NRCA value of 0.2604 was multiplied by its weight of 0.18997, resulting in a weighted score of 0.049467. The NFKI value of 0.0314 was multiplied by its corresponding weight of 0.66893, yielding a score of 0.021004. Finally, the GLI value of 0.5440 was multiplied by its weight of 0.14111, giving a score of 0.076762. The total weighted score for Indonesia was 0.147234.

For Sudan, a similar process was followed. The NRCA value of 0.2443 was multiplied by the same weight of 0.18997, resulting in a score of 0.046409. The NFKI value, identical to Indonesia's at 0.0314, was multiplied by its weight of 0.66893, giving a score of 0.021004. The GLI value of 0.1194 was multiplied by the weight of 0.14111, yielding a score of 0.016848. The total weighted score for Sudan was 0.084261.

To calculate the overall feasibility of the RTA between Indonesia and Sudan, the total scores of both countries were averaged. Indonesia's total score of 0.147234 was combined with Sudan's total score of 0.084261, and the resulting sum was divided by two. The final RTA feasibility score was 0.115747 in scale of 0 to 1.

## 4.2 Traded Commodities Competitiveness Performance Analysis

The analysis of Indonesia's traded commodities using the modified Boston Consulting Group (BCG) matrix provides valuable insights into the country's competitive positioning in global markets. This matrix, adapted to evaluate the competitiveness of commodities, categorizes them based on their market share and market growth potential, using Revealed Comparative Advantage (RCA) as the market share axis and the Competitive Market Share Analysis (CMSA) index as the market growth axis.

In this analysis, six Indonesian HS2 commodities have been classified within the GREAT quadrant. These commodities demonstrate both strong market share and high growth potential, making them key drivers of Indonesia's export performance. The GREAT commodities include:

1. Lac, gums, resins, and other vegetable saps and extracts.
2. Animal, vegetable, or microbial fats and oils, and their cleavage products.
3. Footwear and its articles
4. Coffee, tea, maté, and spices.
5. Miscellaneous edible preparations.
6. Musical instruments and its articles

These commodities not only hold significant positions in global markets but also show promising prospects for further expansion. Their robust performance reflects Indonesia's strength in agricultural and processed food products, sectors that are crucial to the country's economic growth and export diversification strategy.

In addition to the GREAT quadrant, thirteen Indonesian HS2 commodities have been identified in the SUNRISE quadrant. These commodities, while currently holding lower market shares, exhibit high growth potential and could become future GREAT with appropriate strategic investments and market development efforts. The SUNRISE commodities include:

1. Vehicles, its parts and accessories;
2. Miscellaneous articles of base metal;
3. Plastics and articles;
4. Organic chemicals;

5. Articles of iron or steel;
6. Essential oils and resinoids; perfumery, cosmetic or toilet preparations;
7. Toys, games and sports requisites; parts and accessories;
8. Miscellaneous manufactured articles;
9. Articles of leather; saddlery and harness; travel goods, handbags and similar containers;
10. Products of animal origin, not elsewhere specified or included;
11. Commodities not elsewhere specified;
12. Printed books, newspapers, pictures and other products of the printing industry;
13. Aluminium and articles.

These SUNRISE commodities represent emerging opportunities for Indonesia, particularly in sectors such as machinery, chemicals, and manufactured goods. With the right strategic focus, these commodities could capture larger market shares, contributing to Indonesia's overall trade growth and economic development. The list of the commodities can be seen in Appendix 7.

On the other hand, Sudan's performance in key commodity markets highlights areas of both strength and growth potential. As detailed in Appendix 8, Sudan has seven commodities classified under varying levels of competitiveness. Three commodities—oil seeds and oleaginous fruits, natural gums, and live animals—are categorized as "GREAT," signifying strong positions in terms of both market share and growth potential. This competitive edge in GREAT commodities reflects Sudan’s established role in these sectors, with room to further reinforce its market presence. Additionally, four commodities—vehicles, paper products, machinery and electrical equipment, and edible fruits and nuts—fall under the "SUNRISE" category. While these SUNRISE commodities currently exhibit a lower market share, they possess significant growth potential. If strategic investments are made in production, quality improvements, and market expansion, these SUNRISE commodities could evolve into Sudan’s future GREAT commodities, transitioning into a stronger market position. Sudan’s focus on nurturing these sectors could help it capitalize on emerging global demand trends. By developing these SUNRISE commodities, Sudan could enhance its export profile, leverage untapped market potential, and strengthen its competitive standing. This strategic approach would not only support economic growth but also diversify Sudan's export portfolio, reducing reliance on its traditional GREAT commodities and allowing for more balanced, resilient trade dynamics.

As commodities with best trade competitiveness performance have been identified, both Indonesia and Sudan could develop specialization on its respective trade to each other and encourage trade creation especially for those 26 commodities which will be liberalize in initial steps in proposed RTA implementation.

### 4.3 Welfare Impact Analysis using CGE Model Simulation

In order to simulate welfare impact of the proposed Indonesia – Sudan regional trade agreement, the research would first modify the aggregated data for the GTAP simulator using GTAPAgg2 application. Inside the application, the unmodified dataset comprised of 3 parts of regional, sectoral, and factorial aggregation.

In regional aggregation, the dataset has 160 regions in this case Indonesia, Sudan and other 158 countries that aggregated into 10 modifiable regions which in default file were Oceania, East Asia, South East Asia, South Asia, North America, Latin America, West Europe, Middle East and North Africa, Sub-Sahara Africa, and Rest of the World.

In sectorial aggregation, the data set comprises of 65 sectors both in goods such as wheat, cereal grains, animal products, oil, gas, mineral, etc, as well as services industries such as electricity, water, transportation, etc. These sectors then would be classified into 2 sectors which comprises of GREAT and SUNRISE (GRSUN) commodities that include other crops, other animal products, fishing, vegetable oils, other foods, wearing apparels, leather and related products, paper and paper products, rubber and plastic products, non-ferrous metals, fabricated metal products, electronic and optical products, electrical equipment, machinery and equipment, motor vehicles, and other manufacturing as well as MATURE and SATURATED (MASAT) commodities that include all the remaining sector. Those commodities are identified in previous sub chapter on competitiveness analysis.

The factorial aggregation comprises of 8 factors namely land, technical and associate professionals, clerks, service/shop workers, officials and managers, agricultural and unskilled, capital, and natural resources. These factors then classified into 4 factors namely land, general labour, capital, and natural resources. The social accounting matrix (SAM) of the aggregation can be seen in Appendix 9.

Prior to scenario execution, the research will observe the tariff applied by Sudan to Indonesia export commodities and vice versa in the GTAP 11 Database. The observation resulted that Indonesia applied 2.56% tariff for Sudanese GREAT and SUNRISE commodities and 2.64% for that of MATURE and SATURATED commodities. On the contrary, Sudan

applied 22.7% for Indonesian GREAT and SUNRISE commodities and 10.8% for that of MATURE and SATURATED commodities.

In the first scenario, the research simulated that Sudanese tariff for GREAT and SUNRISE commodities from Indonesia would be decreased 50% from 22.7% to 11.35%, Indonesian GDP would change 1.31% while Sudanese GDP would change 1.42%. Furthermore, the quantity of Indonesia's great and sunrise commodities export to Sudan would increase 103.12% and that of mature and saturated commodities would decrease 0.12%. On the contrary, the quantity of Sudan's great and sunrise commodities to Indonesia would increase 0.34% while that of mature and saturated commodities would increase 0.25%.

By the implication of the scenario, Indonesia is expected to obtain US$ 10.89 million of welfare impact that consists of US$ 1.32 million of allocative efficiency, US$ 10.72 million of term of trade in goods and – US$ 1.15 million of term of trade in saving and investment. As for Sudan side, it would lose US$ 3.13 million of welfare impact that consists of US$ 1.43 million of allocative efficiency, – US$ 2.48 million of term of trade in goods, and – US$ 2.08 million of term of trade in investment.

Due to the implementation of first scenario, Indonesian import value of great and sunrise commodities from the rest of the world would create trade and yield US$ 10.68 million, while that of mature and saturated commodities from the rest of the world would create trade and yield US$ 11.68 million. For Indonesian import value of great and sunrise commodities from Sudan would create trade and yield US$ 700 while that of mature and from Sudan would yield US$ 73,200. On the other hand, Sudan import value of great and sunrise commodities from Indonesia would create trade and yield US$ 69.31 million but that of mature and saturated commodities would divert trade of US$ 16,900. Sudan imports value of great and sunrise commodities from the world divert trade of US$ 52.73 million while that of mature and saturated commodities from rest of the world would be trade diversion of US$ 4.5 million. Conclusively, the change in volume import would create trade of US$ 69.36 million for both Indonesia and Sudan.

In the second experiment where Sudanese tariff for great and sunrise product from Indonesia would be decreased 75% from 22.7% to 5.68%, Indonesian GDP would change 2.50% while Sudanese GDP would change - 2.41%. Furthermore, the quantity of Indonesia's great and sunrise commodities export to Sudan would increase 196.48% and that of mature and saturated commodities would decrease 0.24%. On the contrary, the quantity of Sudan's great and sunrise commodities to Indonesia would increase 0.68% while that of mature and saturated commodities would increase 0.51%.

By the implication of the RTA, Indonesia is expected to obtain US$ 20.75 million of welfare impact that consists of US$ 2.52 million of allocative efficiency, US$ 20.43 million term of trade in goods and – US$ 2.2 million of term of trade in saving and investment. As for Sudan side, it would lose US$ 11.5 million of welfare impact that consists of – US$ 2.41 million of allocative efficiency, – US$ 4.59 million term of trade in goods, and – US$ 4.15 million of term of trade in investment.

Due to the implementation of second scenario, Indonesian import value of great and sunrise commodities from the rest of the world would create trade and yield US$ 20.36 million, while that of mature and saturated commodities from the rest of the world would create trade and yield US$ 22.4 million. For Indonesian import value of great and sunrise commodities from Sudan would create trade and yield US$ 1,000 while that of mature and from Sudan would yield US$ 147,800. On the other hand, Sudan import value of great and sunrise commodities from Indonesia would create trade and yield US$ 132.05 million but that of mature and saturated commodities would divert trade of US$ 33,700. Sudan imports value of great and sunrise commodities from the world divert trade of US$ 97.81 million while that of mature and saturated commodities from rest of the world would be trade diversion of US$ 9.14 million. Conclusively, the change in volume import would create trade of US$ 132.2 million for both Indonesia and Sudan while it also diverts trade as much as US$ 33,700.

In the third experiment where Sudanese tariff for great and sunrise product from Indonesia would be decrease to equal with Indonesian tariff of 2.56%, Indonesian GDP would change 3.44% while Sudanese GDP would change – 7.38%. Furthermore, the quantity of Indonesia's great and sunrise commodities export to Sudan would increase 267.37% and that of mature and saturated commodities would decrease 0.33%. On the contrary, the quantity of Sudan's great and sunrise commodities to Indonesia would increase 0.95% while that of mature and saturated commodities would also increase 0.71%.

By the implication of the scenario, Indonesia is expected to obtain US$ 28.24 million of welfare impact that consists of US$ 3.44 million allocative efficiency, US$ 27.79 million of term of trade in goods and – US$ 2.99 million of term of trade in saving and investment. As for Sudan side, it would loss US$ 19.23 million of welfare impact that consists of – US$ 6.52 million of allocative efficiency, – US$ 6.91 million of term of trade in goods, and – US$ 5.80 million of term of trade in investment.

Due to the implementation of third scenario, Indonesian import value of great and sunrise commodities from the rest of the world would create trade and yield US$ 27.7 million, while that of mature and saturated commodities from the rest of the world would create trade and

yield US$ 30.28 million. For Indonesian import value of great and sunrise commodities from Sudan would create trade and yield US$ 2,000 while that of mature and from Sudan would yield US$ 205,600. On the other hand, Sudan import value of great and sunrise commodities from Indonesia would create trade and yield US$ 179.69 million but that of mature and saturated commodities would divert trade of US$ 47,000. Sudan imports value of great and sunrise commodities from the world divert trade of US$ 130.93 million while that of mature and saturated commodities from rest of the world would be trade diversion of US$ 12.87 million. Conclusively, the change in volume import would create trade of US$ 179.9 million for both Indonesia and Sudan but divert trade of US$ 47,000. The complete documentation of GTAP application can be seen in Appendix 10.

# CHAPTER V
# DISCUSSION

## 5.1 Feasibility of Regional Trade Agreement between Indonesia and Sudan

### 5.2.1. The elements of shallow integration between Indonesia and Sudan

The feasibility of establishing a Regional Trade Agreement (RTA) between Indonesia and Sudan requires a comprehensive comparison of both countries' economic structures, governmental capabilities, and their potential for integration into global and regional trade systems. By applying a systematic approach that evaluates comparative economic strengths, trade complementarities, and industrial capacities, this discussion delves deeper into the issues of how a potential Indonesia-Sudan RTA could contribute to broader regional economic integration and trade facilitation. However, prior to comparing Indonesian and Sudanese economic structure and governmental capabilities, the research bears in mind the level of economic integration as mentioned in the assessment framework.

Shallow and deep integration are two key concepts in the analysis of regional trade agreements (RTAs), each with distinct characteristics and implications for economic relationships among countries. Shallow integration primarily focuses on the reduction or elimination of barriers to the movement of goods and services across national borders. This type of integration often involves negative integration, where barriers created by national policies are lowered or removed, facilitating trade flows within a region. In contrast, deep integration goes beyond mere barrier reduction by establishing or expanding institutional frameworks that support the seamless movement of production and trade across borders. Positive integration, within this context, involves policies designed to encourage trade and enable the segmentation of production processes and value chains, fostering closer economic ties that transcend national boundaries.

The RTA framework is instrumental in evaluating the impact of any regional trading arrangement by identifying eight key aspects for analysis. These include understanding the economic relationship between partner countries, the type of agreement (e.g., Free Trade Area or Customs Union), and the extent of overlap with other agreements, which could either complement or impede trade. The nature of trade barriers, whether tariff or non-tariff, is crucial, as is the inclusion of deep integration elements like investment rules or competition policies. Additionally, the framework considers the ease of negotiations, WTO compatibility, and the role of donors, who may drive the agreement's agenda. To assess the likely impact of an RTA, various descriptive statistical indicators, such as trade patterns, foreign direct investment (FDI),

indices of comparative advantage, and intra-industry trade indices, can be employed. While these metrics are mostly useful for understanding shallow integration, they can also provide insights into the extent of deep integration achieved by the agreement.

Since proposed Indonesia – Sudan RTA might be classified and South-South RTA, the research will discuss the elements of shallow integration which cover underlying data and tariff barrier. At the end of the chapter, the research will discuss further the elements of deep integration which can serve as foundation for later stage of Indonesia – Sudan economic integration.

The dynamics of international trade and diplomatic relations are often shaped by both historical ties and the evolving nature of global economic partnerships. While contemporary trade agreements such as Regional Trade Agreements (RTAs) play a significant role in shaping economic outcomes for nations, historical trade routes and early diplomatic interactions have laid the groundwork for these modern relationships. The historical connections between nations, as seen in the long-standing relationship between Sudan and Indonesia, however reveal how early trade routes and interactions have established enduring diplomatic and economic ties that continue to influence modern-day agreements.

Diplomatic relations between Sudan and Indonesia were formalized in 1960 (Sajadi, 2019). However, the bilateral relationship between Indonesia and Sudan has much deeper roots, with historical narratives suggesting that it began as early as the 6$^{th}$ or 7$^{th}$ century CE. This early connection was facilitated by the spice trade route, which extended from China and Japan through the Indonesian Archipelago, India, the Arabian Peninsula, the Red Sea, the Nile River, and Egypt, all the way into the Roman Empire (Kwa, 2016). In addition, Park (2022) suggests that maritime silk road routes between the Far East and West Asia to Europe via the Indian Ocean were established long before the 7$^{th}$ century. Furthermore, Gills and Frank (1990) argue that the Nile-Red Sea Corridor, located in Sudan, played a pivotal role in the logistical connection between the Mediterranean and Indian Oceans. Other maritime corridors connecting Asia, Africa, and Europe include key points in the Indian Ocean, such as Ceylon in South Asia and the Malay Peninsula in Southeast Asia (Frank, 1991, cited in Chew and Lauderdale, 2010). These routes facilitated the trade of commodities such as spices from the Indonesian Archipelago and gems and ivory from Sudan, leading to mutual cultural introductions and exchanges.

The historical connections between Indonesia and Sudan laid a strong foundation for future relations, not just in terms of trade, but also in cultural and intellectual exchanges. As the centuries progressed, these interactions continued to evolve, with notable figures and events

further strengthening the ties between the two nations. The influence of Islamic scholars and the shared experiences of anti-colonial struggles provided additional layers of connection, reinforcing a relationship that transcended mere economic interests.

The people-to-people contact between Indonesia and Sudan was further strengthened by the arrival of Sudanese Islamic scholar Al-'Alamah Syeikh Ahmad Surkati Al-Anshori in Indonesia in 1911. He established the Islamic Association Al-Irsyad and played an important role in the modernization of Islamic thought in Indonesia (Al Irsyad, 2022). Specifically, Rusli et al. (2020) highlight Syeikh Ahmad Surkati's contributions to promoting equality among the segregated colonial society, advocating for legal reasoning in Islamic jurisprudence, and encouraging modern academic methods in traditional educational institutions. Another significant milestone in the bilateral relationship was the participation of a Sudanese delegation in the Asia-Africa Conference in April 1955, where the resolution passed by the conference supported Sudan's independence process, leading to its official independence on January 1, 1956 (Kementerian Luar Negeri RI, 2010). These historical figures and events have become cornerstones of mutual understanding between Indonesia and Sudan at all levels of society.

Over the years, Sudan and Indonesia have strengthened their diplomatic ties through various bilateral and multilateral engagements. These interactions have included cooperation in international forums like the Organisation of Islamic Cooperation (OIC) and the Non-Aligned Movement (NAM), where both countries have advocated for the rights and interests of developing nations. Additionally, the exchange of high-level visits and the signing of cooperation agreements in areas such as education, agriculture, and trade have further deepened the relationship (Kementerian Luar Negeri RI, 2010).

Socio-cultural factors also play a significant role in the relationship between the two countries. Both Indonesia and Sudan are Muslim-majority countries, with 87.2% of Indonesia's population and approximately 91% of Sudan's population identifying as Muslim (US Department of State, 2023). As members of the Organization of Islamic Cooperation (OIC), both countries share common Islamic values and teachings as well. Hanif (2021) argues that these commonalities facilitate trade between Muslim communities. Although a study by Lewer and Van den Berg (2007) found that sharing Islamic culture did not significantly enhance or diminish the propensity for international trade, the Standing Committee for Economic and Commercial Cooperation of the OIC (COMCEC) is working to foster trade among OIC member states through the Trade Preferential System among the Member States of the OIC (TPS-OIC). This system, which came into force in 2002, comprises three agreements: the Framework Agreement, the Protocol on Preferential Tariff Scheme (PRETAS), and the Rules

of Origin (COMCEC, 2023). While both Indonesia and Sudan have signed these agreements, only Indonesia ratified the TPS-OIC Framework Agreement according to COMCEC data (COMCEC, 2023).

The strategic geographical positions of both Sudan and Indonesia provide compelling opportunities for enhanced trade relations between the two nations. Their locations on critical global shipping routes, along with their roles as regional hubs, make them valuable partners in international trade. Additionally, their unique economic strengths and export portfolios present significant opportunities for mutual benefit through preferential trade agreements.

Geographically, Sudan is strategically located along the Red Sea, a crucial corridor for global maritime trade connecting Asia and Europe. This prime location is a major pull factor for Indonesia to consider establishing preferential trade agreements with Sudan. The Red Sea serves as a main artery for international shipping, and Sudan's access to this vital route enhances its importance in global trade logistics (CIA, 2022). Furthermore, Sudan's position as a gateway to landlocked countries in Africa—such as South Sudan, the Central African Republic, Chad, and Ethiopia—further amplifies its value as a regional trade hub. This strategic advantage makes Sudan an attractive partner for Indonesia, which could leverage Sudan's location to enhance its trade with these neighboring countries.

Another significant pull factor is Sudan's production of key agricultural products, which are highly sought after in global markets. Sudan is the world's largest supplier of sesame seeds, live sheep, live camels, groundnut oilcake, and solid residues. Additionally, Sudan ranks as the second-largest supplier of natural gum Arabic, the third-largest supplier of frozen sheep carcasses, and the fourth-largest supplier of groundnut oil and melon seeds (International Trade Centre, 2023a). These agricultural products present substantial export opportunities for Sudan, and Indonesia could benefit from tapping into this supply, particularly given the increasing demand for such commodities in Asian markets.

The first step in feasibility analysis, as suggested by Maliszewska et al. (2008), involves assessing trade dynamics to understand a country's economic health. By examining trade surpluses, deficits, and the contribution of trade to GDP, a clearer picture of economic viability and global market position emerges.

Indonesia enjoyed trade surplus in 2022 as much as USD 54.53 billion. It also enjoyed trade surplus at USD 35.89 billion and USD 21.68 billion in 2021 and 2020 respectively. On the contrary, it suffered trade deficit in 2018 and 2019 as much as USD 8.5 billion and USD 3.6 billion respectively. Prior to that, Indonesia enjoyed trade surplus as much as USD 11.8 billion in 2017, USD 8.8 billion in 2016 and USD 7.5 billion in 2015. In 2013 and 2014

Indonesia suffered trade deficit of USD 4.1 billion and USD 2.1 billion respectively. Furthermore, international trade activities contributed to 45.39% of Indonesia's GDP on the year of 2022 (World Bank, 2023a). The main commodities that Indonesia traded to the world were mineral fuel, mechanical machinery, electrical machinery, and palm oil product which contributed to 43.46% of total trade value while its main trade partner were China, Japan, Singapore, and United States of America (US) which constitute 46.27% of total trade value (International Trade Centre, 2023a).

On the contrary, Sudan suffered trade deficit for the last 10 years. Its trade deficit reached USD 3.56 billion in 2018 and USD 3.98 billion in 2019. Sudan continued to have trade deficit of USD 4.38 in 2020, USD 3.45 billion in 2021 and USD 4.28 billion in 2022 (International Trade Centre, 2023a). Sudan's international trade activities contributed 2.7% in its GDP on the year of 2022 (World Bank, 2023a). Main commodities of Sudanese trade were precious metal, mineral fuel as well as vehicle and part that contributed to 41.69% of total trade with main trade partner of China, United Arab Emirates (UEA), India and Saudi Arabia which constituted to 62.96% of its total trade value.

On the macroeconomic matters, Indonesia's economic growth which according to Samuelson and Nordhaus (2010) is reflected from its GDP expansion throughout the years showed a fluctuating trend. According World Bank (2023a), annual GDP growth in 2013 to 2019 was steadily in average 5.11%. On the contrary, Indonesia suffered negative GDP growth in 2020 of -2.07% and bounced back to positive GDP growth in 2021 and 2022 of 3.70% and 5.31% respectively. Indonesia's GDP in current USD reached in 2013 until 2016 reached in average of USD 899 billion, Indonesia's GDP reach USD 1 trillion for the first time in 2017 and between 2017 to 2022 the GDP was in average of USD 1.123 trillion.

On the other hand, Sudan GDP in current USD reached USD 43.02 billion in 2013 and for 10 years it was in average of USD 40.58 billion. It reached USD 51.66 billion in 2022. However, Annual GDP growths in 2013 – 2017 was 2.24% in average in which reach max value of 4.66% in 2014 and min value of 0.71 in 2017. It was continuously at negative level for the next 5 years. Sudan GDP growth reached -2.68% in 2018 and -2.18% in 2019. Further it reached -3.63% in 2020, -1.87% in 2021 and -0.95% in 2022 (World Bank, 2023a).

Demographically, Sudan has also seen significant population growth, which further enhances its potential as a market. In 2013, Sudan had a population of 35,990,704 people, which grew by 30.24% over the next decade, reaching 41,999,059 people in 2022 (World Bank, 2023a). This population growth is coupled with a labor force that increased from 10,162,621 people in 2013 to 13,450,131 people in 2022. However, the unemployment rate in Sudan

fluctuated from 18.04% in 2013 to 17.59% in 2022 with productivity rate reached US$15,221.8 per worker in 2022, indicating challenges in job creation and economic absorption of the growing workforce (SESRIC, 2023). Despite these challenges, the increasing population and workforce represent a growing consumer market for goods and services, creating a pull factor for Indonesia to expand its exports to Sudan.

Sudan's GDP per capita has experienced fluctuations over the past decade. Between 2013 and 2017, Sudan maintained a GDP per capita above USD 1,000, with an average value of USD 1,197.23. However, the next few years saw a decline, with GDP per capita dropping to USD 769.87 in 2018, USD 748.01 in 2019, and USD 608.33 in 2020. Despite these challenges, Sudan's economy showed signs of recovery, with GDP per capita rebounding to USD 749.71 in 2021 and further increasing to USD 1,102.15 in 2022 (World Bank, 2023a). These economic dynamics suggest that while Sudan faces significant economic challenges, it also possesses untapped potential that could be leveraged through enhanced trade relations.

Given this potential, Sudan could serve as a promising non-traditional market for Indonesian products in Africa. The removal of Sudan from the United States' list of state sponsors of terrorism in 2020 has further opened the door for increased trade and economic cooperation, removing one of the significant obstacles that previously hindered trade between Indonesia and Sudan (Abdelaziz, 2020).

On the other hand, Indonesia's strategic location in Southeast Asia, positioned between Asia and Australia and between the Pacific and Indian Oceans, serves as another critical route for global shipping. This geographical advantage makes Indonesia an ideal hub for distributing Sudanese products, particularly its agricultural commodities, to markets in Asia and beyond (CIA, 2022). Additionally, Indonesia's role as a major exporter of various commodities—including processed palm oil, non-agglomerated coal, natural rubber, crude palm oil, ferro-nickel, and non-agglomerated lignite—positions it as a key supplier to Sudan. Indonesia is the world's largest exporter of these commodities, the second-largest exporter of chemical wood pulp, and the fourth-largest exporter of bituminous coal and copper ore (International Trade Centre, 2023a). These export capabilities align well with Sudan's needs, offering a strong foundation for mutually beneficial trade relations.

Indonesia, as the largest economy in Southeast Asia, presents a significant and growing market that offers substantial opportunities for international trade partners, including Sudan. The country's demographic and economic dynamics over the past decade have shaped its role as a key player in the global economy, and these trends underscore Indonesia's potential as a lucrative market for Sudanese exports.

In 2022, Indonesia's population reached 275,501,339 people, marking an 8.78% increase from 2013 when the population stood at 253,275,918 (World Bank, 2023a). This population growth, coupled with a rising labor force, has bolstered Indonesia's economic potential. In 2013, Indonesia's labor force was 122,963,171 people, with an unemployment rate of 4.3%. By 2022, the labor force had expanded to 137,261,220 people, and the unemployment rate had decreased to 3.55% (SESRIC, 2023). These figures reflect the country's ability to generate employment and absorb a growing workforce, which is critical for sustaining economic growth and enhancing consumer demand.

Productivity has also seen notable improvements. According to SESRIC data (2023), Indonesia's output per worker in 2021 was US$25,118.6. This metric highlights the productivity gains achieved by the Indonesian economy, contributing to its overall economic resilience. Productivity growth is essential for maintaining competitiveness in global markets and supporting higher living standards.

When considering GDP per capita, a key indicator of economic prosperity, Indonesia's performance has been mixed but generally positive. The country's GDP per capita in current USD has shown fluctuations over the past decade. Between 2013 and 2015, the average GDP per capita was approximately USD 3,617.23. In 2019, this figure rose to USD 4,151.23, indicating a period of economic expansion. However, the global economic slowdown in 2020 due to the COVID-19 pandemic led to a decline in GDP per capita, which dropped to USD 3,895.62. Despite this setback, Indonesia's economy quickly rebounded, with GDP per capita increasing to USD 4,334.22 in 2021 and further to USD 4,788 in 2022 (World Bank, 2023a). These figures suggest that Indonesia's economic fundamentals remain strong, positioning the country as a resilient and growing market.

Given this economic backdrop, Indonesia represents a significant potential market for Sudanese exports. The combination of a large and growing population, increasing labor force participation, improving productivity, and rising GDP per capita makes Indonesia an attractive destination for Sudanese goods. By tapping into this market, Sudan could diversify its export base and enhance its trade balance with Indonesia, capitalizing on the economic dynamism of Southeast Asia's largest economy. The complete trade dynamic data between Indonesia and Sudan can be seen in Appendix 11.

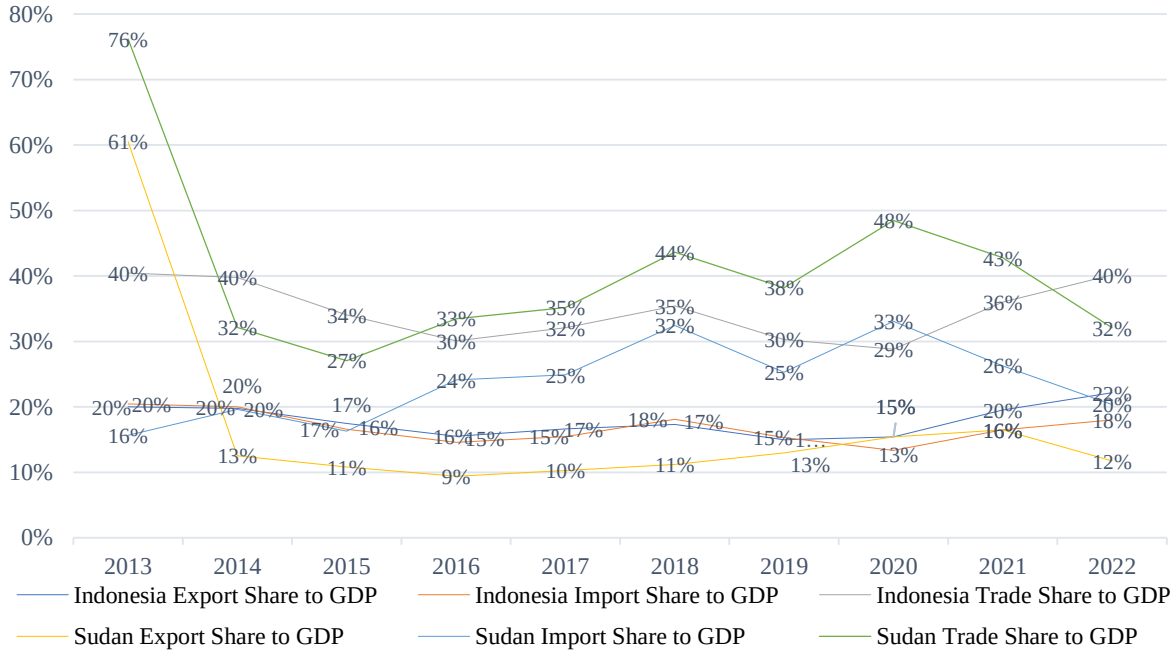
Subsequent step as noted by Maliszewska et al. (2008) is identifying the trade openness of RTAs partners. This step includes assessment of share of export and import to GDP.

The Indonesia’s share of export to GDP reached 17.87% in average for period of 2013 to 2022 with range of 14.98% to 22.14%. The share of import to GDP was in average of 16.83%

for the period of 2013 to 2022 within range of 13.37% to 20.45%. Furthermore, the share of trade to GDP or trade openness for Indonesia reached 34.70% in average with range between 28.79% to 40.46% (World Bank, 2023a).

On the contrary, the share of export to Sudan GDP was 7.18% in average within range between 5.29% to 9.82% for the same period. Meanwhile, the ratio of import to GDP was 14.72% in average with range of 10.86% to 17.92% for the period of 2013 to 2022 (World Bank, 2023a). Meanwhile, the share of trade to Sudan GDP was 16.89% in average within range between 2.70% to 26.86% for the same period. The share of trade to GDP is shown in Chart 4.1.

Chart 4.1. Indonesia and Sudan Trade Openness




Next step as suggested by Maliszewska et al. (2008) is assessing geographical composition of trade which includes calculating trade with neighboring states within the RTA; comparing the discrepancies arises in mirroring data and finding out whether geographical concentration of trade has been reduced. However, the discrepancies between direct data and mirror data are caused by difference in calculation methods whereas exporter will use free on board (FOB) value while the importer will use cost, insurance, and freight (CIF) value and that will lead to discrepancies of 10 - 20% (Maliszewska et al, 2008). For imports, the mirror data reflects FOB values, and direct data reflects CIF values. The discrepancy is calculated when direct data values exceed mirror data values, conversely, for exports, direct data represents FOB values, and mirror data stands for CIF values. The discrepancy is calculated when mirror data values surpass direct data.

Starting with imports, the world discrepancy is 16.53%, with the direct value being higher than the mirror. This pattern continues within the ASEAN region, although the discrepancy varies significantly among member countries. For instance, Laos shows an exceptionally high discrepancy at 482.73%, indicating substantial differences between the reported CIF and FOB values. Conversely, Malaysia and the Philippines exhibit negative discrepancies, suggesting that the mirror (FOB) values exceed direct (CIF) values.

In export analysis, the global discrepancy is negligible at -0.82%, showing minor differences between the direct (FOB) and mirror (CIF) values. However, within ASEAN, the pattern varies significantly. Singapore exhibits a high positive discrepancy of 37.27%, indicating that the mirror (CIF) values are much higher than direct (FOB) values. On the other hand, countries like Cambodia and Malaysia show negative discrepancies, implying that direct (FOB) values are higher than mirror (CIF) values.

The data also highlights some extreme cases, such as Indonesia's discrepancies, which show ∞ due to denominator value in case of export analysis was direct data while in import analysis was mirror data, making it reached infinite number. The data underscores notable inconsistencies in trade reporting between Indonesia and its trading partners, particularly within the ASEAN region (International Trade Centre, 2023a). Indonesia trade data discrepancies is shown in Table 5.1.

Table 5.1. Indonesia Trade Data Discrepancies

| Importers | Average | | Discrepancy | Exporters | Average | | Discrepancy |
|---|---|---|---|---|---|---|---|
| | Direct | Mirror | | | Direct | Mirror | |
| World | 1,002,390,085 | 1,168,046,959 | 16.53% | World | 988,792,085 | 980,798,353 | -0.82% |
| ASEAN | 228,574,177 | 245,614,434 | 7.46% | ASEAN | 263,977,952 | 322,926,839 | 18.25% |
| Brunei DS | 528,626 | 577,157 | 9.18% | Brunei DS | 1,521,475 | 1,450,168 | -4.92% |
| Cambodia | 2,622,651 | 2,290,383 | -12.67% | Cambodia | 144,347 | 89,977 | -60.43% |
| Indonesia | - | 648,297 | ∞ | Indonesia | 648,297 | - | ∞ |
| Lao PDR | 35,523 | 207,002 | 482.73% | Lao PDR | 101,379 | 36,463 | -178.03% |
| Malaysia | 53,042,448 | 51,252,004 | -3.38% | Malaysia | 57,309,115 | 50,350,987 | -13.82% |
| Myanmar | 4,081,627 | 3,901,198 | -4.42% | Myanmar | 766,271 | 612,595 | -25.09% |
| Philippines | 30,349,602 | 27,485,300 | -9.44% | Philippines | 4,799,745 | 4,382,400 | -9.52% |
| Singapore | 83,077,229 | 96,182,414 | 15.77% | Singapore | 121,666,798 | 193,956,306 | 37.27% |
| Thailand | 36,027,306 | 43,890,675 | 21.83% | Thailand | 57,466,763 | 54,797,325 | -4.87% |
| Viet Nam | 18,809,165 | 19,180,004 | 1.97% | Viet Nam | 19,553,762 | 17,250,618 | -13.35% |

Sudan's global import data reveals a significant negative discrepancy of -43%, where CIF values are lower than FOB values. Within the COMESA region, this discrepancy is even larger, reaching -73%. This suggests considerable variations in trade reporting within the region. Individual country data within COMESA shows even more pronounced discrepancies. For

instance, Malawi exhibits an exceptionally high discrepancy of 23388%, highlighting substantial differences between reported values. Other countries, such as Zambia and Zimbabwe, also show large discrepancies of 933% and 10578%, respectively, further indicating inconsistencies in trade data.

On the export side, Sudan's global data shows a negative discrepancy of -12.86%, with CIF values being higher than FOB values. This pattern shifts within COMESA, where the export discrepancy is positive at 4.47%, indicating a slight difference in how these values are reported. Countries like Ethiopia and Uganda have positive discrepancies of 116.58% and 148.05%, respectively, suggesting variations in reported values between FOB and CIF. Conversely, countries such as Zimbabwe display a significant negative discrepancy of -98.61%, and Libya shows a discrepancy of 338.34%, indicating substantial differences in data reporting.

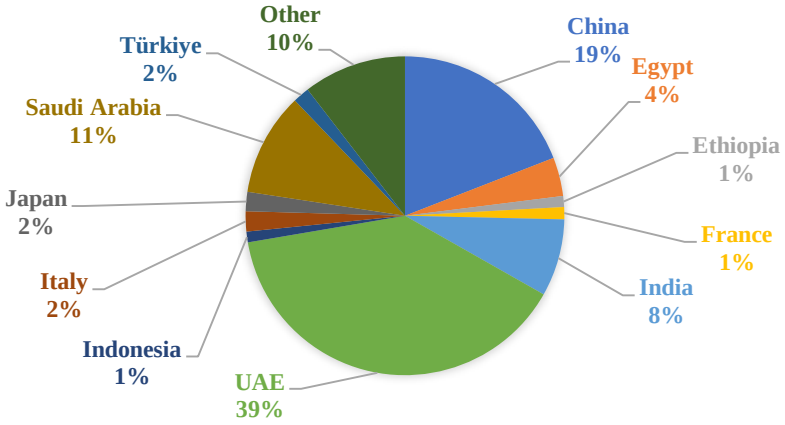
Table 5.2. Sudan Trade Data Discrepancies

| Importers | Average | | Discrepancy | Exporter | Average | | Discrepancy |
|---|---|---|---|---|---|---|---|
| | Direct | Mirror | | | Direct | Mirror | |
| World | 49,682,693 | 28,489,164 | -43% | World | 48,712,652 | 55,904,070 | -12.86% |
| COMESA | 4,337,278 | 1,167,139 | -73% | COMESA | 4,531,202 | 4,337,278 | 4.47% |
| Burundi | 111 | 123 | 11% | Burundi | 12,487 | 28,659 | -56.43% |
| Comoros | 13 | 308 | 2269% | Comoros | 491 | 1,142 | -57.01% |
| Congo DRC | 0 | 117 | ∞ | Congo DRC | 387 | 76 | 409.21% |
| Djibouti | 16,824 | 0 | -100% | Djibouti | 0 | 3,717 | -100.00% |
| Egypt | 2,141,098 | 589,262 | -72% | Egypt | 2,924,888 | 3,132,721 | -6.63% |
| Eritrea | 85,493 | 85,493 | 0% | Eritrea | 0 | 10,058 | -100.00% |
| Eswatini | 18,512 | 4 | -100% | Eswatini | 506 | 97,612 | -99.48% |
| Ethiopia | 586,390 | 407,996 | -30% | Ethiopia | 422,320 | 194,995 | 116.58% |
| Kenya | 49,206 | 52,887 | 7% | Kenya | 387,331 | 393,754 | -1.63% |
| Libya | 7,735 | 7,735 | 0% | Libya | 85,389 | 19,480 | 338.34% |
| Madagascar | 50 | 384 | 668% | Madagascar | 2,501 | 1,569 | 59.40% |
| Malawi | 74 | 1,7381 | 23388% | Malawi | 11,151 | 11,809 | -5.57% |
| Mauritius | 45 | 82 | 82% | Mauritius | 511 | 1,229 | -58.42% |
| Rwanda | 324 | 554 | 71% | Rwanda | 25,138 | 7,155 | 251.33% |
| Seychelles | 258 | 61 | -76% | Seychelles | 3 | 572 | -99.48% |
| Somalia | 8,835 | 8,835 | 0% | Somalia | 0 | 791 | -100.00% |
| Tunisia | 69,728 | 92,394 | 33% | Tunisia | 26,561 | 32,885 | -19.23% |
| Uganda | 22,365 | 3,491 | -84% | Uganda | 628,163 | 253,243 | 148.05% |
| Zambia | 24 | 248 | 933% | Zambia | 1,626 | 19,546 | -91.68% |
| Zimbabwe | 9 | 961 | 10578% | Zimbabwe | 1,749 | 126,265 | -98.61% |
| Cent.Afr. Rep. | 3,362 | 5,641 | 68% | Cent.Afr. Rep. | 26 | 28,196 | -99.91% |
| Saudi Arabia | 3,151,372 | 3,488,579 | 11% | Saudi Arabia | 3,191,987 | 3,653,541 | -12.63% |

Other countries, including Rwanda and Kenya, also present notable discrepancies. Rwanda's data shows a positive discrepancy of 251.33%, while Kenya has a much smaller discrepancy of 7%, indicating closer alignment between reported values. This data underscores the substantial variations in trade reporting practices between Sudan and its global and regional partners, reflecting significant inconsistencies across different countries and regions (International Trade Centre, 2023a). Sudan trade data discrepancies is shown in Table 5.2.

Prior to the identification process, as Maliszewska et al. (2008) suggested, the research will assess trade structure by major partner by examining chronological geographical distribution of export and import to understand which market is the most potential. The last step is examining trade structure by commodities to identify sectoral pattern that will help to identify the sectoral distribution that contribute to trade creation and trade diversion, sectors which are of particular importance to both countries, identify the shift of supplier and finally, identify the shift of sectoral based commodities. Subsequently, the research will examine data trade in period of 2013 – 2022. However, due to the lack of direct data especially for Sudan's trade data, the research will also examine partially mirroring data trade.

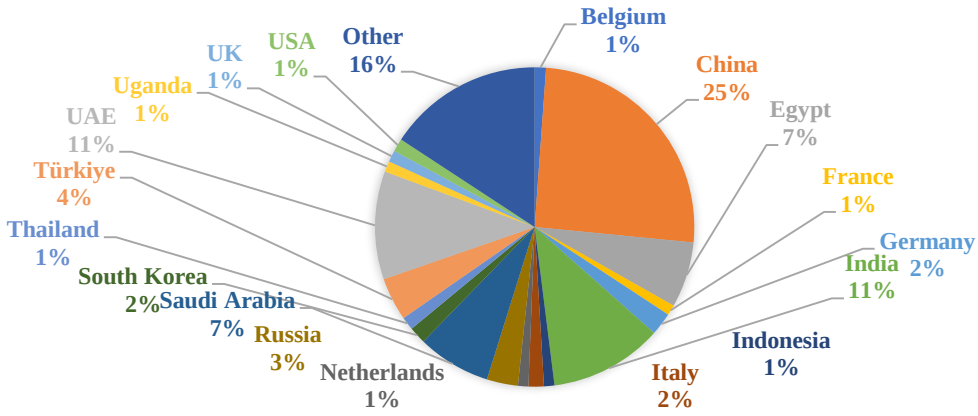
Figure 5.1. Sudan Export by Importing Countries 2013 - 2022




In period of 2013 – 2022, Sudan exported commodities in total value of USD 69.74 billion which represent 0.04% of total world export in the same period, hence Sudan ranked 102nd exporter in the world. The top commodities that Sudan exported among other are mineral fuel, gold, peanut and sesame, livestock; meat, cotton; Arabic gum, peanut oil, sugar, peas, leather, sorghum, copper, and animal feed. The main export destinations for Sudan commodities are UAE, China, and Saudi Arabia which constitute 68.67% value of Sudanese export. Other main export partners that contribute to more than 1% of Sudan export market are India, Egypt, Italy, Japan, Türkiye, France, Ethiopia, and Indonesia. UAE imported mainly gold, animal fodder, peanut and sesame, meat, and livestock. Furthermore, China's main imported commodities

from Sudan among others are mineral oil, peanut and sesame, cotton, and peanut oil. Meanwhile, Saudi Arabia's main imported commodities are livestock, peanut and sesame, live animal, animal fodder and meat These importers absorbed 89.54% of total Sudan export for the period (International Trade Centre, 2023a). Sudan exports by importing countries are shown in Figure 5.1.

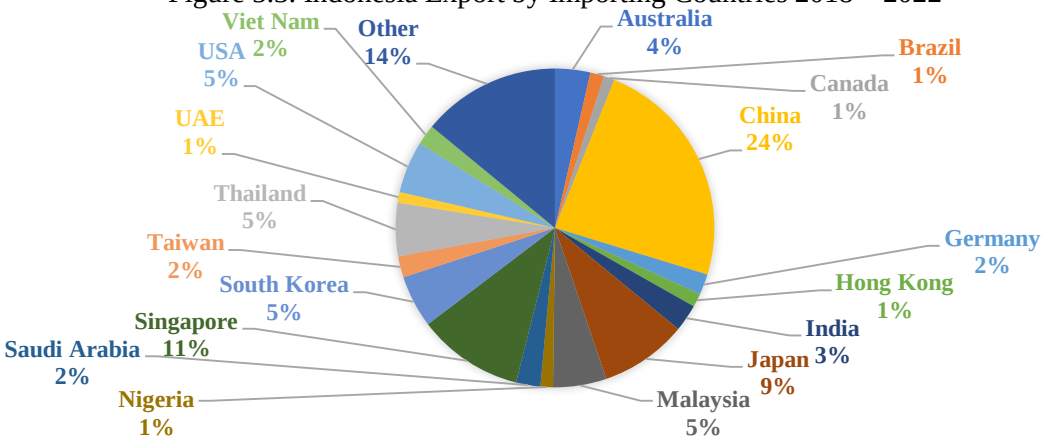
Figure 5.2. Sudan Import by Exporting Countries 2013 - 2022




On the other hand, during period of 2013 – 2022 Sudan's total import value was USD 92.54 billion and contributed to 0.05% of total world import. Sudan ranked 105$^{th}$ as importer with main imported commodities among other are motor vehicle, machinery and mechanical equipment, wheat, petroleum oil, sugar, electrical machinery, pharmaceutical product, plastic, iron and steel, vegetable oil, textile and apparel, rubber product, coffee, tea and spice, fertilizer, paper product, food preparation, foot wear, chemical product, dairy product, aircraft and spare part, and medical equipment. The main exporters to Sudan were China which supplied 25.41% of total value of imported commodities of footwear, tire, textile and apparel, telephone set, motorcycle, heavy-duty equipment and part, iron and steel, construction material, mechanical and electrical machinery, glassware, and furniture. Other main exporters were India which supplied 11.47% of total value of imported commodities of sugar, textile and apparel, medicament, petroleum oil, rice, motorcycle and part, tractor and part, vaccine, footwear, packaging material, and insecticide. UAE followed with 10.94% of total value of imported commodities of jewelry, sugar, petroleum oil, telephone set, motorcycle and part, gold, milk and cream, motor vehicle, tire, generator, electrical machinery, packaging material, polymer ethylene, and data processing machine. Other suppliers that contributed more than 1% of Sudan imports were Saudi Arabia, Egypt, Türkiye, Russia, Germany, South Korea, Italy, Thailand, US, United Kingdom, Belgium, Uganda, Indonesia, Netherlands, and France. These exporters

supplied 84.23% of total value of commodities that imported by Sudan (International Trade Centre, 2023a). The main suppliers to Sudan are shown in Figure 5.2.

Figure 5.3. Indonesia Export by Importing Countries 2018 – 2022




In the period of 2013 – 2022, Indonesia's total export value reached USD 1.8 trillion which represented 0.98% of the world export in that period and Indonesia ranked 29$^{th}$ as exporters in the world. The main commodities that Indonesia exported to the world were mineral oil, palm oil product, electrical machinery, rubber, vehicle, iron and steel, machinery and mechanical appliances, gold, footwear, chemical product, mineral ore, textile and apparel, paper products, fisheries product, furniture, copper, coffee, tea, and spice. Main destinations for Indonesia's export were China, Singapore, Japan, Malaysia, Thailand, South Korea, and USA which constitute 64.65% of total value of export. China mainly imported coal, lignite, palm oil, wood pulp, petroleum gas, iron and steel, copper, rubber, metal ores, industrial alcohols. Indonesia exported mainly petroleum gas and oil, gold, tin, jewelry, palm oil, electrical machine and part, data processing machine, motorcycle part, printing machine and telephone set to Singapore. Japanese import from Indonesia mainly consisted of coal, petroleum gas and oil, copper, precious metal, nickel, rubber, cable, plywood, crustacean, printing machine, paper, and motorcycle part. Malaysia imported coal, petroleum gas and oil, palm oil, copper, chemical product, vehicle spare part, stainless steel, tobacco product, paper, and copper wire. Indonesia exported commodities such as petroleum oil, coal, motor vehicle and part, copper, monitor, copper wire, areca nut, frozen fish, and generator. South Korea imported petroleum gas and oil, coal, copper, rubber, wood product, palm oil, chemical product, iron and steel, and video monitor. USA imported mainly crustaceans, rubber, footwear, palm oil product, tires, apparel, furniture, printing machine, petroleum oil, wood product, jewelry, telephone set, artificial hair, coffee, and cocoa. Other export market for Indonesia which contributed to more than 1% of total export are Australia, India, Saudi Arabia, Taiwan, Germany, Viet Nam, Brazil, Hong

Kong, Nigeria, UAE, and Canada (International Trade Centre, 2023a). Indonesia main export market is shown in Figure 5.3.

During the same period, Indonesia's total imports reached USD 802.16 billion, accounting for approximately 0.90% of total global imports and ranking Indonesia as the 30th largest importer worldwide. The main commodities imported by Indonesia included petroleum products, telecommunications equipment, vehicle and machinery parts, wheat, electronics, gold, vegetable oil, sugar, and various forms of iron and steel. The primary countries supplying these goods to Indonesia were China, Japan, the United States, India, Singapore, and Malaysia, which collectively contributed to 56.61% of Indonesia's total imports.

China was Indonesia's largest supplier, making up 19.6% of its total imports from China alone. Key imports from China were telecommunications devices like telephone sets, data-processing machines, and video displays, along with various heavy machinery, textiles, cables, and steel. Each of these categories accounted for significant import volumes, while other items fell below 1% of the total import value from China.

Japan ranked as another major exporter to Indonesia, supplying primarily automotive parts, iron and steel, passenger vehicles, and printing machines. Together, these constituted 22.45% of Indonesia's imports from Japan. Additionally, imports from Japan included copper, heavy machinery, electrical fuses, tires, pumps, machine parts, and electronic circuits, each of which contributed more than 1% to the total value of imports from Japan.

The United States was also a notable exporter to Indonesia, primarily sending soybeans, fuel gas, cotton, fodder, and wheat. These core imports accounted for 29.57% of Indonesia's total imports from the U.S., with other significant commodities including dairy products, carbonates, turbines, aircraft parts, machinery parts, wood pulp, flour, food preparations, pumps, and yarn, each contributing over 1% to the total value of imports from the U.S.

India's exports to Indonesia primarily consisted of petroleum oil, groundnuts, sugar, iron and steel, frozen meat, motor vehicles, and coloring materials, making up 36.88% of the total value of Indonesian imports from India. Additional imports from India included machinery parts, cotton, corn, wheat, pepper, zinc, and boilers, each contributing at least 1% of the total import volume from India.

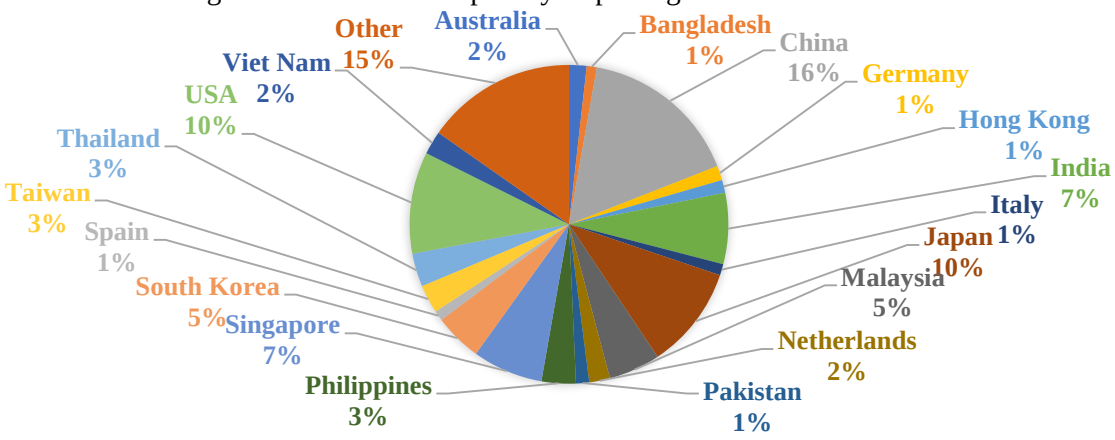
Singapore provided mainly petroleum fuel, propylene plastics, and gold, constituting 56.22% of Indonesia's total imports from Singapore. Other significant imports from Singapore included electronic circuits, ethylene plastic, telephone sets, fragrances, chemicals, data-processing machines, and various electrical equipment.

Malaysia's primary exports to Indonesia were petroleum oil, ethylene plastics, and organic chemicals, accounting for 46.55% of Indonesia's imports from Malaysia. The remaining portion consisted of other diverse products.

In addition to these key suppliers, countries contributing between 1% and 5% of Indonesia's total imports included South Korea, the Philippines, Thailand, Taiwan, Vietnam, the Netherlands, Australia, Germany, Pakistan, Hong Kong, Italy, Bangladesh, and Spain (International Trade Centre, 2023a). This wide network of trading partners illustrates Indonesia's diverse import portfolio, reflecting the country's demand for various industrial, agricultural, and consumer goods essential to its economy.

The distribution of Indonesia's imports by country is visually represented in Figure 5.4. This detailed view underscores the substantial role that both regional and international partners play in Indonesia's trade landscape, meeting the demands of an increasingly diversified economy and supporting sectors across manufacturing, agriculture, and services.

Figure 5.4. Indonesia Import by Exporting Countries 2018 – 2022




Sudan's primary export commodities from 2018 to 2022 consisted of precious metals (especially gold), mineral fuels and oils, oilseeds and oleaginous fruits (such as peanuts, sesame, and alfalfa), live animals (mainly sheep, camels, and cattle), cotton, Arabic gum, and meat. These six categories made up 94.83% of Sudan's total exports during this period. Gold, in particular, dominated Sudan's export market, with 97.87% going to the UAE, along with smaller amounts exported to Canada, Italy, and Türkiye.

Mineral fuels and oils were another key export, with China receiving 48.08%, followed by India (22.05%), Japan (8.03%), and Italy (6.15%). Additional export destinations for this category included Ethiopia, Malaysia, Indonesia, Singapore, the Netherlands, the U.S., and South Korea. Oilseeds and oleaginous fruits were largely exported to China, India, Egypt,

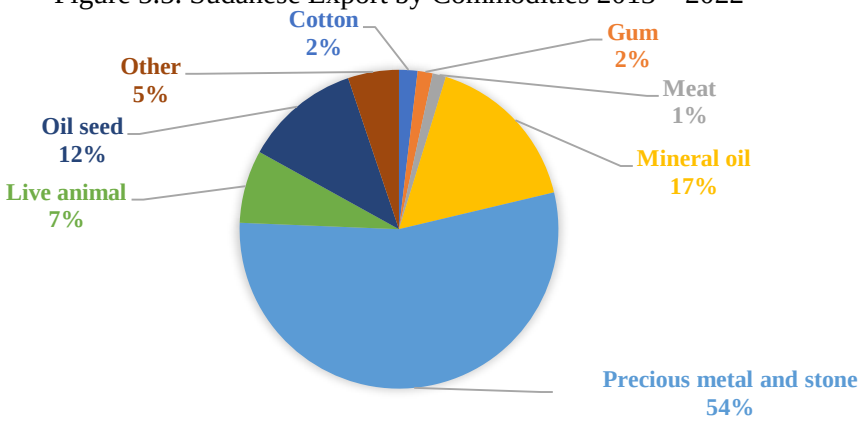
Saudi Arabia, and the UAE, making up 72.58% of the category's total export value. Smaller shares were shipped to Türkiye, Lebanon, Jordan, Indonesia, Greece, Tunisia, and Qatar.

Live animals from Sudan were mainly exported to Saudi Arabia, which accounted for 84.17% of the export value in this category, followed by Egypt with 12.19%. Additional markets included Qatar, the UAE, and Oman. Cotton exports went primarily to Egypt, China, and Türkiye, constituting 86.62% of total cotton export value, with smaller amounts sent to Pakistan, India, and Germany.

The primary buyers of Sudanese Arabic gum were France, the U.S., India, Germany, and the UK, comprising 81.19% of the total value of Arabic gum exports. Other markets included Japan, Italy, China, Slovakia, and Ethiopia. Sudan's meat exports were directed mainly to Egypt, the UAE, Saudi Arabia, Kuwait, and Qatar, which collectively accounted for 86.78% of this category's export value (International Trade Centre, 2023a).

Figure 5.5. provides a visual overview of Sudan's export commodities, highlighting the dominance of these sectors and illustrating the country's trade reliance on a handful of high-demand products and regional trading partners. This export profile reflects Sudan's specialization in natural resources and agricultural products, catering to diverse markets across Asia, the Middle East, and Europe.

Figure 5.5. Sudanese Export by Commodities 2013 – 2022



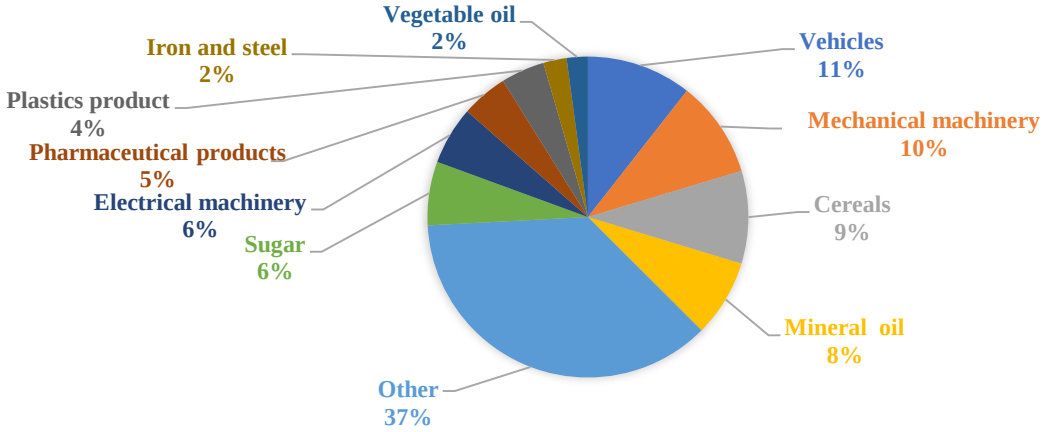

On the other hand, Sudan's primary imports from 2013 to 2022 were concentrated in ten main commodities, which together accounted for 63.31% of total imports. These commodities included vehicles and parts, mechanical machinery, cereals, mineral fuels, sugar, electrical machinery, pharmaceuticals, plastic products, iron and steel, and vegetable oils. Vehicles and parts were predominantly imported from Saudi Arabia, China, and the UAE, contributing 58.61% of the total value. Other suppliers included India, South Korea, Japan, Türkiye, Thailand, Germany, the Netherlands, Qatar, and the UK.

For mechanical machinery, Sudan's main suppliers were China, the UAE, India, Türkiye, Italy, and Germany, collectively making up 69.17% of these imports. Additional suppliers included South Korea, Saudi Arabia, the UK, Egypt, France, Thailand, the Netherlands, the U.S., and South Africa, each contributing over 1% of Sudan's machinery imports. Cereals were largely sourced from Russia, Australia, and Romania, which together represented 57.57% of imports, with additional contributions from Canada, the U.S., Germany, India, Ukraine, Lithuania, Bulgaria, and Brazil.

Mineral fuels came primarily from Saudi Arabia, the UAE, India, and the UK, comprising 77.34% of Sudan's imports in this category. Additional suppliers were Malaysia, Iran, Egypt, Libya, Türkiye, and Russia. Sugar was largely supplied by India, the UAE, and Thailand, accounting for 80.57% of imports, with Egypt, Saudi Arabia, and Brazil supplying smaller shares. Electrical machinery imports were dominated by China, the UAE, and Türkiye, contributing 68.51%, while smaller shares came from Saudi Arabia, Indonesia, India, South Korea, Sweden, Italy, Germany, the UK, and Egypt.

Pharmaceutical products were primarily imported from India, Belgium, Switzerland, and Jordan, which together made up 49.45% of Sudan's imports in this sector. Other suppliers included Saudi Arabia, Egypt, France, China, the Netherlands, the UK, Germany, the U.S., the UAE, Italy, South Korea, Cyprus, and Sweden. Plastic products were mostly sourced from China, Egypt, India, and Türkiye, covering 80.79% of this category, with minor contributions from South Korea, the Netherlands, and Indonesia.

Figure 5.6. Sudanese Import by Commodities 2013 – 2022




Iron and steel were primarily imported from China, Egypt, Indonesia, and Türkiye, which together accounted for 83.62% of imports. Vegetable oils were largely supplied by Indonesia, Türkiye, and Egypt, making up 74.97% of Sudan's imports in this category, with additional imports from the U.S., Malaysia, Ukraine, Kenya, and Singapore (International Trade Centre,

2023a). Figure 5.6. provides a detailed breakdown of Sudan's import composition across these commodity categories.

Indonesia's primary export commodities cover a diverse array of products that significantly contribute to its economic profile, led by mineral fuels, vegetable oils, iron and steel products, electrical machinery and parts, rubber, vehicles, machinery and mechanical appliances, and precious metals. These core exports account for approximately 57.87% of Indonesia's total export value, underlining their importance to the nation's trade balance. Mineral fuels and oils alone comprise 22.66% of total exports, while vegetable oils add another 12.25%. Other notable contributions, ranging between 5.38% and 2.10% of total export value, come from iron and steel, electrical machinery, and rubber. Together, these products embody Indonesia's strategic focus on sectors with substantial demand in both regional and global markets.

In addition to these dominant sectors, Indonesia also exports a variety of other goods, each contributing between 1% and 3% of total exports. These include footwear, chemical products, metal ores, wood products, paper products, apparel, fisheries products, organic chemicals, plastics, cellulosic pulp, yarn and fabric, furniture, and copper. The diversity of these smaller yet significant sectors reflect Indonesia's broad manufacturing and natural resource base, adding resilience to its export economy.

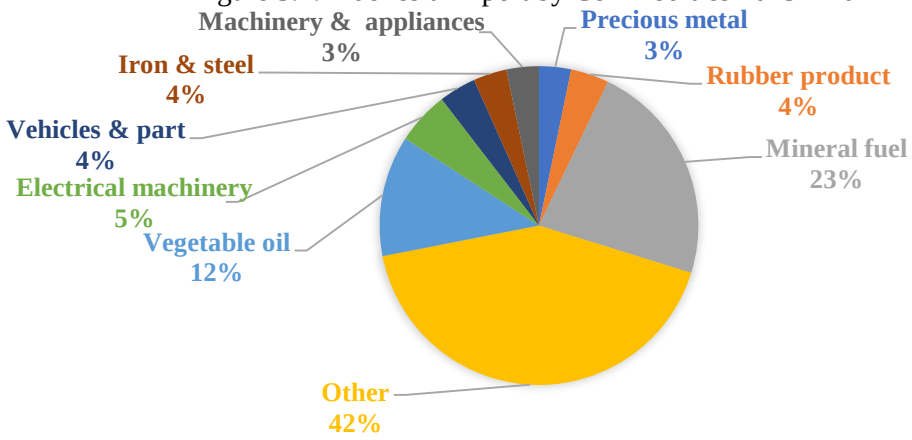
Indonesia's mineral fuels and oils are heavily exported to key Asian markets. Around 91.82% of these products are shipped to China, Japan, India, Singapore, South Korea, Malaysia, Taiwan, Thailand, and the Philippines. Smaller markets include Hong Kong, Australia, Vietnam, and the United States. Vegetable oils, another high-value export, reach 68.66% of their market in countries like China, India, Pakistan, the United States, Malaysia, Bangladesh, Egypt, Spain, Vietnam, and Russia, with smaller volumes going to the Netherlands, Myanmar, Italy, the Philippines, South Africa, Djibouti, Saudi Arabia, South Korea, and Brazil.

Indonesia's electrical machinery and parts are mainly exported to Singapore, the United States, Japan, Hong Kong, Thailand, and South Korea, accounting for 61.07% of the export value in this category. Lesser volumes are distributed among Malaysia, China, France, Vietnam, the Netherlands, Australia, the Philippines, Germany, Poland, India, the UAE, Taiwan, Mexico, and the United Kingdom. Rubber, another notable export, finds its largest consumers in the United States, Japan, China, India, Canada, South Korea, Mexico, the Netherlands, and Germany, representing 70.41% of total rubber export value. Smaller amounts go to countries such as Türkiye, Brazil, Malaysia, Thailand, the Philippines, Vietnam, Australia, Taiwan, Romania, Slovenia, Italy, and Poland.

Indonesia's vehicles and vehicle parts primarily reach the Philippines, Thailand, Saudi Arabia, Vietnam, Japan, Malaysia, Mexico, Singapore, the United States, the UAE, and Brazil, totaling 78.62% of the sector's export value. Additional smaller markets include India, Pakistan, China, South Africa, and Oman. Iron and steel exports are concentrated in China, Taiwan, India, South Korea, Malaysia, Vietnam, and Italy, which together import 89.52% of these goods, with Thailand, Türkiye, and the Philippines as secondary destinations.

For machinery and mechanical appliances, Singapore, Japan, the United States, and Thailand are major destinations, importing 50.76% of these products, while additional markets include Germany, Malaysia, the Philippines, Australia, Vietnam, China, India, South Korea, Russia, Taiwan, the UK, the UAE, and Brazil. Lastly, precious metals are predominantly shipped to Singapore, Switzerland, Japan, and Hong Kong, constituting 78.89% of the export value in this sector, with smaller exports to the United States, UAE, Taiwan, South Africa, Australia, Jordan, and India (International Trade Centre, 2023a). Indonesian export by commodities is shown in Figure 5.7.

Figure 5.7. Indonesia Export by Commodities 2013 – 2022

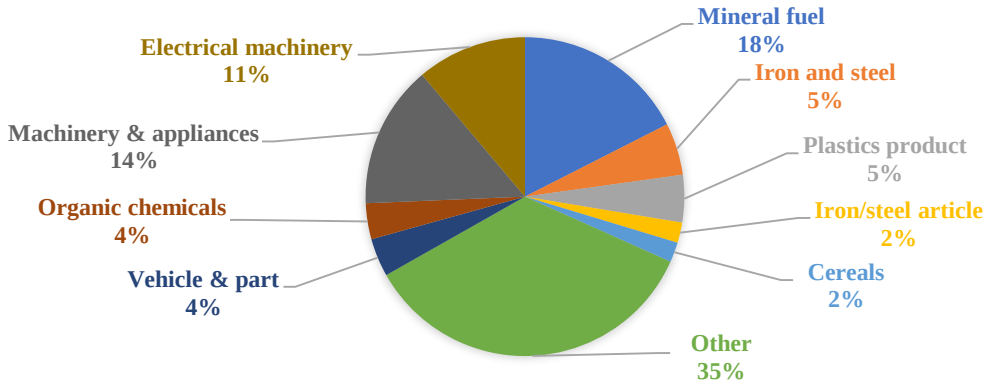



According to International Trade Centre data (2023a), Indonesia imported mainly mineral fuel, machinery, and mechanical appliance; electrical machinery, iron and steel, plastics product, vehicles and part, organic chemical, iron/steel article, and cereal. These commodities contributed to 64.89% of Indonesian total import value. Other commodities that contributed to more than 1% of total import value were animal fodder, precision tool, chemical product, sugar, cotton, rubber, fertilizer, inorganic chemical, and aluminum product. Indonesia imported more than half or 63.18% of mineral fuels mainly from Singapore, Malaysia, Saudi Arabia, and Nigeria while other portion was imported from South Korea, UAE, Australia, US, Qatar, Azerbaijan, China, India, Kuwait, Angola, and Algeria.

As for machinery and mechanical appliances, China and Japan supplied more than half of import value or 53.53% while other suppliers were Thailand, Singapore, Germany, US, South Korea, Malaysia, Italy, Taiwan, India, and Viet Nam. More than half or 63,21% of Indonesia's need for electrical machineries were supplied by China, Singapore and Japan with other suppliers were South Korea, Viet Nam, Taiwan, Malaysia, Thailand, Hong Kong, US, Germany, Philippine, and Finland. Moreover, the need for iron and steel were supplied mainly by China, Japan and South Korea which contributed to 52.48% of the import value, while another portion was imported from South Africa, Russia, Viet Nam, India, Taiwan, Malaysia, Singapore, Oman, Australia, Ukraine, UAE, Thailand, and Brazil.

Indonesia imported plastic product mainly from China, Singapore, Thailand, Malaysia, and South Korea that constituted 65.15% of import value and supplied by Japan, US, Saudi Arabia, Taiwan, Viet Nam, Germany, India, UAE, and Hong Kong as well. Vehicle and part were supplied mostly by Japan, Thailand, and China with 70.21% of total import value while India, Germany, South Korea, Viet Nam, US, Malaysia, Singapore, Sweden, Philippine, and Taiwan also supplied small portion of this commodity. As for organic chemical, the main suppliers were China, Singapore, Malaysia, and India that cumulatively supplied 57.38% of total import while Thailand, Japan, Saudi Arabia, South Korea, US, Taiwan, Germany, Italy, Belgium, Oman, Kuwait, and Switzerland also contributed to Indonesia's import of this commodity.

Figure 5.8. Indonesia Import by Commodities 2013 – 2022




Indonesia imported iron and steel article mainly from China, Japan and Singapore which contributed to 61.58% of total import value with other portion was supplied by South Korea, Germany, Thailand, Malaysia, US, Australia, Italy, Taiwan, Viet Nam, Spain, and India. 68.61% of cereal import value were supplied by Australia, Canada, Ukraine and Argentine

while other portion was imported from US, India, Brazil, Thailand, Viet Nam, Russia, and Pakistan. Indonesia's trade by commodities is shown in Figure 5.8.

Based on the data obtained from the Ministry of Trade of the Republic of Indonesia and Central Statistics Bureau of the Republic of Indonesia as shown at table 5.1, total bilateral trade in 2022 reached US$ 143.4 million and increased 4.82% compared to that of 2020. Indonesia's export from Sudan declined 11.36% y-o-y while Indonesia's import to Sudan increased 124.69% y-o-y. In more detail, the bilateral total trade in 2022 consists of US$ 106.9 million of Indonesia's export and US$ 36,4 million of Indonesia's import from Sudan as shown in Table 5.3.

Table 5.3. Trade Balance between Indonesia and Sudan 2016 – 2021

(in US$ million)

| Particular | 2018 | 2019 | 2020 | 2021 | 2022 | Trend 18-22 | Change 22/21 |
|---|---|---|---|---|---|---|---|
| **Total Trade** | **331.6** | **213.1** | **181.9** | **136.8** | **143.4** | **-19.11%** | **4.82%** |
| Oil & Gas | 195.7 | 0.5 | 39.8 | 0 | 0 | 0% | 0 |
| Non-Oil & Gas | 135.9 | 212.6 | 142.1 | 136.8 | 143.4 | -3.29% | 4.82% |
| **Export** | **89.6** | **102.3** | **114.4** | **120.6** | **106.9** | **5.32%** | **-11.36%** |
| Oil & Gas | 0.7 | 0.5 | 0.1 | 0 | 0 | 0% | 0 |
| Non-Oil & Gas | 88.9 | 101.8 | 114.2 | 120.6 | 106.9 | 5.54% | -11.36% |
| **Import** | **242** | **110.8** | **67.5** | **16.2** | **36.4** | **-43.51%** | **124.69%** |
| Oil & Gas | 195 | 0 | 39.7 | 0 | 0 | 0% | 0 |
| Non-Oil & Gas | 47 | 110.8 | 27.8 | 16.2 | 36.4 | -21.61% | 124.69% |
| **Trade Balance** | **-152.4** | **-8.6** | **46.8** | **104.5** | **70.5** | **0%** | **-32.54%** |
| Oil & Gas | -194.3 | 0.5 | -39.5 | 0 | 0 | 0% | 0 |
| Non-Oil & Gas | 41.9 | -9 | 86.4 | 104.5 | 70.5 | 0% | -32.54% |

(Source: https://satudata.kemendag.go.id/balance-of-trade-with-trade-partner-country, Accessed: 25th December 2023)

Moreover, the research will also investigate the bilateral trade pattern in order to gain understanding on the existing potential commodities. The data panel showed that Indonesia exported 67 commodities in 2-digits HS Code basis. The total value of all commodities in 10 years reached USD 901.7 million with the main commodities of vegetable oils, electrical machinery and part, paper and paperboard, apparel and clothing, machinery and mechanical appliances, miscellaneous edible preparations, textile materials, rubber product, organic chemical, plastic product, staple fiber, and soap. On the other hand, Indonesia imported 40 commodities in 2-digits HS Code basis with the total value of all commodities in 10 years reached USD 527.9 million. The main commodities that Indonesia imported among others were mineral fuels and oils, oilseed and oleaginous fruits, vehicle and its parts, arms and

ammunitions, machinery and mechanical appliances, electrical machinery and part, and edible fruits and nuts (International Trade Centre, 2023a).

In 6-digit HS Code basis, the data panel showed that Indonesia exported 467 commodities during period of 2013 – 2022. The main exported commodities among others palm oil, manganese dioxide cells and batteries, lead-acid accumulators, edible vegetable fat, preparations for sauces; condiments and seasonings, various kind of uncoated paper and paperboard, refrigerating or freezing equipment, glycerol, cellular plastic, pneumatic tires, diesel engine part, and cotton dresses. On the other hand, the data panel also showed that Indonesia imported 98 commodities from Sudan during the same period. The main imported commodities were crude petroleum oils, groundnuts, armored fighting vehicle, trucks, artillery weapons, firearms and its parts, vehicles, cotton, dates, electrical motors, traffic control equipment, nuts, containers, and medicaments (International Trade Centre, 2023a, 2023). The commodities exported by Indonesia to Sudan is shown in Figure 5.9. while commodities imported by Indonesia from Sudan is shown in Figure 5.10. The bilateral trade data in HS2 basis can be seen in Appendix 12 while in HS6 basis can be seen in Appendix 13.

Figure 5.9. Indonesia Export to Sudan by Commodities 2013 – 2022

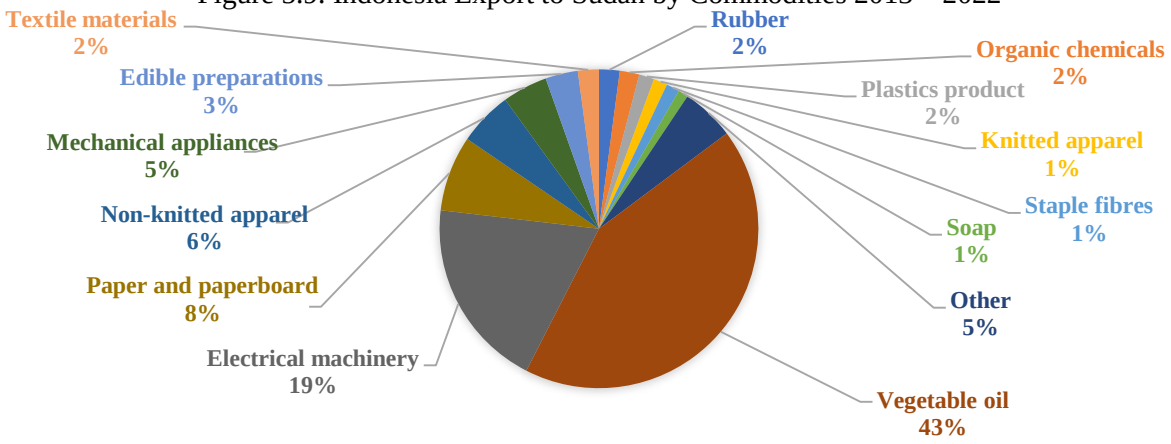
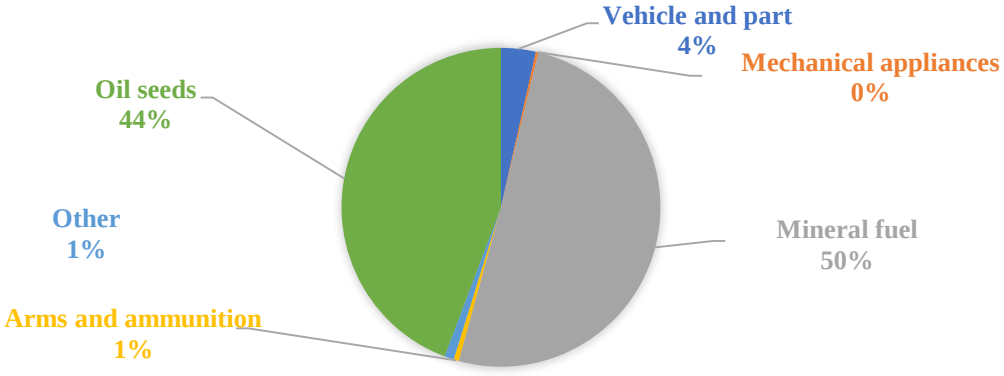



Figure 5.10. Indonesia Import from Sudan by Commodities 2013 - 2018



Between 2013 and 2022, Indonesia emerged as a significant trade partner for Sudan, ranking 14th globally and securing the top spot among ASEAN countries. This period highlights Indonesia's robust trade relationship with Sudan, driven by key exports that cater to Sudanese demand.

Indonesia's primary export to Sudan during this decade was palm oil and its fractions, which accounted for 35.64% of Indonesia's total export value to Sudan. This aligns with the broader trend of Indonesia being one of the world's largest palm oil producers and exporters, where palm oil has consistently been a critical commodity in its trade portfolio. The significance of palm oil is further underscored by the fact that it met 83.80% of Sudan's total demand for the product, illustrating Indonesia's dominant position in the Sudanese market for this essential commodity (International Trade Centre, 2023a).

In addition to palm oil, Indonesia exported a diverse range of products to Sudan, including manganese dioxide cells and batteries (11.12%), lead-acid accumulators (6.86%), and edible mixtures of vegetable fats (6.33%). These commodities reflect Indonesia's industrial and manufacturing capabilities, which have been expanding over the years to meet global demand. Notably, Indonesia has developed a strong capacity in producing and exporting energy storage solutions like batteries and accumulators, which are critical in a world increasingly focused on energy efficiency and renewable energy sources.

Further contributing to Indonesia's export profile were preparations for sauces, condiments, and seasonings (2.81%), uncoated A3 paper and paperboard (2.66%), storage furniture (2.24%), glycerol (1.92%), uncoated A4 paper and paperboard (1.48%), uncoated rolled paper and paperboard (1.32%), cellular plastic products (1.32%), tires (1.20%), diesel engine parts (1.04%), and cotton women’s dresses (1.03%). Collectively, these commodities made up 76.97% of Indonesia's total exports to Sudan, with the remaining goods each contributing less than 1% to the total export value (International Trade Centre, 2023a).

Indonesia's overall share in Sudan's total import value during this period was 0.97%. However, this seemingly modest share is significant when considering the niche markets where Indonesian products dominate. Indonesia supplied 90% to 100% of Sudan's import demand for specific commodities, such as waste and scrap pulps of fibers, acrylic or modacrylic yarn, and bamboo or rattan furniture. These figures demonstrate Indonesia's competitive edge in supplying these specialized products, highlighting the strength of its industrial sectors in these areas.

Moreover, Indonesian commodities captured a substantial market share in Sudan for various other products, with market penetration rates exceeding 70% in several cases. For

instance, seats of rattan held an 88.46% market share, palm oil 83.80%, knitted women's slips and petticoats 82.81%, degras 81.64%, non-knitted women's slips and petticoats 80.80%, ground capsicum pepper 78.32%, rattan basketwork 76.92%, rattan furniture 76%, synthetic fiber women's slips and petticoats 74.09%, balls 74.04%, and women's shirts or blouses 70.81% (International Trade Centre, 2023a). The intersection of these product categories, particularly palm oil, underscores Indonesia's pivotal role in meeting Sudan's demand for essential goods.

This trade relationship, characterized by Indonesia's ability to supply a significant portion of Sudan's demand for various commodities, not only reflects the complementary nature of the two economies but also highlights Indonesia's strategic importance as a trade partner for Sudan. The dominance of palm oil, which constituted 35.64% of Indonesia's total exports to Sudan and supplied 83.80% of Sudanese demand, serves as a cornerstone of this bilateral trade relationship (International Trade Centre, 2023a).

As of recent trade data, Sudan holds the 83$^{rd}$ position as Indonesia's global trade partner and ranks 14$^{th}$ among African countries in terms of trade volume. Despite these rankings, the trade relationship between the two nations reflects a focused exchange of specific commodities that are crucial to both economies. During the assessed period, Sudan's primary exports to Indonesia included a diverse range of goods. Key Sudanese exports were crude petroleum oils, groundnuts (both shelled and in-shell), vehicles and parts, electrical equipment, arms and munitions, telephone sets, paperboards, Arabic gum, natural gum, dates, figs, other nuts, live animals, and various plastic articles (International Trade Centre, 2023a).

Among these exports, crude petroleum oils were the most significant, accounting for 50.5% of Sudan's total export value to Indonesia. Groundnuts followed closely, contributing 42.69% of the total export value. Armored vehicles made up 3.17% of the export value, while groundnuts in shell accounted for 1.54% (International Trade Centre, 2023a). These figures underscore the importance of these commodities in Sudan's export portfolio to Indonesia.

Furthermore, Sudan's export contribution to Indonesia's import market for these commodities, although modest in some cases, highlights the strategic relevance of this trade relationship. Sudan supplied 0.31% of Indonesia's total crude petroleum oil imports, a more significant 8.84% of groundnut imports, 0.82% of armored vehicle imports, and 1.96% of groundnuts in shell imports. Collectively, these commodities contributed to 97.89% of Indonesia's total import value from Sudan, emphasizing their dominance in the bilateral trade (International Trade Centre, 2023a).

This trade data reveals not only the existing trade patterns between Indonesia and Sudan but also points to potential areas for expanding and deepening their economic ties. The concentration of trade in a few key commodities suggests room for diversification, which could further strengthen the bilateral relationship and reduce dependency on a limited range of goods.

From 2013 to 2022, Indonesia held a modest market share of 0.76% in Sudan's total exports to the world, reflecting a relatively small portion of Sudan's overall export activities. Conversely, Sudan's exports accounted for just 0.03% of Indonesia's total import value during the same period, underscoring the limited scale of bilateral trade between the two nations (International Trade Centre, 2023a).

Despite the small market share, Sudan plays a crucial role in supplying specific commodities to Indonesia. For instance, Sudan provided 77.78% of Indonesia's total imports of groundnut seeds, making it a key supplier in this niche market. Additionally, Sudan was responsible for 16.67% of Indonesia's imports of various nuts other than the more common varieties like coconuts, Brazil nuts, and cashews. Other significant contributions from Sudan include 12.75% of Indonesia's imports of small diesel cars, 8.18% of groundnuts, and 2.08% of pneumatic textile mattresses (International Trade Centre, 2023a).

Furthermore, Sudan supplied 1.96% of Indonesia's imports of groundnuts in shell, 1.44% of household refrigerators, 1.30% of live reptiles, 1.20% of granules, chippings, and powder of various rocks other than marble, 1.07% of tropical wood in the rough, and 1.04% of mineral ores and concentrates. These figures illustrate the diversity of Sudan's export portfolio to Indonesia, albeit with relatively low overall trade volumes (International Trade Centre, 2023a).

In 2022, there was a notable exception in the trade patterns between the two countries. Indonesia was reported to have imported armored vehicles, arms, and munitions from Sudan. However, according to the United Nations General Assembly (2022), these commodities were likely contingent-owned equipment belonging to Indonesia's Formed Police Units (FPU) that were repatriated to Indonesia (United Nations General Assembly, 2022). As such, these items should not be considered part of the main traded commodities between Sudan and Indonesia, as their inclusion would distort the actual trade dynamics between the two countries.

Another critical economic indicator to consider for a comprehensive analysis of the potential trade between Indonesia and Sudan is the comparison of their industrial and agricultural outputs. Sudan boasts a substantial agricultural area of 112.67 million hectares, significantly larger than Indonesia's 64.6 million hectares. However, the productivity of these agricultural sectors, as reflected in their value-added contributions, presents a stark contrast. In 2022, Sudan's agricultural value added was approximately US$7.39 billion, while Indonesia's

reached a much higher figure of US$163.56 billion, indicating more efficient and productive agricultural practices in Indonesia (SESRIC, 2023).

Despite Sudan's larger agricultural area, which presents a significant opportunity for expanding agricultural production, the country's relatively low productivity highlights a potential area for growth. By improving agricultural practices and adopting modern techniques, Sudan could enhance its agricultural output, potentially increasing its exports and contributing to food security both domestically and regionally.

On the other hand, Indonesia's industrial sector is far more advanced, with an industrial value added of US$417.67 billion in 2022. The country's industrial workforce, comprising 29.2 million people (SESRIC, 2023), underscores its capacity as a robust industrial hub. This industrial strength provides a significant opportunity for Sudan, where raw materials could be processed in Indonesia before being re-exported to other markets. Such collaboration could not only boost Sudanese exports but also strengthen economic ties between the two nations, leveraging Indonesia's industrial capabilities to add value to Sudan's raw agricultural products.

The disparity in industrial development between Indonesia and Sudan presents a strategic opportunity for bilateral economic growth. Indonesia's advanced industrial sector positions it as a significant player in global manufacturing. This industrial prowess enables Indonesia to process and add value to raw materials, which presents a compelling opportunity for Sudan. By channeling Sudanese raw agricultural products through Indonesian processing facilities, both countries stand to benefit. Sudan could enhance the value of its exports and gain access to broader markets, while Indonesia could strengthen its role as a hub for processed goods.

Moreover, the efficiency of this trade partnership is further supported by Indonesia's strong performance in market access. The World Bank's trade across border score measures the efficiency and cost-effectiveness of exporting and importing processes, considering factors like documentary compliance, border compliance, and domestic transport (World Bank, 2023a). With Indonesia scoring high in these metrics, the potential for streamlined trade flows between the two countries is significant. Efficient market access combined with Indonesia's industrial capabilities could greatly enhance the trade dynamics between Indonesia and Sudan, fostering a more integrated and productive economic relationship.

The aspect of market access is critical in evaluating the trade potential between Indonesia and Sudan, particularly in the context of their respective logistical capabilities and trade facilitation processes. According to the World Bank (2023a), the trade across border score, which ranges from 0 to 100 (with 100 being the best performance), measures the time and cost

associated with three key procedures in the export and import of goods: documentary compliance, border compliance, and domestic transport.

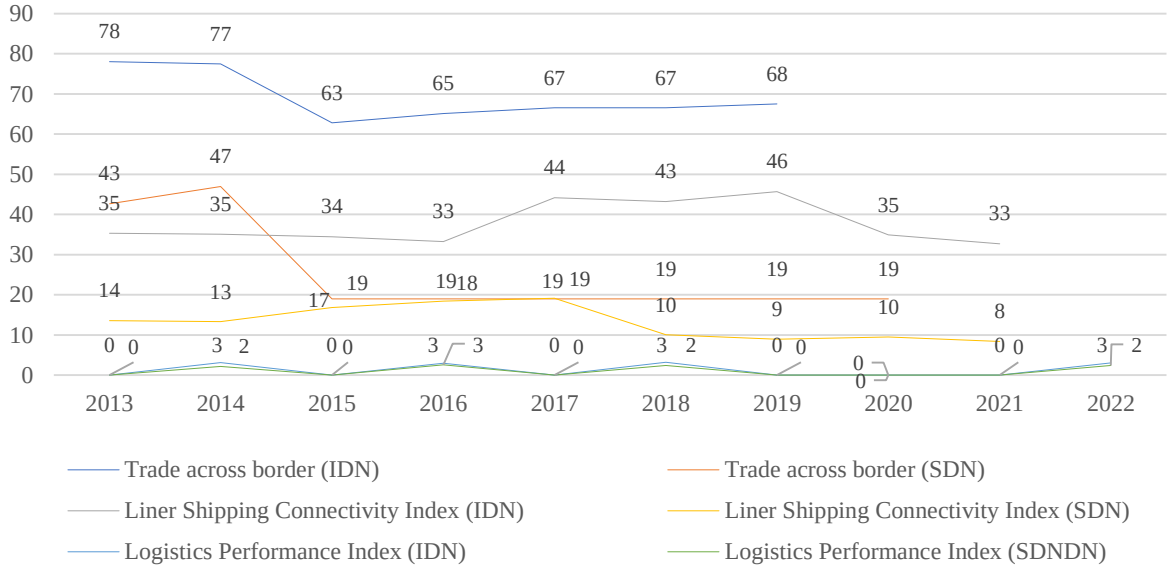
For Indonesia, the trade across border score was 78.01 in 2023, reflecting strong performance in trade facilitation. This score was slightly higher than in 2014, where Indonesia scored 77.46 based on the DB06-15 methodology. Over the years, Indonesia's score fluctuated but showed a general upward trend, reaching 62.80 in 2015-2016, 65.14 in 2017, and 66.54 in 2018-2019. By 2020, the score had risen to 67.54, based on the DB16-20 methodology, indicating improvements in trade facilitation and border efficiency. The cost of border compliance in export activities remained stable at USD 253.74 from 2014 to 2019, decreasing slightly to USD 211.07 in 2020. Similarly, the cost of border compliance in import activities was USD 382.59 from 2014 to 2020. The time required for border compliance in export decreased from 62.57 hours (2014-2019) to 56.28 hours in 2020, while import compliance remained stable at 99.36 hours over the same period. This data suggests that Indonesia has made significant strides in reducing both the time and cost associated with trade procedures, thereby enhancing its market access.

In contrast, Sudan's trade across border score was significantly lower, indicating greater challenges in trade facilitation. Sudan scored 42.66 and 46.98 based on the DB06-15 methodology, and this score remained relatively stable at 18.96 from 2015 to 2020, according to the BD16-20 methodology. The cost of border compliance in Sudan was notably higher, with export costs remaining stable at USD 966.50 and import costs at USD 427.50 from 2014 to 2020. Moreover, Sudan required seven documents for both export and import, with border compliance taking 180 hours for exports and 144 hours for imports during the same period. These figures highlight the substantial procedural and financial barriers that Sudan faces in its trade activities, which could impede its market access and competitiveness in the global market.

Further comparison of global market access between Indonesia and Sudan reveals significant disparities in logistical infrastructure and performance. Data from SESRIC (2023) shows that Indonesia's liner connectivity index, reflecting its integration into the global shipping network, averaged 37.64 out of 100 between 2013 and 2021, with port container traffic averaging 108,485,599 TEUs from 2013 to 2019. Indonesia's overall logistics performance index, which measures the efficiency of logistics services, scored between 2.98 and 3.15 out of 5.00 between 2014 and 2022. Its quality of trade and transport-related infrastructure also improved, scoring between 2.65 and 2.92 in the same period. These indicators underscore Indonesia's relatively strong logistical capabilities and market access potential.

Sudan, on the other hand, lags significantly in these areas. The country's liner connectivity index averaged 13.11 during the same period, with port container traffic averaging only 462,526 TEUs. Sudan's logistics performance index was lower, ranging from 2.16 to 2.53 between 2014 and 2022, and its trade infrastructure scored between 1.90 and 2.30. These figures indicate that Sudan faces considerable challenges in accessing global markets, largely due to its underdeveloped logistical infrastructure and inefficiencies in trade facilitation. The market access comparison between Indonesia and Sudan is shown in Figure 5.11.

Figure 5.11. Market access comparison




Observing the geographical trade composition, the research discovered that the differences in trade data between Indonesia and Sudan, particularly the extreme discrepancies in Sudan's case, can be attributed to several factors. For Indonesia, trade data discrepancies are relatively manageable, generally within the expected range of 10-20%, which is typical when comparing Free on Board (FOB) values used by exporters with Cost, Insurance, and Freight (CIF) values used by importers. The 10-20% gap reflects the additional costs of shipping and insurance that are not included in the exporter's FOB values but are included in the importer's CIF values. For Indonesia, this margin of difference suggests that its trade data recording practices are relatively standardized, and any differences can largely be explained by normal logistical costs.

On the other hand, Sudan's trade data exhibits extreme discrepancies, indicating that the country faces more significant challenges in reporting and monitoring its trade flows. These discrepancies could stem from several underlying issues. One major factor might be related to the country's ongoing economic and political instability, which can severely impact the accuracy and timeliness of trade data collection. Conflicts, lack of infrastructure, and

institutional weaknesses can result in gaps or errors in the reporting of trade statistics, leading to exaggerated discrepancies when comparing Sudan's data with its trading partners.

Additionally, Sudan might face challenges in adhering to international trade reporting standards, making it difficult to accurately match its trade data with that of its counterparts. There might also be issues related to informal trade or smuggling, which is often unreported or underreported in official statistics. This problem is more prevalent in regions where border control is weak, and it further exacerbates the differences between reported trade figures by Sudan and those from the perspective of its trading partners.

Moreover, discrepancies in valuation methods or delays in data updating may also play a role. Since many of Sudan's imports may pass through third-party countries or face complex logistics, it is possible that these indirect routes lead to further distortions in trade data.

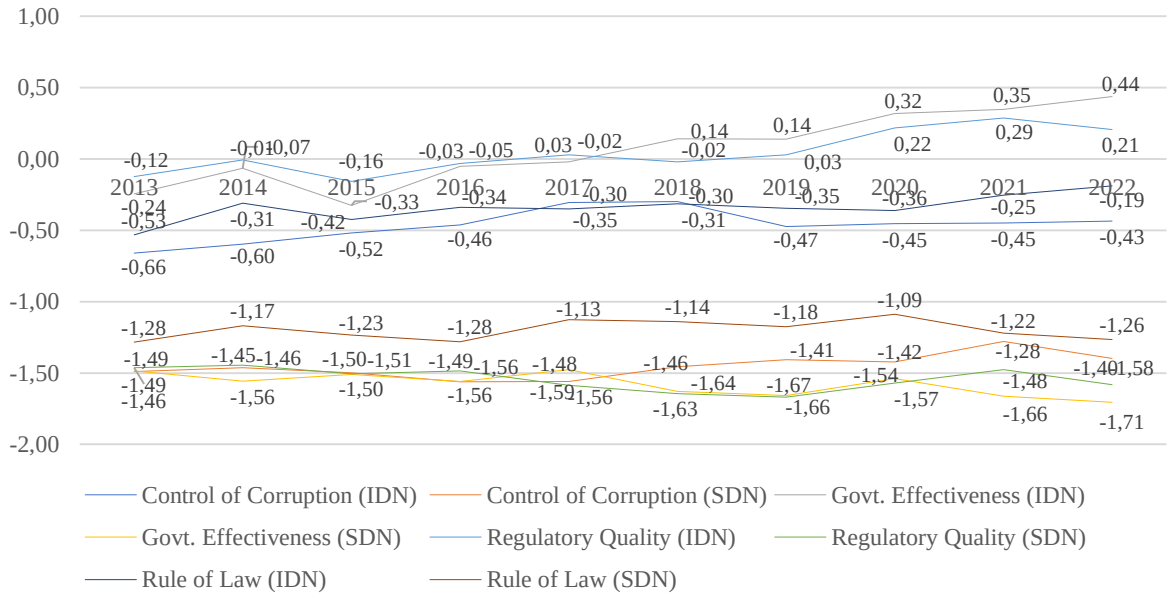
In summary, the comparative analysis of market access between Indonesia and Sudan highlights significant differences in trade facilitation, logistical infrastructure, and governance. While Indonesia has made considerable progress in enhancing its market access, Sudan continues to face substantial challenges that could impede its trade potential. Addressing these challenges will be crucial for Sudan to fully capitalize on any emerging trade opportunities with Indonesia and other global markets.

Governance and institutional quality significantly affect trade performance, with notable differences between Indonesia and Sudan. According to the World Bank (2023a), Indonesia's control of corruption score averaged -0.47 on a scale of -2.5 to 2.5 from 2013 to 2022, indicating moderate corruption challenges. In contrast, Sudan's average score was considerably lower at -1.45, reflecting more substantial corruption issues that may impact trade reliability and investor confidence. Government effectiveness also shows a stark contrast: Indonesia averaged 0.03, suggesting a baseline level of effectiveness, while Sudan scored -1.58, indicating substantial limitations in governmental capacity to implement policies and facilitate trade.

Disparities extend to regulatory quality and the rule of law, where Indonesia again consistently outperformed Sudan. These differences underscore Sudan's weaker institutional framework, which could present obstacles to enhancing trade facilitation and securing stable market access. Poor regulatory quality and enforcement can deter foreign investment and complicate business operations, creating an environment of uncertainty that hinders economic growth. Such governance gaps suggest that while a Regional Trade Agreement (RTA) could be mutually beneficial, Sudan may face challenges in realizing these gains without improvements in institutional quality and governance.

The perception of government effectiveness, as depicted in Figure 5.12, emphasizes the divergence between Indonesia and Sudan, illustrating the structural challenges that could impact Sudan's ability to leverage trade agreements effectively and foster a stable economic environment. Consequently, Sudan's institutional and governance reforms are essential for maximizing the benefits of any future trade agreements with Indonesia (World Bank, 2023a).

Figure 5.12. Governance Perception Score




These differences in governance are mirrored in the countries' trade policies, particularly in the application of tariffs and trade barriers. The disparities in MFN tariffs between Indonesia and Sudan significantly impact the flow of goods and reflect broader economic strategies. According to the Sussex Framework, such differences in tariff structures are not just technical trade issues but are also indicative of underlying developmental approaches. Indonesia, with its relatively better governance scores, may employ more strategic tariff policies aimed at integrating into global value chains, whereas Sudan's higher tariffs could reflect its broader economic challenges and developmental needs.

The connection between governance indicators and trade policies underscores the broader context in which Indonesia and Sudan's trade relationship operates. While governance challenges in Sudan might limit the potential for trade liberalization and integration, Indonesia's relatively better institutional quality provides it with more leverage in negotiations. Consequently, any future trade agreements between the two countries would need to carefully consider these governance and policy disparities to ensure a balanced and mutually beneficial economic partnership.

According to data from the World Integrated Trade Solution (WITS) database by the World Bank (2023b), Indonesia applied a relatively modest simple average effectively applied tariff (AHS) and MFN tariff of 4.67% for Sudanese commodities as of 2011. This low tariff rate is indicative of Indonesia's trade policy, which generally seeks to facilitate trade with developing nations by maintaining low tariff barriers. By contrast, Sudan's trade policy is characterized by a more protectionist approach, as evidenced by its significantly higher tariff rates.

Since 2017, Sudan has applied a simple average MFN tariff of 21.5%, according to the same data. This includes a notably higher tariff on agricultural products, with an MFN tariff of 30.3%, compared to 20.1% for non-agricultural commodities (World Bank, 2023b). These tariffs are uniformly applied across all of Sudan's trade partners, reflecting the country's strategy to protect its domestic industries, particularly in the agricultural sector. Additionally, Sudan's simple average AHS and MFN tariffs for Sudanese commodities have remained elevated at 23.23% since 2011, indicating a consistent protective stance in its trade policy.

The disparity in tariffs between Indonesia and Sudan is particularly evident in their trade of main commodities. Sudan imposes tariffs as high as 40% on key Indonesian exports, while Indonesia's tariffs on Sudanese goods generally do not exceed 5% (International Trade Centre, 2023a). This stark contrast in tariff levels is further exacerbated by Sudan's significantly higher tariffs on Indonesian agricultural products, which are more than six times greater, and on Indonesian manufactured products, which are more than seven times greater than those imposed by Indonesia on Sudanese goods. Beyond tariffs, non-tariff barriers also highlight significant differences, with Indonesia scoring more than three times better in terms of trade across border performance. These disparities in both tariff and non-tariff barriers, according to the Sussex Framework's rule of thumb, suggest a strong potential for trade creation between Indonesia and Sudan if these barriers were harmonized or reduced.

The substantial difference in tariff levels between the two countries underscores the potential for trade policy adjustments that could facilitate more balanced and efficient trade flows. By reducing these barriers, both nations could potentially unlock greater economic benefits and enhance their trade relations. The wide gap in tariff rates between Indonesia and Sudan is consistent with the Sussex Framework's criteria for assessing the impacts of trade policy on development. The framework suggests that significant tariff differentials can indicate the need for policy harmonization, which would be crucial in ensuring mutually beneficial trade relations (International Trade Centre, 2023a).

Based on comparison above as well as comparing multiples economic indicators, Indonesia has greater economic magnitude than that of Sudan as described in Chapter IV. Moreover, several international trade indicators that discussed in Chapter IV also showed that Indonesia and Sudan were mutually beneficial partner. As noted by Evans et.al (2006), the degree of asymmetry between Indonesia and Sudan will likely result in trade creation between the two countries.

The trade relations between Indonesia and Sudan have undergone significant developments, shaped by various bilateral and regional agreements. Among these, the 1998 bilateral agreement stands out as a pivotal framework, aiming to enhance trade cooperation between the two nations. This agreement is particularly notable for its partial implementation of the Most Favored Nation (MFN) principle and its inclusion of specific exemptions from duties and taxes. While the agreement laid a foundation for stronger economic ties, it also underscored the complexities involved in harmonizing trade policies, especially within the context of overlapping regional trade agreements.

The 1998 trade agreement between Indonesia and Sudan was structured to promote mutual benefits while recognizing the unique economic needs of each country. A key feature of the agreement was its partial application of the MFN principle, which is typically used to ensure that any trade advantage given to one country must be extended to all other countries. However, in this case, the MFN treatment was exempted for preferences related to frontier or cross-border trade, as well as for benefits derived from customs unions or free trade zones. This selective application of the MFN principle reflects the challenges both countries faced in fully integrating their trade policies, given the different regional agreements they were part of.

In addition to the MFN provisions, the agreement also included measures for the exemption of duties, taxes, and other dues on certain goods, provided these goods were re-exported after use. This provision was intended to facilitate temporary imports and exports, promoting trade in goods that might otherwise be subject to prohibitive tariffs. However, despite these facilitative measures, the agreement lacked a comprehensive tariff reduction schedule. This omission limited the agreement's potential to achieve deeper trade liberalization, which is often a key objective in modern trade agreements.

The absence of a tariff reduction schedule is particularly significant when considering the broader context of Sudan's participation in the Global System of Trade Preferences Among Developing Countries (GSTP). The GSTP, established to promote trade among developing countries, includes provisions for significant tariff reductions across a wide range of goods. However, Sudan has not signed or ratified the protocol on tariff concessions under the GSTP,

meaning it is not bound by these commitments. This adds a layer of complexity to the trade dynamics between Indonesia and Sudan, as their bilateral trade agreement must navigate the intricacies of Sudan's broader trade obligations—or lack thereof—within the GSTP framework.

Lynch (2010) classifies trade agreements based on the extent of trade liberalization they achieve. Under this classification, the 1998 Indonesia-Sudan agreement does not qualify as a Regional Trade Agreement (RTA), which typically involves more extensive measures, including significant tariff reductions and broader economic integration. Recognizing this, there is a clear need for Indonesia and Sudan to incorporate more robust trade liberalization measures in any future agreements. These measures could include sector-specific tariff reductions, particularly in industries where both countries have a comparative advantage.

In crafting a new trade agreement, Indonesia and Sudan have an opportunity to tailor their bilateral trade relationship to better suit their economic needs. Since Sudan is not bound by the GSTP's tariff reduction commitments, the two countries can negotiate terms that address their specific trade priorities without being constrained by existing multilateral agreements. By focusing on sectors where each country has a competitive edge, a new agreement could enhance trade flows, promote economic growth, and ensure that both nations benefit equitably from their trade partnership.

Having that in mind, the process of establishing a Regional Trade Agreement (RTA) between Indonesia and Sudan is a complex and multi-faceted endeavor, shaped by the legal frameworks, institutional structures, and geopolitical considerations of both nations. Successfully negotiating this agreement could significantly enhance bilateral trade, but it requires careful navigation of the challenges posed by existing trade agreements, tariff schedules, and the need for balanced trade liberalization.

The bilateral nature of the negotiations further underscores the complexity of the process. By focusing exclusively on the interests of Indonesia and Sudan, the negotiations aim to craft an agreement that is finely tuned to the specific economic needs and priorities of both nations. This approach also ensures that the agreement is not influenced by the interests of third-party countries, allowing for a more direct and efficient negotiation process. The delegations from both countries are expected to be composed of representatives from various ministries and governmental institutions, reflecting the broad implications of the agreement across different sectors of the economy. This inclusive and targeted approach is critical for addressing the diverse challenges and opportunities that the RTA is expected to present.

In Indonesia, the legal framework, as outlined in the Trade Act No. 7 of 2014, mandates that the delegation include officials from the Ministry of Trade and the Ministry of Foreign

Affairs. These ministries play a central role in shaping Indonesia's international trade policies and ensuring that any agreement aligns with national interests. Additionally, other ministries or government institutions, such as those responsible for finance, agriculture, or industry, may be involved depending on the specific issues under negotiation (Indonesia, 2014).

Similarly, the Sudanese delegation is expected to include officials from the Ministry of Trade and Supply and the Ministry of Foreign Affairs, as indicated in recent discussions between the Indonesian Ambassador and Sudanese officials. These discussions have also suggested the possible involvement of other relevant ministries or institutions to address the full scope of the trade negotiations (Embassy of the Republic of Indonesia, 2022).

However, the negotiation process is currently facing significant delays due to the ongoing armed conflict in Sudan, which erupted in Khartoum on April 15, 2023 (Gadzo et al., 2023). This conflict has escalated into a full-scale humanitarian crisis, severely undermining the functionality of the Sudanese government. According to Mr. Volker Perthes, the United Nations' Special Representative to Sudan, the conflict has exacerbated existing economic and social challenges, making it difficult for the government to participate effectively in international negotiations (UNITAMS, 2023).

The economic impact of the conflict is also severe. Sudan's former finance minister, Ibrahim al-Badawi, has estimated that the country's gross domestic product (GDP) could decline by as much as 20% due to the ongoing instability (Siddiq et al., 2023). This economic downturn is likely to further delay the RTA negotiations, as the Sudanese government focuses on addressing the immediate humanitarian and economic crises. Therefore, the negotiation for bilateral RTA between Indonesia and Sudan is expected to take more time until the armed conflict ends.

In addition to the challenges posed by the conflict in Sudan, the process of ratifying the RTA in Indonesia involves additional steps that could extend the timeline. According to Indonesia's Trade Act No. 7 of 2014, any bilateral trade agreement must undergo a thorough review by the House of Representatives. This review process is crucial for ensuring that the agreement is in line with Indonesia's broader economic and political goals. Depending on the outcome of the review, the RTA may either be ratified by the parliament or enacted by Presidential Decree (Indonesia, 2014).

This legislative process is a critical step in the establishment of the RTA, as it ensures that the agreement is not only beneficial but also legally sound. However, it also adds a layer of complexity and potential delay, particularly if the agreement requires extensive debate or faces opposition within the parliament.

To connect the discussion on the legislative steps required for the establishment of the RTA with the diplomatic efforts already undertaken, it is essential to recognize that the groundwork laid through these bilateral meetings serves as a vital precursor to the formal legislative process. While the legislative process ensures the RTA's legal soundness and its alignment with national interests, the diplomatic engagements and commitments made in previous meetings between Indonesia and Sudanese officials have been instrumental in building the political will and mutual understanding necessary for this next phase.

These diplomatic efforts have not only demonstrated the mutual interest in strengthening economic and trade relations but have also helped to identify the key areas of cooperation that would be included in the RTA. The successful outcomes of meetings whereas both parties expressed their intention to strengthen cooperation between Indonesia and Sudan, such as those involving the National Assembly Speaker of Sudan (Anjaiah and Susanti, 2015) and the Vice Chairman of Indonesia's People's Representative Assembly in 2015 (Budilaksono, 2015), underscore the political momentum behind the RTA. Moreover, during the Bilateral Consultation Meeting between Indonesia and Sudan in Jakarta on February 2015 co-chaired by Indonesia Vice Foreign Minister and Sudanese Undersecretary of Foreign Ministry also agreed to increase bilateral trade volume by involving business people to identify opportunities as well as much needed commodities traded between the two countries (Arisandy, 2015). Furthermore, in bilateral meeting during 2016 OIC Summit in Jakarta, the President of the Republic of Indonesia and the President of the Republic of the Sudan also discussed common issues of both countries including economic and trade cooperation (Soepardi, 2016).

This momentum, established through these high-level engagements, provides a supportive backdrop against which the legislative process can unfold, ensuring that the proposed agreement reflects the shared goals and priorities of both nations. In essence, the diplomatic groundwork laid in recent years complements and facilitates the legislative process, ensuring that the proposed RTA is both politically feasible and aligned with the strategic interests of Indonesia and Sudan.

The journey toward establishing a Regional Trade Agreement (RTA) between Indonesia and Sudan is marked by both opportunities and challenges. While the commitment from both nations is clear, the process is complicated by geopolitical instability in Sudan and the need for careful legislative consideration in Indonesia. Successfully negotiating and implementing this RTA will require resilience and strategic diplomacy from both sides, as they navigate these obstacles to create a mutually beneficial trade partnership.

Adding to the complexity of these negotiations is the fact that both countries are already engaged in multiple regional trade agreements, which could influence the scope and effectiveness of a bilateral RTA. Sudan, as a member of COMESA, GTSP, and PAFTA, has access to markets in 50 countries, including key economies in Africa, the Middle East, and beyond. Meanwhile, Indonesia is a participant in thirteen different RTAs, providing it with access to 22 additional countries across Asia, Oceania, and other regions. This overlapping web of trade agreements presents both opportunities and challenges for the RTA between Indonesia and Sudan. On one hand, the two countries can leverage their respective positions in these regional trade blocs to enhance market access and create trade opportunities. For example, Sudan could serve as a base for agricultural raw materials, while Indonesia could focus on producing intermediate and finished goods, thus complementing each other's economies.

Conclusively, the potential RTA between Indonesia and Sudan has the promise to significantly expand trade opportunities for both nations, providing access to a combined market of 74 countries. However, realizing this potential will require careful consideration of the existing trade agreements and strategic planning to ensure that the new RTA complements, rather than conflicts with, these existing frameworks.

### 5.2.2. Indonesia and Sudan bilateral trade indicators

The potential for economic cooperation between Indonesia and Sudan through a Regional Trade Agreement (RTA) is significant and warrants a thorough, data-driven evaluation. RTAs are powerful economic tools capable of strengthening trade relations, reducing barriers, and creating mutually beneficial outcomes. To determine the feasibility of an RTA between Indonesia and Sudan, three essential trade indicators were analyzed: the Revealed Comparative Advantage (RCA) Index, the Trade Similarity Index (or Finger-Kreinin Index, FKI), and the Intra-Trade Index (or Grubel-Lloyd Index, GLI). These indicators offer vital insights into each country's comparative advantages, trade alignment, and intra-industry trade potential, thereby providing a comprehensive foundation for assessing the potential success of an RTA. By applying a systematic weighting approach to these indices, the analysis sought to reveal where opportunities lie for deepening economic integration between the two countries.

The RCA Index, which measures a country's comparative advantage in exporting specific goods relative to global trade patterns, offers insights into the products each nation excels at producing and exporting. A high RCA value indicates specialization in certain goods, making these products attractive for trade negotiations. For example, if Indonesia demonstrates a high RCA in textiles and Sudan in agricultural products, both nations could benefit from reducing

tariffs on these respective goods. Such a strategy would enable each country to leverage its strengths, fostering a trade environment where both can maximize their gains in targeted sectors. An RTA that recognizes and capitalizes on these comparative advantages could thus enable Indonesia and Sudan to diversify their export portfolios, increase production efficiencies, and improve access to each other's markets.

The Trade Similarity Index, or Finger-Kreinin Index (FKI), compares the export structures of two countries, indicating the degree to which they export similar types of goods. Higher FKI values signify that the countries have overlapping trade structures, meaning they export comparable goods to global markets. This is a crucial consideration in RTA discussions; countries with highly similar export profiles may find it challenging to create a cooperative agreement, as they are more likely to be in direct competition. Conversely, if Indonesia and Sudan have complementary trade patterns, an RTA could be particularly advantageous, allowing them to specialize in and benefit from each other's strengths without significant overlap. Complementary trade structures can enhance the potential for an RTA to drive economic growth in both countries, as they allow each partner to focus on its unique strengths while gaining access to a diversified range of imports.

The Intra-Trade Index, or Grubel-Lloyd Index (GLI), measures the level of intra-industry trade between countries, indicating the extent to which they trade goods within the same industry. A high GLI score suggests a robust level of two-way trade within industries, such as the exchange of different types of machinery or electronic products. This intra-industry trade is often associated with stable trade relations and a higher likelihood of mutual benefit from an RTA, as it indicates deeper industrial integration and resilience to economic fluctuations. When Indonesia and Sudan engage in intra-industry trade, it shows a balanced relationship where each can import and export within the same sector, creating a stable and sustainable trading environment.

In examining these indices, the research identified substantial trade opportunities for both countries. Through the RCA analysis, the research highlighted specific commodities that each country could prioritize to improve trade relations. Indonesia's comparative advantage in manufactured goods and Sudan's strengths in agricultural products underscore the scope for expanding bilateral trade, allowing each nation to tap into new market segments. By capitalizing on these comparative advantages, Indonesia and Sudan have the potential to enhance their trade balance, offering each other access to goods that are either in demand or strategically beneficial.

Overall, the combination of RCA, FKI, and GLI provides a solid framework for assessing the viability of an Indonesia-Sudan RTA. Such an agreement would facilitate mutual growth, leveraging each country's unique advantages while navigating the complexities of trade alignment and industrial integration. With strategic planning and targeted tariff reductions, an Indonesia-Sudan RTA has the potential to not only strengthen bilateral trade but also create a more resilient and prosperous economic relationship between the two countries.

The research revealed that Indonesia exports 13 key commodities to Sudan, each contributing over 1% to the total export value. Of these 13, nine commodities have an RCA index greater than 1, indicating a comparative advantage in those products. These nine commodities are vegetable and animal oil, paper and paperboard, various apparel and clothing articles, edible preparations, man-made textile materials, staple fiber, rubber products, and soap products. These industries form a strong foundation for Indonesia to build upon, as the comparative advantage suggests that Indonesia is particularly efficient in producing these goods relative to other countries.

On the demand side, Sudan's need for these 13 commodities accounts for 31.61% of its total 10-year cumulative import value, and its demand for the nine commodities with comparative advantage makes up 10.85% of its import value. This shows that Sudan already has a significant need for the types of products that Indonesia excels at producing. With this alignment between supply and demand, Indonesia has the potential to expand its export value significantly by tapping into the Sudanese market, which is worth approximately US$10 billion over a decade. If Indonesia continues to invest in the production and marketing of these commodities, it could strengthen its market share in Sudan over the coming years.

Moreover, the research identified 32 commodities on the Indonesian side with comparative advantages. These products span various sectors, including manufacturing, agriculture, and extractive industries. The research suggests that if Indonesia implemented marketing strategies aimed at creating demand in Sudan, it could further expand its market reach. With effective marketing efforts, Indonesia could potentially capture 27.04% of Sudan's total imports, which would amount to an estimated US$25 billion over the next decade. These findings highlight the untapped potential that Indonesia has in the Sudanese market, provided it pursues a proactive approach in creating demand for its products.

On the other hand, the research also explored Sudan's export potential to Indonesia. Sudan exports three major commodities to Indonesia, each contributing more than 1% to the total export value. Of these three, two commodities—mineral oils and oil seeds/oleaginous fruits—have strong comparative advantages, with RCA indices of 1.20 and 19.84, respectively.

Sudan’s exports of these two commodities accounted for 18.41% of Indonesia's total import demand from 2013 to 2022, with a value of US$371.2 billion over the 10-year period. This indicates that there is already a strong demand in Indonesia for Sudan's exports, particularly in oil seeds and mineral oils, which could be further expanded.

In addition to these two major exports, the research identified 14 other commodities from Sudan that possess a comparative advantage, primarily in agricultural products and precious metals. These commodities hold significant potential for export to Indonesia. If Sudan employed targeted demand-creation programs, such as marketing initiatives and trade agreements, it could increase its exports to Indonesia. With the proper strategies, Sudan could tap into an additional US$439 billion of market potential over the same 10-year period. This represents a significant opportunity for Sudan to diversify its export base and strengthen its trade ties with Indonesia.

Finally, the research highlights the considerable trade potential between Indonesia and Sudan, based on their respective comparative advantages. Indonesia has the opportunity to capture a significant portion of Sudan's import market by focusing on its strong sectors, while Sudan has substantial potential to expand its exports to Indonesia by leveraging its agricultural and extractive commodities. Both countries could benefit from strategic trade initiatives, including the implementation of demand-creation programs and marketing strategies, to realize these opportunities and enhance their bilateral trade relations. The findings underscore the importance of understanding and leveraging comparative advantages in international trade, as well as the value of targeted policies to maximize trade benefits for both countries.

The Finger-Kreinin Index (FKI) and the Grubel-Lloyd Index (GLI) are critical tools for understanding the trade dynamics between Indonesia and Sudan over the past decade. These indices provide insights into the degree of trade similarity and the nature of trade—whether intra-industry or inter-industry—between the two countries. Analyzing these indices from 2013 to 2022 reveals important patterns that can help explain the trade relationship and potential for future trade creation between Indonesia and Sudan.

The FKI measures the similarity between two countries' export profiles. A higher FKI indicates a greater overlap in the types of goods exported by the two countries, suggesting potential competition. Conversely, a lower FKI indicates less overlap, which could lead to increased trade creation as each country exports goods that the other does not produce in significant quantities. Between 2013 and 2022, the FKI for Indonesia-Sudan bilateral trade fluctuated significantly, reflecting the dynamic nature of their trade relationship.

In 2013, the FKI was relatively low at 1.482, indicating limited overlap between Indonesia's and Sudan's export profiles. This suggests that in this period, both countries were exporting different sets of goods, reducing competition, and potentially fostering complementary trade. The FKI spiked dramatically in 2015, reaching a peak of 12.254, the highest in the decade. This sharp increase could indicate a temporary convergence in the types of goods being exported by both countries, possibly due to global market conditions or shifts in production patterns. However, this high similarity was short-lived, as the FKI dropped significantly in the following years, reaching its lowest point in 2020 at 0.354. This suggests that by 2020, Indonesia and Sudan had very distinct export profiles again, with minimal overlap, which would support the creation of more trade opportunities as each country specializes in different sectors. By 2022, the FKI had increased again to 4.315, though it remained well below the 2015 peak, indicating a moderate level of trade similarity between the two countries.

The GLI, on the other hand, provides insight into the nature of trade within the same industry, indicating whether a country is involved in intra-industry trade (exporting and importing similar goods within the same industry) or inter-industry trade (exporting and importing different types of goods). The GLI values for Indonesia and Sudan reveal stark differences in their trade profiles over the same period.

Indonesia's GLI values consistently hovered around 0.55 from 2013 to 2022, with slight variations. This consistent intra-industry trade pattern suggests that Indonesia has a diversified and industrialized economy, where it both exports and imports goods within the same industries. This pattern reflects Indonesia's ability to produce a wide range of goods and its engagement in global value chains, where it exports parts and components as well as finished products.

Sudan, in contrast, exhibited much lower GLI values, ranging from 0.06 in 2015 to a peak of 0.236 in 2014. These low values suggest that Sudan's trade is predominantly inter-industry, meaning it exports and imports different types of goods within the same industry. This reflects a less diversified economy that is more reliant on specific sectors, such as agriculture or raw materials, for its exports, while importing a wider range of industrial goods that it does not produce domestically.

The differences in GLI values between Indonesia and Sudan further highlight the potential for trade creation between the two countries. The Δ GLI, representing the difference in GLI values between Indonesia and Sudan, underscores the complementarity of their trade profiles. For instance, in 2013, the Δ GLI was 0.486, indicating a significant difference in the nature of

their trade within industries. This difference remained relatively stable over the decade, with the Δ GLI ranging from 0.345 in 2014 to 0.486 in 2013. Such differences suggest that Indonesia and Sudan have the potential to complement each other's industrial capacities by focusing on different segments within the same industries. For example, Indonesia's more advanced industrial base could supply machinery and equipment to Sudan, while Sudan could export agricultural products and raw materials to Indonesia.

In summary, the analysis of the FKI and GLI over the past decade indicates that while Indonesia and Sudan have distinct trade profiles, this distinction presents opportunities for trade creation. The low FKI values in most years suggest limited competition between the two countries, allowing each to specialize in sectors where they have a comparative advantage. Meanwhile, the differences in GLI values highlight the potential for complementary trade, where each country can benefit from the other's strengths in different segments of the same industries. These dynamics suggest that a well-structured trade agreement between Indonesia and Sudan could lead to increased bilateral trade, benefiting both economies.

In summary, the research highlights a trade relationship between Indonesia and Sudan that is characterized by complementary strengths rather than direct competition. The high RCA values for both countries in their respective markets, combined with the low trade similarity and contrasting intra-industry trade indices, suggest that there is significant potential for enhanced trade cooperation. By leveraging these complementary strengths, Indonesia and Sudan can deepen their economic ties and create new opportunities for growth and development through their emerging trade partnership.

This potential for enhanced trade cooperation is further supported by Indonesia's robust trade performance, as reflected in its significant contribution to the country's Gross National Product (GNP). Between 2013 and 2022, Indonesia's trade contribution to GNP ranged from 31.06% to 41.70%, with an average value of 37.78%. This consistent contribution underscores Indonesia's strong integration into the global economy, which, when paired with Sudan's emerging market opportunities, presents a promising avenue for deepening bilateral trade relations. As Indonesia’s trade contribution rebounded to 41.27% in 2022 after periods of fluctuation of 35.20%, 31.06%, 33.12%, 36.48%, 31.24%, 29.61%, and 37.02% in period of 2015 – 2021, it reflects the country's resilience and adaptability in the face of global economic changes—qualities that will be crucial in fostering a successful and mutually beneficial trade agreement with Sudan.

The role of trade in the economies of Sudan and Indonesia reveals significant differences in their economic structures and the potential impacts of a proposed Regional Trade Agreement

(RTA). For Sudan, the trade contribution to Gross National Product (GNP) varied considerably from 27.69% to 81.49% between 2013 and 2022, with an average of 42.78%. The peak was in 2013 at 81.49%, but it fell sharply to 27.69% in 2015, reflecting fluctuating trade dynamics. Despite subsequent increases, the trade contribution remained volatile, dropping to 32.77% and 44.54% in the later years.

In contrast, Indonesia's trade share of Gross Domestic Product (GDP) averaged 42.21% from 2013 to 2022, ranging from 32.97% to 49.58%. While there was a decline from 2013 to 2016 with value of 55.795, 53.84%, 48.92%, 41.92%, 40.08%, Indonesia saw a rise in trade share during the subsequent years whereas it reached 40.74%, 43.62%, then 39.91% to 37.76%, reaching 45.42% and 49.97% in 2021 and 2022, respectively. This steady increase highlights Indonesia's growing integration into the global economy.

Sudan's trade share of GDP, on the other hand, was 16.89% in average within range between 2.70% to 26.86% for the same period. In 2013 to 2016 it fluctuated from 21.86% to 26.86%, 20.85%, 18.38% and finally 15.28%. Then it increased in three years and reached 17.83%, 21.87% and 26.12% consecutively. For the last three years from 2019 – 2022, Sudanese trade share to GDP was kept decreasing with value of 9.96%, 4.13%, 2.70%. However, the differences in share of international trade to GDP between Indonesia and Sudan also indicated the leaning towards trade creation between Indonesia and Sudan if a comprehensive RTA is pursued.

### 5.2.3. The extent of Indonesia – Sudan RTA feasibility

The feasibility of a Regional Trade Agreement (RTA) between Indonesia and Sudan has been assessed using the Sussex Framework, which is discussed in detail earlier in the chapter. The Sussex Framework offers guidelines for evaluating the potential benefits and drawbacks of RTAs, including trade creation and diversion effects. This assessment revealed opportunities for trade diversion that could be advantageous to both Indonesia and Sudan, suggesting that the feasibility criteria for the RTA have been met. However, to gain a deeper understanding of the feasibility and potential impact of this agreement, it is essential to calculate the feasibility score using weighted factor system.

Before drawing any conclusions about the feasibility of an RTA, the first step in the analysis was to normalize these indices. Normalization allows for the transformation of these values into a comparable scale, facilitating meaningful comparison between Indonesia and Sudan. Since the Finger-Kreinin Index (FKI) has a maximum value of 100, normalization was straightforward. The average FKI value for both countries was calculated as 2.04, which was

then normalized to 0.024. Grubel-Lloyd Index (GLI) has a maximum value of 1, making normalization similarly straightforward. Indonesia's average GLI value was 0.55, while Sudan's was significantly lower at 0.12. This difference reflects the varying levels of intra-industry trade between the two nations.

Normalizing the RCA index was more complex due to its theoretically infinite maximum value. After studying the RCA averages of 148 countries/economies, a maximum RCA value of 6.78 was identified as a benchmark. Using this reference, Indonesia's RCA was normalized to 0.26, while Sudan's RCA was normalized to 0.24, enabling direct comparisons between the two countries in terms of their comparative advantages.

However, observing the spectrum of comparative advantages and trade structure data across 148 countries/economies reveals several key insights. Based on the descriptive statistics for RCA (Revealed Comparative Advantage) and GLI (Grubel-Lloyd Index) or Intra-industrial Index, the research highlights notable differences in the distribution and interpretation of these values across developed, developing, and least developed countries.

The average RCA value of 1.41 suggests a moderate comparative advantage across the dataset. Developed countries tend to exhibit higher comparative advantages in specialized industries, benefiting from superior technology and infrastructure. In contrast, developing and least developed countries often show lower RCA values, reflecting their reliance on primary industries and less diversified export profiles. The standard deviation of 0.95 and variance of 0.898 indicate a considerable spread, meaning comparative advantages vary widely among the countries. While some, primarily developed countries, hold strong comparative advantages in certain industries, others, particularly the least developed countries, demonstrate little to no advantage. The positive skewness (2.51) further underscores this, showing that a few countries hold exceptionally high comparative advantages, likely developed countries dominating specific global industries. The high kurtosis (10.30) points to extreme outliers in the data, again indicating that certain developed countries or highly specialized developing countries possess significant advantages in sectors such as high-tech manufacturing or finance. With a range of 6.68, there are large disparities, where developed countries occupy the higher end, while least developed countries sit lower. A 95% confidence interval with a narrow range (0.153) supports the notion that the true mean of RCA is stable, largely due to the consistent performance of developed countries in maintaining strong comparative advantages.

The GLI data paints a different picture, with a mean of 0.416 indicating moderate levels of intra-industrial trade among the countries analyzed. Developed countries, with their diversified and developed sectors, tend to have higher intra-industry trade, exporting and

importing similar products like cars and electronics. Meanwhile, developing and least developed countries focus more on exporting primary goods and importing finished products, which leads to lower intra-industry trade. The low variation in GLI values, with a standard deviation of 0.249 and a variance of 0.062, suggests that most countries in the dataset share similar levels of intra-industrial trade. Developed countries likely cluster at the higher end, while developing and least developed countries remain lower. The slight positive skewness (0.349) indicates that a few countries, likely developed countries, show high intra-industrial trade indices, and the negative kurtosis (-1.13) reveals a relatively flat distribution, implying that extreme GLI values are rare. This points to intra-industrial trade being fairly evenly distributed, though developed countries still dominate the upper spectrum. The range of 0.932 further emphasizes this divide, with some countries exhibiting high levels of intra-industrial trade, and others, likely least developed countries, having little to none. This reflects the structural differences between countries, where developed countries focus on intra-industry trade, and less developed countries engage more in inter-industry trade.

In conclusion, the RCA and GLI data highlight the disparities in the global economic landscape. Developed countries tend to exhibit strong comparative advantages and high levels of intra-industry trade due to their technological capabilities, industrial diversification, and robust trade relations. On the other hand, developing countries display moderate comparative advantages and lower levels of intra-industry trade, while least developed countries, lacking diversification and infrastructure, experience weaker performances in both RCA and GLI. These findings illustrate the varying degrees of economic development and integration in global trade.

Nonetheless, the observation that countries with the highest RCA scores are mostly least developed or developing nations, apart from Portugal, is intriguing and can be explained through various factors. Countries like Nepal, Afghanistan, and Madagascar may have a high NRCA in specific sectors where they possess a strong comparative advantage due to the abundance of certain natural resources or specialized industries. These countries may focus heavily on a narrow range of export products, typically in primary sectors like agriculture or raw materials. This specialization leads to a higher RCA, as their relative advantage in these sectors is particularly pronounced compared to more diversified economies.

For least developed or developing countries, high RCA values may also reflect the absence of diversified industrial bases. With limited production capabilities across sectors, these countries tend to concentrate their export capacity in a few specific industries. This can magnify

their comparative advantage in these sectors when measured through normalized indices like NRCA.

Portugal's appearance on this list might be an outlier for several reasons. Despite being part of the developed world, Portugal may exhibit strong comparative advantages in specific sectors such as cork, tobacco, ceramic, footwear, pulp of wood or other manufactured products like paper, textile, and apparel. Historical and regional factors, including EU membership and trade agreements, may help explain why Portugal achieves a high RCA in certain industries even though it is more industrialized and diversified compared to the other countries listed.

In contrast, developed countries typically have more diversified economies, which reduces the likelihood of extreme RCA values in any one sector. They rely less on comparative advantage in a few industries and more on overall productivity, innovation, and competitive factors spread across various sectors, leading to lower but more balanced RCA values. This disparity highlights how economic development, industrial diversification, and the focus on particular sectors can all influence a country's RCA, regardless of its overall level of development.

The observed RCA and GLI values for advanced economies such as the United States, Germany, Japan, and others suggest an interesting relationship between comparative advantage and intra-industrial trade. A relatively moderate RCA value (around 0.66 to 0.99) implies that these countries possess a comparative advantage in specific sectors, but not overwhelmingly so. This contrasts with least developed and developing countries, which tend to have much higher RCA values, indicating more specialization in a narrower range of industries.

However, the higher GLI values for these advanced economies (ranging from 0.52 to 0.94) suggest that their trade patterns are more intra-industrial, meaning they tend to engage in the exchange of similar goods, often differentiated by quality, features, or brands, rather than trading completely different types of goods. This is a hallmark of more advanced, diversified economies that are integrated into global supply chains.

In contrast, least developed countries with higher RCA values tend to engage more in inter-industrial trade, exporting goods in which they have a strong comparative advantage, typically in primary sectors like agriculture or low-cost manufacturing, and importing goods they lack the capacity to produce. Therefore, the data imply that while advanced economies benefit from both comparative advantage and more intra-industrial trade, developing countries with higher RCA values are more specialized and less integrated into intra-industrial trade networks.

Once the indices were normalized, the next task was to determine the relative importance, or weight, of each indicator in the overall RTA feasibility assessment. To achieve this, an

Ordinary Least Squares (OLS) regression model was employed, where normalized export performance was the dependent variable, and the normalized versions of the RCA, FKI, and GLI were the independent variables.

The results from the OLS regression provided valuable insights into the relative influence of each trade indicator. The regression revealed that NRCA had a coefficient of 0.0001150, but with a p-value of 0.8677, it was not statistically significant. This suggests that while comparative advantage is important, it does not have a substantial impact on export performance in this particular model for Indonesia and Sudan.

The coefficient for FKI was 0.0011940, with a highly significant p-value ($p < 0.001$). This indicates a strong and positive relationship between trade similarity and export performance. A higher FKI means the countries' export patterns are more aligned, which seems to foster increased trade between them. Normalized GLI had the highest coefficient at 0.0204441, also with a highly significant p-value ($p < 0.001$). This confirms the critical role of intra-industry trade in driving exports. The positive relationship suggests that greater intra-industry trade between Indonesia and Sudan leads to higher export volumes.

The OLS model, although useful, presented certain limitations. The R-squared value of 0.1448 and an adjusted R-squared value of 0.1391 indicated that only about 14.48% of the variance in export performance could be explained by the model. While not exceptionally high, this was still significant enough to highlight the roles of FKI and GLI in shaping export dynamics.

Additionally, classic assumption tests were conducted to verify the robustness of the model. The Durbin-Watson statistic of 2.1195 suggested no autocorrelation, meaning the residuals (or errors) in the model were independent of each other. However, the Breusch-Pagan test showed signs of heteroscedasticity, implying that the variance of the residuals was not constant across all observations. This could affect the precision of the OLS estimates.

To address these concerns, a series of 15 Generalized Least Squares (GLS) models were explored, with the goal of identifying the best fit for predicting export performance. The results from the various generalized least squares (GLS) models provide a thorough analysis of how export data responds to several key explanatory variables: NRCA, NFKI, and GLI. Through the fitting of these models, the overall goal has been to assess the best approach for explaining the relationship between these variables and the response variable, Export, while dealing with complexities such as variance heterogeneity, autocorrelation across countries, and the interaction of the explanatory variables. Each model offers a different lens through which to view the data, introducing different assumptions regarding the error structure, correlation

between observations, and how variance should be modeled. As such, determining the best estimator from these models hinges on a balance between complexity, goodness of fit, and interpretability, with the aim of providing a model that is robust yet parsimonious.

To begin, the research would perform the simplest GLS model (referred to as model_gls). This model does not incorporate any variance weights or correlation structures, and thus offers a straightforward, baseline approach to modeling the relationship between Export and the explanatory variables. The results from this model indicate that NFKI is the only significant predictor ($p < 0.001$), while NRCA and GLI do not appear to be statistically significant. The model achieves an AIC of -4681.875, a BIC of -4661.396, and a log-likelihood of 2345.938. While the residual standard error of 0.001211498 is relatively low, the insignificance of NRCA and GLI suggests that in this simple setup, export variability is largely explained by NFKI. This finding is not surprising, as simpler models often fail to capture the nuances of more complex datasets, especially when the data is heterogeneous across groups, as is likely the case in this international dataset with observations from different countries. Moreover, the residual standard error, though low, leaves room for improvement, suggesting that introducing additional complexity—such as allowing for variance heterogeneity or accounting for correlations across countries—could yield a better fit and more robust results.

As we move to models that incorporate greater complexity, the results improve substantially. For example, in model_gls_het, a variance-weighted GLS model, both NFKI and GLI become highly significant ($p < 0.001$). This model incorporates variance weights based on the fitted values, which allows for heteroscedasticity—i.e., the variance of the errors is allowed to vary with the fitted values rather than being constant. The results from this model are much stronger than those of the simple GLS model, with the AIC dropping significantly to -5462.589 and the log-likelihood increasing to 2736.294. This indicates that the model fits the data much better, particularly in its ability to capture the variability in the export data. However, the residual standard error remains quite high at 688.2111, which suggests that while the variance weighting improves the fit, there may still be unaccounted variability in the data, perhaps due to correlations across observations from the same country or interactions between the explanatory variables that the model does not capture. Nevertheless, this model shows the value of incorporating variance weights, as it results in significant improvements over the simple GLS model.

Another key development comes with the introduction of an autoregressive (AR(1)) correlation structure in models like model_gls_auto and model_gls_corr. These models take into account potential autocorrelation within countries—i.e., the idea that observations within

a country may be correlated with each other over time or across space. This is a reasonable assumption in an international dataset, where exports from a country in one year are likely to be correlated with exports from that country in subsequent years or nearby geographic regions. The AR(1) correlation structure allows the model to account for this correlation, improving its accuracy. However, despite the introduction of this correlation structure, the AIC and log-likelihood values remain relatively similar to those of the simple GLS model, with the AIC for both model_gls_auto and model_gls_corr sitting at -4680.553 and the log-likelihood at 2346.277. NFKI remains significant in these models, while NRCA and GLI do not become significant, which suggests that adding the AR(1) structure alone does not sufficiently address the issues of variability in the dataset. Nevertheless, these models do show the importance of considering correlation across observations, as ignoring such correlation can lead to incorrect inferences.

The introduction of both variance weighting and a correlation structure—such as in model_gls_no_varpower and model_gls_no_corAR1—marks a significant improvement. These models yield far better fits than either the simple GLS model or the models with only variance weights or only correlation structures. The log-likelihood in these models increases dramatically to 2780.538, and the residual standard error drops, indicating that these models are better able to capture the relationships between the explanatory variables and Export. More importantly, all three variables (NRCA, NFKI, and GLI) become significant in these models, with p-values well below 0.001, suggesting that variance weighting and correlation structure are crucial for accurately modeling the data. In model_gls_no_varpower, the variance structure plays a particularly important role in improving the model's performance. By allowing the variance of the errors to vary with the fitted values, this model accounts for heteroscedasticity in the data, capturing the variability that was missed by simpler models. The addition of an AR(1) correlation structure helps further by accounting for correlations within countries, which further improves the model's accuracy. This combination of variance weighting and correlation structure makes these models some of the best-performing in the set.

Among all the models considered, model_gls_simplified stands out as the best estimator. This model, which incorporates country-specific variance weights and an AR(1) correlation structure, achieves the lowest AIC (-6688.243) and the highest log-likelihood (3437.122), both of which indicate an excellent fit to the data. Moreover, the residual standard error in this model is extraordinarily low (3.632909e-05), suggesting that the model explains nearly all the variability in the export data. Importantly, all three explanatory variables (NRCA, NFKI, and GLI) are highly significant in this model, with p-values far below 0.001. The country-specific

variance structure allows the model to account for the differences in variance across countries, providing a more flexible and accurate fit than any of the other models. This makes sense in the context of international export data, where countries are likely to differ widely in terms of their export behavior, the factors that drive their exports, and the variability of their export performance. By allowing each country to have its own variance structure, the model is able to capture these differences in a way that simpler models cannot. Furthermore, the AR(1) correlation structure allows the model to account for correlations within countries, which further improves its fit. Together, these features make model_gls_simplified the most comprehensive and robust model out of all the ones considered.

While the simplified GLS model is clearly the best estimator, it is instructive to compare it with other models that use different optimization techniques or transformations. For example, model_gls_alt_opt optimizes the correlation structure using alternative techniques, yielding an AIC of -5180.252 and a residual standard error of 45.52418. While this model accounts for correlation across countries, it does not outperform the simplified model, likely because it lacks the flexibility of the country-specific variance structure. Similarly, model_gls_log, which log-transforms the response or explanatory variables, shows some improvement but does not outperform the more complex models with variance weighting and correlation structures. This log-transformed model achieves a lower AIC (-5180.065) and a higher residual standard error (143.4608) compared to model_gls_simplified. While the log transformation may help reduce heteroscedasticity or make the data more normally distributed, it does not capture the nuances of country-specific variance as effectively as the variance-weighted models.

One of the key lessons from this analysis is the importance of modeling both variance heterogeneity and correlation across observations. The simple GLS model, while easy to interpret and implement, fails to capture the complexities of the data, particularly the heteroscedasticity and autocorrelation that are likely present in this international dataset. By contrast, models that incorporate variance weighting and correlation structures—such as model_gls_simplified and model_gls_no_varpower—perform much better, providing more accurate and robust estimates of the relationship between the explanatory variables and Export. The significance of NRCA, NFKI, and GLI in these more complex models suggests that all three variables play an important role in explaining export variability, but that their effects can only be accurately estimated when variance heterogeneity and correlation are properly accounted for.

Another important takeaway is the role of country-specific variance structures in improving model performance. In model_gls_simplified, allowing each country to have its own

variance structure leads to a substantial improvement in model fit, as evidenced by the dramatic reduction in the residual standard error and the increase in log-likelihood. This suggests that countries differ widely in terms of the variability of their export performance, and that these differences must be accounted for in order to accurately model the relationship between the explanatory variables and Export. By allowing for country-specific variance, model_gls_simplified provides a more flexible and accurate fit than models that assume a constant variance across all countries. This feature is particularly important in international datasets, where countries are likely to have different economic structures, trade policies, and export markets, all of which contribute to the variability of their export performance.

In conclusion, while the simple GLS model provides a reasonable baseline, it is clear that models which account for variance heterogeneity and correlation within countries offer far superior performance. Among these models, model_gls_simplified stands out as the best estimator, providing the most accurate and interpretable results. Its combination of country-specific variance weights and an autoregressive correlation structure allows it to capture the complexities of the data in a way that simpler models cannot, making it the most effective model for explaining export variability. The results from this analysis highlight the importance of using flexible, robust models when dealing with complex, heterogeneous datasets, particularly in the context of international trade.

With the GLS model in place, the next step was to assign appropriate weights to the trade indicators based on their influence on export performance. The coefficient estimates from the GLS model were as follows:

NRCA: -0.00001615858

NFKI: 0.00005689926

GLI: -0.00001200266

These coefficients were then normalized and converted into absolute values to remove negative signs, ensuring that all values reflected their absolute influence on export performance. The sum of the coefficients was 0.0211, and the weights were calculated as follows:

NRCA: 0.18977 (or 18.997%)

NFKI: 0.66893 (or 66.893%)

GLI: 0.14111 (or 14.111%)

The overwhelmingly high weight assigned to the FKI (66.893%) underscored the critical importance of trade similarity in the export relationship between two countries. Comparative

advantage (RCA) played a smaller but still significant role, while trade structure (FKI) had a minimal influence.

To quantify the overall feasibility of an RTA between Indonesia and Sudan, the normalized values of the trade indicators for each country were multiplied by their respective weights. The results for each country were 0.147234 for Indonesia and 0.084261 for Sudan respectively. Finally, the overall RTA feasibility score was calculated by averaging the total scores for both countries was 0.115747.

The final feasibility score of 0.115747 (on a scale of 0 to 1) indicates moderate potential for a Regional Trade Agreement between Indonesia and Sudan. The most influential factor in this assessment was trade similarity, as reflected in the high weight assigned to the FKI. This suggests that further exploration for differentiated commodities where both countries participate in two-way trade could be a key area for RTA negotiations.

However, the relatively low values for comparative advantage (RCA) and trade structure (GLI) imply that Indonesia and Sudan may have some challenges in aligning their trade structures. While both countries show potential for cooperation, efforts to enhance trade relations should focus on sectors where intra-industry trade is high, which could yield the greatest mutual benefit.

In conclusion, while there is a foundation for a potential RTA between Indonesia and Sudan, further exploration and strengthening of key industries are necessary to make the agreement more viable and beneficial for both parties. The analysis highlights the importance of deepening industrial ties and fostering greater intra-industry trade as the cornerstone of any future trade agreement.

### 5.2.4. The elements of deep integration between Indonesia and Sudan

Furthermore, while Regional Trade Agreements (RTAs) between developed and developing countries are often lauded for their advantages (Evans et al., 2006), the proposed RTA between Indonesia and Sudan holds substantial potential for trade creation. This potential extends beyond their bilateral relationship, offering positive repercussions for trade with other nations involved in RTAs with Indonesia and Sudan. However, the feasibility of revitalizing this trade agreement is currently constrained by the ongoing conflict in Sudan. Addressing this conflict is crucial for unlocking the full benefits of a trade agreement between the two nations.

Once the conflict is resolved, Indonesia and Sudan stand to gain significantly from a mutually beneficial RTA. The trade dynamics between the two countries, as indicated by their trade contributions and economic strategies, underscore the potential for a robust economic

partnership. Indonesia's advanced industrial sector and Sudan's diverse raw material exports provide complementary strengths that could enhance bilateral trade and economic cooperation.

The shared socio-cultural values, strategic geographical positions, and distinctive economic advantages of both countries further amplify the potential for successful preferential trade agreements. Such agreements could leverage these strengths to foster deeper economic ties and promote growth. By enhancing trade and cooperation, Indonesia and Sudan could not only boost their economic performance but also contribute to broader development goals. This would involve strengthening diplomatic, cultural, and social connections, paving the way for a more integrated and prosperous future for both nations.

In summary, while the ongoing conflict presents a significant challenge, the strategic, economic, and socio-cultural benefits of a potential RTA between Indonesia and Sudan offer a compelling case for continued efforts toward resolution and cooperation. The foundation for deep integration between the two countries is already laid through their existing agreements, which address various aspects of economic collaboration.

To bridge the analysis between shallow and deep integration, it is essential to acknowledge that while immediate trade and economic cooperation may be hindered by current conflicts, the groundwork for more profound collaboration has already been established. The existing agreements between Indonesia and Sudan, which encompass areas such as investment, competition, and labor movement, are not merely formalities but represent strategic building blocks for deeper integration. These agreements demonstrate both countries' commitment to fostering a robust economic partnership, despite the challenges posed by ongoing conflict.

The transition from shallow to deep integration involves moving from basic trade relations to a more comprehensive economic partnership that touches on broader aspects of economic governance and regulation. The existing agreements—such as the Agreement on Economic and Technical Cooperation, the Bilateral Investment Treaty (BIT), and the Agreement on Avoidance of Double Taxation (DTA)—are indicative of this transition. They lay the foundation for future collaboration by providing a legal and institutional framework that can be expanded upon once stability is restored. Thus, as the situation improves, these agreements could catalyze a more integrated and mutually beneficial economic relationship, ultimately paving the way for a formal Regional Trade Agreement (RTA) that leverages the full spectrum of strategic, economic, and socio-cultural benefits.

This progression underscores the importance of resolving the conflict to unlock the full potential of these agreements, which could significantly enhance bilateral trade and economic cooperation between Indonesia and Sudan. The deep integration that could emerge from such

cooperation would not only strengthen economic ties but also contribute to broader regional stability and development.

Agreement on Economic and Technical Cooperation which is signed in 1991 marked the beginning of a formalized approach to fostering economic and technical cooperation between the two countries. According to the terms of this agreement, both Indonesia and Sudan committed to taking all necessary measures to encourage and develop economic and technical cooperation in alignment with their respective national laws and regulations. This agreement lays the groundwork for collaborative efforts in areas such as infrastructure development, technology transfer, and capacity building (Presiden Republik Indonesia, 1992).

Bilateral Investment Treaty that is signed in 1998, represents a significant step towards promoting and protecting investments between Indonesia and Sudan. Under this treaty, both countries agreed to create a favorable environment for nationals of the other party to invest within their respective territories. The BIT includes provisions to protect investors against unfair or discriminatory practices and to ensure the fair treatment of investments. It also establishes mechanisms for dispute resolution, providing a legal framework that fosters confidence and stability for investors (Presiden Republik Indonesia, 2002).

Agreement on Avoidance of Double Taxation also signed in 1998, this agreement aims to avoid double taxation and prevent fiscal evasion concerning taxes on income that incurred from property, business profit, transportation, dividend, interest, royalty, profit from property gain, and other profession (Presiden Republik Indonesia, 1998). By addressing issues of double taxation, the agreement ensures that income earned by individuals and businesses in one country is not taxed again in the other. This helps to reduce tax burdens on cross-border investments and trade, making it more attractive for businesses and individuals to engage in economic activities between Indonesia and Sudan.

These agreements collectively contribute to the framework of deep integration between the two countries. The Economic and Technical Cooperation agreement fosters broader economic collaboration, while the BIT and DTA provide specific protections and incentives for investment and trade. Together, these agreements facilitate a more robust economic relationship by addressing key areas of investment protection, tax relief, and cooperative development.

To seamlessly integrate the discussion on deep integration elements with the compliance requirements of Article XXIV of the GATT, it is important to acknowledge the dual objectives that any proposed RTA between Indonesia and Sudan must achieve. While the existing agreements, such as the Economic and Technical Cooperation agreement, the BIT, and the

DTA, lay a strong foundation for deep economic integration by enhancing investment protection, tax relief, and overall economic collaboration, they must also align with international trade obligations. Specifically, the RTA needs to comply with the provisions of Article XXIV of the GATT, which mandates that such agreements should facilitate trade between the involved parties without imposing additional barriers on trade with other WTO Members.

This compliance is crucial, as it ensures that the RTA not only deepens bilateral economic ties but also adheres to global trade rules, thereby contributing to a fair and open international trading system. Thus, the RTA's design must carefully balance the objectives of fostering closer economic cooperation between Indonesia and Sudan with the need to uphold the principles of non-discrimination and trade liberalization under the WTO framework. By doing so, the RTA can serve as a model of regional integration that supports broader global trade goals.

In general, Article XXIV requires the proposed RTA between Indonesia and Sudan to facilitate trade between the constituent territories and not to create trade barriers toward other WTO Members. Specifically, by the implementation of the proposed RTA 1) the duties and other regulations of commerce applied to other parties shall not higher or more restrictive and 2) the duties and other restrictive regulations of commerce between the two parties are eliminated on substantially all the trade. Moreover, the Enabling Clause (paragraph 2c) allows developing Members to conclude among themselves agreements on trade in goods (South-South agreements) subject to more flexible requirements than those contained in Article XXIV of the GATT.

The proposed RTA between Indonesia and Sudan is supposedly lower the tariff on the Sudanese side for Indonesian commodities, while Indonesia will maintain its tariff line, while at the tariff schedule both countries will supposedly apply tariff to almost all the commodities traded between both countries. Since Sudan is not yet WTO member, therefore Most Favored Nation principle does not apply for preferential treatment for Indonesian commodities. Moreover, the proposed RTA is in conformity with the enabling clause since Sudan is included in UN list of least developed countries (UNCTAD, 2021) while Indonesia based on IMF data is classified as developing country (IMF, 2023).

Further investigate elements of deep integration, the research also needs to address the Non-Tariff Measurements (NTMs) that has been taken by Indonesia and Sudan. Indonesia imposes 2,228 Non-Tariff Measures (NTMs) according to the latest World Bank data from 2023 (World Bank, 2023b). These NTMs cover a broad spectrum of regulations and requirements, making it challenging for importers to navigate the Indonesian market. The most

frequently encountered difficulties by importers, as highlighted in Indonesia's 2016 Country Report on Non-Tariff Measures by the International Trade Centre (2022), relate to pre-shipment inspection and entry formalities. Importers also face significant hurdles with quality control measures, conformity assessments, and technical requirements. These NTMs are designed to ensure that imported goods meet Indonesia's health, safety, and environmental standards, but they also act as significant barriers to trade.

For instance, pre-shipment inspections, which are mandatory for many imported goods, require goods to be examined by approved agencies before they can enter the Indonesian market. This process can be time-consuming and costly, often leading to delays in the supply chain. Additionally, entry formalities, which include customs procedures and documentation requirements, add another layer of complexity for businesses trying to import goods into Indonesia. These measures, while ensuring compliance with local standards, can create bottlenecks, particularly for small and medium-sized enterprises (SMEs) that may lack the resources to navigate these complex regulatory environments.

Quality control measures and conformity assessments are other significant NTMs imposed by Indonesia. These measures require imported products to meet specific standards, often involving rigorous testing and certification processes. While these regulations aim to protect consumers and ensure product safety, they can be perceived as trade barriers by exporting countries, particularly when the standards are not harmonized with international norms. The technical requirements, which can include product specifications, labeling requirements, and safety standards, further complicate the process for foreign exporters.

On the other hand, data on Sudan's NTMs is sparse, making it difficult to quantify the exact number of measures imposed by the Sudanese government. Major trade data providers like the International Trade Centre, UNCTAD, and WITS have limited information on Sudan's NTMs. However, Sudan's 2021 Country Report on Non-Tariff Measures by the International Trade Centre (2022) sheds some light on the challenges faced by importers in the Sudanese market. The report highlights that many of the non-tariff measures in Sudan originate from the country's rules, regulations, and import procedures, including restrictions, permit requirements, and inspection protocols.

In Sudan, technical barriers to trade (TBTs) are a significant issue. These barriers include product testing and certification requirements, which are often challenging to meet due to the scarcity of testing and certification facilities within the country. Moreover, Sudan's import procedures are often slow and cumbersome, exacerbated by bureaucratic inefficiencies. High fees and charges associated with these procedures further increase the cost of importing goods

into Sudan, making it a less attractive market for foreign businesses. The lack of adequate infrastructure and resources for testing and certification also means that many products face delays in gaining market entry, which can lead to lost business opportunities.

Furthermore, the administrative processes associated with importing goods into Sudan are notoriously slow. The paperwork involved is often extensive, and the approval process can be lengthy, leading to significant delays. These delays can be particularly problematic for perishable goods or goods that are needed urgently. The high fees and charges associated with importing goods into Sudan add another layer of difficulty, particularly for small businesses that may not have the financial resources to absorb these additional costs.

Further research into Sudan's trade barriers reveals additional complexities. Sudan imposes a range of import restrictions and requires specific permits and certificates for certain goods. For instance, importing medical equipment, medicines, and veterinary supplies necessitates certification from the National Council for Pharmacy and Toxicology. Other items, like color photocopiers and satellite receivers, require permits from the Public Security and the National Communications Commission. Sensitive imports, such as weapons, ammunition, and radioactive materials, are tightly controlled and require permits from the Ministry of Interior and the Atomic Energy Authority (US International Trade Administration, 2022).

Moreover, Sudan enforces several Sanitary and Phytosanitary (SPS) measures that can act as significant trade barriers, particularly for agricultural products. These measures, which include stringent and sometimes non-transparent import regulations, are not always based on scientific evidence, creating additional burdens for exporters, especially those dealing with perishable goods (US Trade Representative, 2023). Technical Barriers to Trade (TBT) in Sudan also present challenges, as the country implements various technical requirements and conformity assessments that can be cumbersome and lead to delays. The lack of adequate testing facilities further complicates matters, making it difficult for exporters to meet Sudanese standards (US International Trade Administration, 2022, US Trade Representative, 2023).

These NTMs in Sudan, combined with the complexities of its regulatory framework, create a challenging environment for international trade. The combination of restrictive regulations, high costs, and procedural delays can significantly deter foreign businesses from engaging with the Sudanese market. However, these barriers also present opportunities for policy reforms that could enhance Sudan's trade competitiveness by simplifying procedures, improving transparency, and expanding the availability of testing and certification facilities. On the other hand, Indonesia's extensive use of NTMs reflects its focus on maintaining high standards for

imports but also underscores the need for more efficient and streamlined processes to reduce the burden on importers.

In conclusion, both Indonesia and Sudan employ NTMs that serve to protect domestic industries and ensure compliance with standards but also create significant challenges for international trade. The contrast in the availability of data on NTMs between the two countries highlights the need for greater transparency and reform, particularly in Sudan, where more accessible and streamlined procedures could improve trade flows and economic growth. For Indonesia, the challenge lies in balancing the enforcement of NTMs with the need to maintain a competitive and open trading environment.

The trade relationship between Indonesia and Sudan holds significant potential for improvement, particularly through a more coordinated approach to managing tariff and non-tariff barriers (NTBs). These barriers, which include both tariffs and non-tariff measures (NTMs) such as import quotas, pre-shipment inspections, and technical standards, can significantly hinder trade by increasing costs and complicating the import-export process. Therefore, aligning the trade policies of Indonesia and Sudan, especially in the context of a proposed Regional Trade Agreement (RTA), could create a more conducive environment for trade, fostering economic growth and development in both countries.

A well-designed RTA between Indonesia and Sudan would benefit from a phased approach, where initial efforts focus on reducing tariffs and addressing the most pressing NTBs. However, the latter stages of the RTA should emphasize a more comprehensive review and reform of NTMs. Addressing NTMs is crucial because, while tariff reductions can immediately enhance market access, NTMs often have a more insidious and long-lasting impact on trade flows. NTMs, if not managed properly, can negate the benefits of tariff reductions by creating new barriers to trade, especially in sectors where technical standards and conformity assessments are stringent.

The latter stages of the RTA's development should, therefore, include detailed provisions for harmonizing technical standards, simplifying import procedures, and improving the transparency and efficiency of NTMs. This could involve establishing joint committees to review and streamline NTMs, investing in shared infrastructure for testing and certification, and implementing mutual recognition agreements (MRAs) that allow products certified in one country to be accepted in the other without additional testing. Such measures would not only reduce the cost of trade but also build trust between the two trading partners, laying a strong foundation for deeper economic integration.

Moreover, addressing NTMs in the latter stages of the RTA is aligned with the principles of the Sussex Framework, which emphasizes the importance of considering both trade creation and diversion effects when evaluating the feasibility of RTAs. By systematically reducing NTMs, the RTA could maximize trade creation benefits, ensuring that the agreement not only facilitates bilateral trade but also enhances both countries' competitiveness in global markets. This would be particularly important for sectors where both Indonesia and Sudan have identified comparative advantages, allowing these sectors to thrive in a more open and integrated regional market.

While tariff reductions are an important first step in enhancing trade relations between Indonesia and Sudan, the long-term success of their RTA will depend on effectively addressing NTMs. By prioritizing NTM reforms in the latter stages of the RTA, both countries can unlock significant economic potential, driving sustainable growth and development. This strategic approach to NTMs will ensure that the RTA not only opens new market opportunities but also creates a stable and predictable trading environment that benefits businesses and consumers alike.

## 5.2 Traded Commodities Competitiveness Performance Analysis

### 5.2.1. Indonesian commodities with best competitive performance

In the subsequent phase, the research will analyze several trade indicators namely, revealed comparative advantage (RCA) and constant market share analysis (CMSA) to identify the commodities of respective countries that will be included in tariff schedule. Gilbert (2017) showed that these indicators serve as tools to assess the state trade flow and the pattern of trade between the two countries, although these trade indicators did not indicate causality.

The research applies RCA equation and CMS equation to the bilateral trade data obtained from Trade Map (International Trade Centre, 2023a) database and calculate RCA as well as CMS index. As mentioned at the previous section, the research then will classify the commodities data based on their comparative and competitive advantages.

The analysis of traded commodities competitiveness between Indonesia and Sudan, using the modified Boston Consulting Group (BCG) matrix, offers an insightful look into the economic dynamics of both countries. The BCG matrix, which classifies commodities into four quadrants—GREAT, SUNRISE, MATURE, and SATURATED - provides a framework to understand how each country’s export commodities are performing in terms of market share and growth potential. The analysis highlights the strengths and areas for growth in both nations’

trade portfolios, with Indonesia showing a more diversified and robust export profile compared to Sudan's more concentrated but significant agricultural exports.

Indonesia’s competitive landscape is notably diverse, spanning across agricultural, manufactured, and processed goods. Among the commodities analyzed, five stand out in the GREAT quadrant: animal, vegetable, or microbial fats and oils and their cleavage products; miscellaneous edible preparations; coffee, tea, maté, and spices; preparations of meat, fish, crustaceans, mollusks, or other aquatic invertebrates; and lac; gums, resins and other vegetable saps and extracts. These commodities are not only significant in market share but also exhibit strong growth potential, indicating Indonesia’s established and expanding role in these sectors. For instance, Indonesia is a major global player in palm oil and its derivatives, a commodity that is crucial in both food and industrial sectors. Similarly, Indonesia’s historical prominence in coffee, tea, and spices continues to secure its position as a key global supplier in these areas. The success in exporting miscellaneous edible preparations and meat, fish, and crustacean preparations further illustrates Indonesia’s competitive advantage in processed food products, which cater to a broad international market.

In addition to these GREAT commodities, Indonesia has shown promise in fifteen SUNRISE commodities. These include machinery, and mechanical appliances; organic chemicals; plastics and its articles; toys, games, and sports requisites; vehicles and their parts; essential oils and resinoids; perfumery, cosmetic or toilet preparations; and aluminum and its articles, among others. The SUNRISE classification indicates that while these commodities currently have a lower market share, they possess significant growth potential. For example, Indonesia's machinery and equipment sector, particularly in batteries, diesel engine parts, packing machines and parts, as well as refrigerating machines and parts holds substantial promise as global demand for advanced industrial equipment grows. Similarly, the organic chemicals and plastics sectors are poised for growth, especially with the global shift towards sustainability. Indonesia’s abundant natural resources, especially in minerals like nickel essential for battery production, position the country as a critical player in the global transition to electric vehicles.

### 5.2.2. Sudanese commodities with best competitive performance

Sudan’s export portfolio is heavily concentrated in agricultural products, with oil seeds and oleaginous fruits, along with miscellaneous grains and seeds, forming the core of its economy. This sector, classified in the GREAT quadrant, represents Sudan’s primary strength in international trade, particularly through exports of sesame and groundnuts. Sudan’s

agricultural landscape, which benefits from favorable climatic conditions and fertile land, supports the cultivation of these high-demand crops, positioning Sudan as a key player in the global oilseeds market. The rising international demand for healthy oils and plant-based proteins has further amplified the growth potential of Sudan's agricultural exports, offering substantial opportunities for Sudan to enhance its market share in this sector.

In addition to oil seeds, Sudan's export potential is highlighted by seven commodities categorized in the SUNRISE quadrant, signaling promising future growth areas. These include vehicles (excluding military equipment), machinery and mechanical appliances, electrical machinery and equipment, edible fruits and nuts, live animals, lac, gums, resins, and other vegetable saps and extracts, and paper and paperboard products. Although these commodities are not currently dominant, they offer potential for expansion as Sudan seeks to diversify its export base. The machinery and electrical equipment sectors, while relatively undeveloped, could flourish with increased investments in industrialization and infrastructure. Similarly, the edible fruits and nuts category points to opportunities for Sudan to broaden its agricultural exports beyond traditional staples, provided the necessary advancements in agricultural technology and supply chains are made.

The live animals sector represents another promising SUNRISE category. Sudan's vast pastoral resources and experience in livestock production could position it as a significant exporter of live animals, particularly in regional markets. However, to realize this potential, Sudan needs to invest in improving animal health standards, veterinary services, and export logistics. Such developments would not only enhance the competitiveness of Sudan's livestock industry but also enable the country to tap into the growing demand for quality livestock products globally. Meanwhile, Sudan's natural resources in lac, gums, resins, and other vegetable saps and extracts indicate a niche market opportunity. This sector, if nurtured, could allow Sudan to capitalize on unique products with distinct value in global markets, particularly within industries requiring natural raw materials for pharmaceuticals, cosmetics, and other goods.

When comparing the export profiles of Indonesia and Sudan, the economic dynamics between the two countries become clear. Indonesia's export base is diverse and technologically advanced, with significant representation in both GREAT and SUNRISE commodities, spanning sectors such as mineral fuels, vegetable oils, rubber, machinery, and electrical equipment. This diversity gives Indonesia a resilient economic framework, enabling it to adapt to fluctuations in global demand and maintain a competitive edge across a variety of markets. In contrast, Sudan's export profile is more focused, with a primary reliance on agricultural

products. This concentration allows Sudan to capitalize on its agricultural strengths but also makes the economy vulnerable to external shocks and price volatility in the agricultural sector.

To foster long-term growth, Sudan could benefit from diversification efforts that build on the strengths of its SUNRISE commodities. With targeted investments and policy support, Sudan has the potential to transition from an agriculture-centric economy to one with broader industrial and technological capabilities. Such a shift could enhance Sudan's economic stability, improve resilience against market fluctuations, and attract foreign investment. Meanwhile, Indonesia's path to sustaining economic prosperity lies in further strengthening its diverse export sectors, which have already positioned it as a competitive global trade player. By continuing to innovate in technology-driven sectors and exploring new markets, Indonesia can ensure sustained growth and relevance in an ever-evolving global economy.

The path to economic advancement for both nations involve capitalizing on their respective strengths while addressing growth potential areas. Indonesia, with its technologically advanced and diverse export base, can pursue a strategy that emphasizes innovation and market expansion. In contrast, Sudan, which already holds a strong agricultural foundation, can focus on expanding its high-potential SUNRISE sectors. Investment in infrastructure, quality control, and market access for commodities such as machinery, electrical equipment, and processed agricultural products could allow Sudan to move these sectors toward the GREAT quadrant over time.

Identifying the commodities with the highest trade competitiveness performance enables Indonesia and Sudan to develop specialization strategies tailored to their unique strengths. This strategic focus could encourage trade creation and mutual economic benefits, particularly as the countries contemplate a Regional Trade Agreement (RTA). In the initial stages of RTA implementation, both countries could focus on liberalizing tariffs and trade barriers on the 26 prioritized commodities, thus laying the groundwork for expanded bilateral trade. Such a move could streamline trade processes, reduce costs, and open up new opportunities for market access, benefiting key sectors in both countries.

In summary, the complementary trade strengths of Indonesia and Sudan present an opportunity for mutually beneficial economic cooperation. Indonesia's broad-based export economy, supported by technological capabilities, provides it with flexibility and resilience in the global market. Sudan's focused agricultural export strengths, paired with growth opportunities in nascent sectors, position it well to diversify its economy and enhance its international competitiveness. Through targeted specialization and strategic collaboration, especially in the context of a potential RTA, Indonesia and Sudan can each enhance their trade

positions and drive sustained economic growth. The RTA could serve as a platform for both countries to leverage their comparative advantages, creating a robust framework for economic partnership that promotes development, market access, and shared prosperity.

### 5.3 Welfare Effect of Indonesia – Sudan Trade Agreement

The welfare impact analysis using the Computable General Equilibrium (CGE) model simulation provides a comprehensive view of the economic implications of the proposed Indonesia-Sudan regional trade agreement (RTA). This analysis is conducted through three distinct scenarios, each representing varying levels of tariff reductions on Indonesian exports to Sudan. The outcomes of these simulations are crucial for understanding how different policy interventions can affect trade flows, GDP growth, and overall welfare in both countries.

In the first scenario, Sudan reduces its tariff on Indonesian GREAT and SUNRISE commodities from 23.5% to 11.73%. This scenario results in a moderate positive impact on the GDP of both countries, with Indonesia's GDP increasing by 0.5% and Sudan's GDP by 4.25%. These changes, though seemingly modest, indicate the potential for tariff reductions to stimulate economic activity by facilitating increased trade. The model shows that Indonesia's export of GREAT and SUNRISE commodities to Sudan increases by 113.92%, while exports of MATURE and SATURATED commodities decrease by 0.02%. On the other hand, Sudan's export of GREAT and SUNRISE commodities to Indonesia surges 0.38%, exports of MATURE and SATURATED commodities also increase 0.01%. This outcome highlights Indonesia's strong comparative advantage in certain sectors, suggesting that strategic trade liberalization could enhance its economic prospects in these areas.

The welfare implications of this scenario are somewhat mixed. Indonesia is expected to gain a net welfare impact of US$ 8.47 million, driven primarily by favorable terms of trade in goods. However, the analysis also indicates that Sudan would experience a net welfare gain of US$ 5.73 million, suggesting that the benefits of trade liberalization might be between the two countries. The similar welfare gains might be driven by the change of Indonesia import value from the rest of the world and the change of Sudanese import value from Indonesia in GREAT and SUNRISE commodities.

As the analysis progresses to the second scenario, where Sudan's tariff on Indonesian GREAT and SUNRISE commodities is further reduced to 5.87%, the economic effects become more pronounced. Indonesia's GDP increases by 0.81%, reflecting the benefits of enhanced market access, while Sudan's GDP inclines by 3.25%. The larger tariff reduction in this scenario might encourage Sudan's local industries to take benefit of Indonesian commodities

that have competitive prices. Indonesia's exports continue to rise, with GREAT and SUNRISE commodities increasing by 0.7% and MATURE and SATURATED commodities by 0.07%. Meanwhile, Sudan's export of GREAT and SUNRISE commodities to Indonesia surges by 198.71%, indicating the significant potential for trade expansion under lower tariff conditions. However, the continued decline in Sudan's MATURE and SATURATED exports suggests that the benefits of trade liberalization may not be evenly spread across all sectors of the economy.

In this scenario, Indonesia's welfare gain increases to US$ 15.72 million, reflecting stronger improvements in terms of trade. On the other side, Sudan welfare gain began to decline to US$ 4 million. This outcome highlights the complexities of trade liberalization, where the overall gains from increased trade must be balanced against the risks of economic disruption in less diversified economies. The welfare loss for Sudan in this scenario suggests that, while some sectors may benefit from increased exports, other parts of the economy may suffer due to heightened competition and potential deindustrialization.

The third scenario, where Sudan reduces its tariff on Indonesian GREAT and SUNRISE commodities to 1.90%, presents the most dramatic outcomes. Indonesia's GDP rises by 1.5%, benefiting from even greater market access. However, Sudan's GDP declines sharply by 3.61%, raising concerns about the potential for severe economic challenges in the face of aggressive trade liberalization. The export of Indonesian GREAT and SUNRISE commodities to Sudan increases by 1.39%, while exports of MATURE and SATURATED commodities increase by 0.25%. On the other hand, Sudan's export of GREAT and SUNRISE commodities to Indonesia skyrockets by 372.92%, yet the decline in MATURE and SATURATED exports continues, pointing to a possible overreliance on a few export sectors, which could expose the economy to greater risks.

Indonesia's welfare gains in this scenario reach US$ 30.69 million, indicating that extensive tariff reductions could further enhance the country's economic welfare. However, the situation for Sudan is less favorable, with a welfare loss of US$ 5.48 million. This sharp decline underscores the potential negative impact of significant trade liberalization on economies with less competitive industrial bases. The substantial welfare loss in Sudan suggests that without adequate support measures, such as targeted investments in affected sectors or broader economic reforms, the benefits of trade liberalization may not materialize for the country.

The results of the Computable General Equilibrium (CGE) model simulations reveal the nuanced and complex nature of trade liberalization between Indonesia and Sudan, two countries with differing levels of economic development and sectoral competitiveness. The

simulations indicate that while Indonesia is positioned to gain across all scenarios, Sudan faces potential challenges, particularly in scenarios involving aggressive tariff reductions. These challenges are highlighted by significant welfare losses in Sudan, especially in the third scenario, which raises concerns about the broader implications of such trade liberalization efforts.

For Sudan, the welfare losses underscore the need for complementary policies to cushion the adverse impacts of trade liberalization. Without adequate support measures, such as targeted investments in vulnerable sectors or broader economic reforms, the benefits of trade liberalization may be overshadowed by negative outcomes. These results emphasize the importance of designing trade agreements that are sensitive to the specific economic contexts of the participating countries, ensuring that the benefits are equitably distributed.

However, the simulations also point to areas of opportunity for Sudan. The substantial increase in exports of GREAT and SUNRISE commodities to Indonesia across all scenarios indicates that Sudan possesses a strong comparative advantage in certain sectors. This comparative advantage could be a foundation for economic growth if the right policies are implemented. Policymakers in Sudan could capitalize on this potential by focusing on enhancing the competitiveness of these sectors through investments in technology, infrastructure, and human capital.

At the same time, the negative impact on Sudan's GDP and overall welfare highlights the need for broader economic diversification and the development of social safety nets to mitigate the risks associated with trade liberalization. These measures would help ensure that the benefits of trade liberalization are not confined to a few sectors but are spread across the economy, thereby reducing the likelihood of economic disruptions.

For Indonesia, the findings affirm the potential benefits of expanding market access, particularly in sectors where it holds competitive advantages. However, the success of these efforts also hinges on the stability and economic health of its trading partners, in this case, Sudan. Therefore, Indonesia has a vested interest in supporting Sudan's economic adjustment efforts, as a stable and prosperous Sudanese economy would create a more reliable and sustainable trading partner.

In summary, the CGE model simulations provide a detailed and insightful analysis of the potential economic impacts of the proposed Indonesia-Sudan Regional Trade Agreement (RTA). The results highlight the importance of a balanced approach to trade liberalization, one that not only promotes economic growth but also safeguards against the potential downsides for vulnerable economies. Policymakers in both countries should consider these findings as

they negotiate the terms of the trade agreement, ensuring that the benefits of increased trade are maximized while minimizing potential negative effects. This approach will help in crafting a trade agreement that is not only economically beneficial but also politically and socially sustainable.

The results of the Computable General Equilibrium (CGE) model simulations reveal a multifaceted landscape of trade liberalization between Indonesia and Sudan, two nations with distinct economic profiles and varying sectoral strengths. While the simulations consistently show that Indonesia stands to gain under all modeled scenarios, the potential benefits for Sudan are less certain. Specifically, the simulations indicate that Sudan could face substantial welfare losses, especially under scenarios involving more aggressive tariff reductions, which underscores the inherent risks of entering into a trade agreement without adequate preparatory measures.

The projected welfare losses in Sudan are particularly concerning in the third scenario, which assumes the most aggressive tariff cuts. This outcome suggests that without the implementation of supportive measures, such as targeted investments in key sectors or comprehensive economic reforms, trade liberalization could lead to unintended and adverse consequences for Sudan. These findings emphasize the need for carefully crafted trade agreements that are tailored to the specific economic conditions and developmental needs of the countries involved.

However, the CGE simulations also highlight areas of opportunity for Sudan. The notable increase in Sudanese exports of GREAT and SUNRISE commodities to Indonesia across all scenarios indicates that Sudan has a strong comparative advantage in certain sectors. This advantage presents a significant opportunity for Sudan to focus its development efforts on enhancing the competitiveness of these sectors. By investing in technology, infrastructure, and human capital, Sudan could strengthen its economic position and better leverage the benefits of the proposed trade agreement.

At the same time, the negative impacts on Sudan's GDP and overall welfare point to the necessity of broader economic diversification. Without diversification, Sudan risks over-reliance on a limited number of sectors, which could be vulnerable to external shocks. Therefore, it is crucial that Sudan implements complementary policies aimed at mitigating these risks. Social safety nets, economic diversification strategies, and investment in human capital are essential components of a comprehensive approach to trade liberalization that can help Sudan navigate the challenges posed by more open markets.

For Indonesia, the CGE model simulations affirm the potential benefits of expanding market access, particularly in sectors where it holds a competitive advantage. However, Indonesia's success in this trade agreement is also contingent on the economic stability and prosperity of its trading partner, Sudan. A stable and growing Sudanese economy would provide a more reliable and sustainable market for Indonesian goods and services. Therefore, it is in Indonesia's interest to support Sudan's economic adjustment and development efforts as part of the broader trade agreement framework.

In summary, the CGE model simulations provide a nuanced and detailed analysis of the potential economic impacts of the proposed Indonesia-Sudan Regional Trade Agreement (RTA). While the results clearly show that Indonesia is poised to benefit, they also highlight the significant challenges and risks that Sudan could face. These findings underscore the importance of a balanced and well-considered approach to trade liberalization—one that not only seeks to promote economic growth but also safeguards against the potential negative impacts on more vulnerable economies. As policymakers from both countries continue to negotiate the terms of the trade agreement, they must ensure that the benefits of increased trade are maximized while minimizing potential adverse effects. This will involve not only reducing tariffs but also implementing a suite of complementary policies designed to support economic adjustment, diversification, and development, particularly in Sudan. By doing so, the trade agreement can be crafted to be economically beneficial, politically viable, and socially sustainable, providing a solid foundation for enhanced bilateral relations.

# CHAPTER VI
# SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

## 6.1. Summary

The assessment based on the Sussex Framework's rules of thumb highlights several key findings related to the potential Regional Trade Agreement (RTA) between Indonesia and Sudan. Each indicator offers insights into the current trade dynamics, competitiveness, and compatibility between the two countries, which collectively suggest the strengths and challenges that would characterize an RTA between them.

First, there is a significant difference in pre-RTAs tariff and non-tariff measures imposed by each country. Sudan applies a relatively high tariff rate on imports from Indonesia, with an average tariff of 26.36% for agricultural products and 20.06% for manufactured goods. In contrast, Indonesia imposes substantially lower tariffs on imports from Sudan, with an average rate of 4.21% on agricultural goods and only 2.83% on manufactured products. This disparity indicates that Indonesian goods, particularly agricultural and manufactured items, face considerable trade barriers when entering the Sudanese market, while Sudanese exports to Indonesia encounter minimal tariffs. The high tariff difference suggests potential gains from the RTA, as reduced tariffs could encourage increased trade flows between the two countries, benefiting both economies. By alleviating these barriers, an RTA could create a more balanced and reciprocal trade relationship.

In terms of RTA partnerships, the proposed agreement would be exclusively bilateral, involving only Indonesia and Sudan. However, the broader context reveals that Sudan and Indonesia already have varying levels of engagement in other RTAs. Sudan is currently a member of three RTAs, likely within regional African trade frameworks, while Indonesia is a party to thirteen RTAs, many of which involve broader multilateral and regional arrangements within Asia and beyond. Indonesia's extensive experience in RTAs suggests a higher level of integration into global trade networks, which could provide valuable insights and negotiation strength in the proposed RTA with Sudan. Conversely, Sudan's relatively limited involvement in RTAs may mean that it stands to benefit significantly from the new opportunities for market expansion and trade integration offered by this bilateral agreement.

The Revealed Comparative Advantage (RCA) Index adds another layer of analysis, indicating the competitiveness of each country's export profile. The cumulative RCA for Indonesia over a 10-year period reached 171.19, while Sudan's RCA summation for the same period was 160.62. The difference of 10.57 in RCA values reflects a slight advantage for

Indonesia in terms of comparative advantage across the trade sectors analysed. Both countries, however, exhibit relatively strong comparative advantages, which suggests that each has sectors that could benefit from a specialized export focus within an RTA. This alignment in RCA values indicates potential complementarity, where each country could capitalize on its competitive strengths to supply goods that are in demand in the other's market.

The Trade Similarity Index, or Finger-Kreinin Index, measures the overlap in the composition of exports between the two countries. Over a 10-year span, the average value of the Trade Similarity Index was 2.04, with a range between 12.25 and 0.35. This low level of similarity implies that Indonesia and Sudan have distinct export portfolios, with limited overlap in their traded commodities. Such a divergence in export profiles could be beneficial in an RTA context, as it suggests that both countries have unique products to offer each other, reducing direct competition and fostering complementary trade relationships. An RTA could thus facilitate access to new markets and encourage diversification for both economies, with each country potentially serving as a source of goods that are less prevalent domestically.

The Grubel-Lloyd Index provides insights into the inter-industry trade balance between Indonesia and Sudan, with a focus on the degree of intra-industry trade. The index for Indonesian exports to Sudan fluctuated between 0.52 and 0.58, with an average of 0.55, indicating moderate levels of intra-industry trade, where Indonesia exports a range of similar goods to Sudan. In contrast, Sudan's Grubel-Lloyd index for exports to Indonesia was much lower, ranging from 0.06 to 0.24, with an average of 0.12. This difference highlights that Sudan's exports to Indonesia are less diversified within specific industries and more concentrated in distinct product categories, such as agriculture. The relatively low intra-industry trade on Sudan's side could point to opportunities for Sudan to diversify its exports and strengthen its industrial base through knowledge and technology transfer, which could be facilitated by the RTA with Indonesia.

The trade contribution to Gross National Product (GNP) and Gross Domestic Product (GDP) further underscores the importance of trade to both economies, though with notable differences. For Indonesia, the trade contribution to GNP from 2013 to 2018 ranged from 31.06% to 41.70%, with an average of 37.78%, indicating a steady and significant reliance on international trade for economic output. Sudan's trade contribution to GNP during the same period ranged widely from 27.69% to 81.49%, with an average of 42.78%, reflecting substantial fluctuations due to various economic and political factors that have impacted Sudan's trade performance. In terms of the trade-to-GDP ratio, Indonesia averaged 42.21% between 2013 and 2022, with a range of 32.97% to 49.58%. Sudan's average trade-to-GDP

ratio over the same period was notably lower, at 16.89%, with a wide range between 2.70% and 26.86%. This difference highlights Indonesia's deeper integration into the global economy, while Sudan's economy is more inward-focused and less dependent on foreign trade. An RTA could help Sudan increase its trade-to-GDP ratio by boosting export opportunities and improving access to Indonesian markets, thereby enhancing Sudan's overall economic resilience.

The research employed a weighted factor system to gain a deeper understanding of the feasibility of a regional trade agreement (RTA) between Indonesia and Sudan. By using indices that measure comparative advantages, trade similarities, and trade structure, the analysis found that the feasibility score for the Indonesia-Sudan RTA reached 0.115747 on a scale of 0 to 1. This score suggests moderate potential for establishing such an agreement, indicating that while there are opportunities, significant challenges remain for both countries in aligning their trade priorities.

Before calculating the feasibility score, the research conducted a normalization of indices for comparative advantage, trade similarity, and trade structure. This involved calculating the Revealed Comparative Advantage (RCA) and Gruber-Lloyd Index (GLI) for 148 countries/economies, as well as the Finger-Kreinin Index (FKI) for 224 bilateral RTAs. The descriptive analysis revealed that most developed countries exhibit lower comparative advantages, coupled with higher Gruber-Lloyd Index values. This indicates that developed nations tend to diversify their industrial output rather than rely on one specific commodity. By maximizing their industrial capacity and economies of scale, these countries produce a wider range of distinctive products, rather than focusing on a single competitive advantage.

Additionally, the research applied generalized least squares (GLS) regression models to investigate the relationship between RCA, GLI, and FKI with export performance. The results revealed that trade similarity plays a more significant role than comparative advantage or trade structure in determining export performance. This suggests that the alignment of product types and industries between trading partners, rather than any one country's competitive edge in specific industries, has a greater impact on successful export outcomes in the context of RTAs like the one being considered between Indonesia and Sudan.

Moreover, the research combined Revealed Comparative Advantage (RCA) with the Comparative Effect from the Constant Market Share Analysis (CMSA) equation to identify commodities with the highest trade competitiveness. This analysis highlighted 19 HS2 commodities exported by Indonesia to Sudan and 7 commodities exported by Sudan to Indonesia, which were categorized as SUNRISE and GREAT commodities. These are

considered the most competitive in trade between the two nations. Consequently, the research suggests that these commodities should be prioritized in the tariff reduction schedule during the negotiation of the proposed Regional Trade Agreement (RTA) between Indonesia and Sudan to maximize mutual trade benefits.

The experiments of CGE model demonstrate varying impacts of tariff reductions on the economies of Indonesia and Sudan. In the first scenario, reducing Sudan's tariffs on Indonesian GREAT and SUNRISE products from 23.5% to 11.73% led to a 0.5% increase in Indonesian GDP and a 4.25% increase in Sudanese GDP. Indonesia's exports of these commodities to Sudan surged by 113.92%, while Sudan's exports to Indonesia saw a modest increase. The RTA provided Indonesia with a welfare gain of US$ 8.47 million, primarily driven by terms of trade in goods. The second scenario, with a further tariff reduction to 5.87%, resulted in higher GDP growth for Indonesia (0.81%) and a slight decrease in Sudanese GDP growth (3.25%), with a corresponding increase in Indonesia's welfare impact to US$ 15.72 million. Finally, the third scenario, with tariffs reduced to 1.90%, saw the most significant growth in Indonesian GDP (1.5%) but a negative impact on Sudanese GDP (-3.61%). While Indonesia's welfare impact rose to US$ 30.69 million, Sudan experienced a welfare loss of US$ 5.48 million. Overall, the tariff reductions led to trade creation between the two countries, though the extent varied by scenario and impacted welfare differently for each nation.

The research also concludes that Indonesia holds a significantly stronger economic position than Sudan, backed by a larger economy, better infrastructure, and a more diverse industrial base. These factors position Indonesia as a key supplier for Sudan, capable of meeting various Sudanese needs while also serving as a gateway for Sudanese exports to broader Asian markets. Given Indonesia's economic leverage and regional influence, it is well-suited to act as a hub for Sudanese commodities, facilitating their entry into the larger and more dynamic Asian economies.

Despite the presence of other forms of agreements, such as Bilateral Investment Treaties (BIT) and Double Tax Avoidance Agreements, the research suggests that at this nascent stage of trade liberalization, a Preferential Trade Agreement (PTA) would be the most feasible approach for deepening economic ties between the two nations. This recommendation is rooted in the observation that the existing trade agreements between Indonesia and Sudan do not adequately address trade facilitation, an essential component for boosting bilateral trade. The PTA could serve as a foundational step toward a more comprehensive Regional Trade Agreement (RTA) in the future.

However, the research acknowledges the challenges in negotiating such an agreement. Given the current institutional capacities of both countries and the recent conflict in Sudan, which erupted on April 15, 2023, in Khartoum, the timeline for negotiation is expected to be extended. The armed conflict not only disrupts the immediate political and economic environment in Sudan but also poses significant obstacles for both countries to engage in effective negotiations, further complicating the path toward an RTA.

### 6.2. Implications

The assessment of a potential Regional Trade Agreement (RTA) between Indonesia and Sudan reveals promising prospects for mutual economic benefit, yet highlights the challenges inherent in the current political and economic context. Using the Ricardian and Heckscher-Ohlin models, the analysis concludes that the RTA is feasible, with a positive outlook for trade creation that aligns well with the economic profiles of both countries. The distinct endowments of each nation—Indonesia's industrial strength and Sudan's natural resources—suggest complementary trade dynamics that could foster a balanced economic partnership.

A key takeaway is the moderate feasibility score of 0.1157, achieved through a weighted factor system. While this score indicates potential, it also points to the need for careful negotiation and alignment of trade priorities. One challenge is Sudan's relatively high tariff rates, which are notably higher than Indonesia’s, creating a barrier to trade that the RTA could help alleviate. Reduced tariffs could lead to greater trade flows, especially in Indonesia’s agricultural and manufactured goods, enhancing access to each other's markets. Additionally, Sudan’s engagement in fewer RTAs compared to Indonesia underscores the potential for Sudan to benefit significantly from improved market access and economic integration.

Both countries’ comparative advantages, measured by the Revealed Comparative Advantage (RCA) Index, are promisingly aligned. Although Indonesia holds a slight edge in competitiveness, both nations show strength in distinct sectors, indicating that the RTA could encourage specialization and growth in mutually beneficial industries. The low Trade Similarity Index suggests minimal overlap in their export portfolios, which reduces direct competition and bolsters the case for complementary trade.

The Grubel-Lloyd Index (GLI) further reveals the inter-industry nature of trade between Indonesia and Sudan, with Indonesia’s exports to Sudan showing moderate diversity while Sudan’s exports remain concentrated, particularly in agriculture. An RTA could help Sudan diversify its export base, supporting broader economic stability and potential knowledge transfer. However, the ongoing conflict in Sudan presents a significant barrier to progress,

complicating both negotiation and the future implementation of an RTA. The instability affects Sudan's trade performance and could hinder the country's capacity to benefit fully from the agreement in the short term.

Economic data further underscore the value of trade to both nations' economic output, though Indonesia demonstrates a deeper integration with global trade, as seen in its higher trade-to-GDP ratios. Sudan's lower and more volatile trade-to-GDP ratios highlight its need for economic resilience, which could be bolstered through the RTA by opening new markets and stabilizing trade flows.

Given these findings, both Indonesia and Sudan would benefit from initiating a Preferential Trade Agreement (PTA) as a preliminary step, which could pave the way for a more comprehensive RTA. Although the current internal conflict in Sudan is a limiting factor, preparatory steps toward a trade agreement could ensure that, when conditions allow, both countries are poised to achieve the welfare gains and economic stability that a bilateral agreement could provide.

### 6.3. Recommendation for Future Research

This research contributes significantly to the understanding of regional trade agreements (RTAs) by extending the application of the Sussex Framework, which is traditionally used to assess RTAs between developed and developing nations, to a context involving Indonesia, a developing country, and Sudan, a least developed country. By doing so, it offers fresh insights into the dynamics of trade agreements between countries at different stages of development, particularly in cases where one is a non-WTO member. This represents a crucial shift in focus, as previous studies have often overlooked such relationships, concentrating instead on agreements between more economically similar nations.

Another contribution is the adoption of the Ricardian and Heckscher-Ohlin models of international trade to evaluate the likelihood of trade creation or trade diversion, differing from the mainstream Sussex Framework analysis, which often relies on Smithian models focused on labour division and specialization. While the Smithian approach is suitable for trade between developed and developing economies with strong industrial and governmental capabilities, the least developed countries rely more heavily on endowments like population, land, and natural resources. Therefore, when analysing trade relationships among developing and least developed countries, it is crucial for researchers to consider these endowment factors as key determinants to more accurately assess trade potential and outcomes. This approach broadens

the framework to better reflect the unique economic conditions of countries where natural and demographic endowments play a central role in shaping trade dynamics.

A major innovation of the research lies in its use of a weighted factor system to measure the depth of feasibility in establishing an RTA. The feasibility score for the Indonesia-Sudan agreement was quantified on a scale from 0 to 1, with the score of 0.115747 indicating moderate potential. This weighted factor system, applied within the Sussex Framework, provides a more detailed assessment of the feasibility of RTAs by incorporating multiple dimensions of trade similarity, comparative advantage, and trade structure, offering a clearer picture of the prospects for successful trade cooperation between these two nations. This method represents a novel contribution to the field, as it allows for a more refined analysis of RTA feasibility than the Sussex Framework alone.

Moreover, the research advances the methodology for identifying competitive commodities for tariff schedule negotiations by combining Revealed Comparative Advantage (RCA) with Constant Market Share Analysis (CMSA). This combination not only aids in the identification of competitive sectors but also enriches the negotiation process by providing a more comprehensive view of each country's export potential. By integrating these tools, the research offers a more nuanced and robust approach to understanding how trade agreements can be structured to the mutual benefit of both countries, based on their respective strengths and market positions.

Additionally, the research employs the GTAP database to analyse the welfare impacts of trade liberalization, particularly between developing and least developed countries. This database allows for a more detailed examination of the economic implications of trade agreements, ensuring that the analysis is grounded in reliable data. The combination of these advanced tools with the Sussex Framework, RCA, and CMSA underscores the importance of comprehensive data-driven analysis in shaping trade policy, particularly for nations with less developed economies.

Overall, the research makes valuable contributions to the literature on RTAs by not only adapting existing frameworks to a new context but also introducing methodological innovations that enhance the accuracy and depth of trade agreement assessments. These insights are crucial for policymakers and scholars exploring the evolving landscape of international trade.

The research employed a combination of techniques from the Sussex Framework for assessing Regional Trade Agreements (RTAs) and constant market share analysis indices to draw its conclusions. While these methods proved valuable, they were not fully exhaustive. To

enhance the robustness and depth of future studies, it is recommended that the Sussex Framework be fully utilized, offering a more comprehensive and holistic assessment of RTAs. Additionally, the context of Sudan's economic situation adds another layer of complexity. In 2023, Sudan's GDP was estimated to decline by approximately 29%, largely due to the ongoing armed conflict. This economic turmoil necessitates that future research updates and re-evaluates the bilateral trade dynamics between Indonesia and Sudan, as the existing data may no longer accurately reflect the current situation.

A critical limitation encountered in this research was the availability and reliability of data, particularly concerning Sudan. The scarcity of reliable data is a well-known challenge, exacerbated by the fact that Sudanese authorities, as well as those in surrounding African countries, often do not systematically collect or report data. This issue is not just a minor inconvenience; it has profound implications for the accuracy and validity of the research. The absence of complete and accessible data significantly impacts the effectiveness of analytical tools, which rely on accurate inputs to generate meaningful insights. When data is incomplete or unreliable, there is a substantial risk that researchers may be misled, resulting in flawed conclusions or misperceptions. Therefore, future research must prioritize the acquisition of reliable and comprehensive data, even if it requires more intensive efforts to gather information from alternative sources. Only with accurate data can the true dynamics of trade and economic relationships be understood, ensuring that research findings are both relevant and actionable.

Based on the findings of the research, the Regional Trade Agreement (RTA) between Indonesia and Sudan appears feasible according to the Sussex Framework's rules of thumb. However, when the trade indicators are compared with similar RTAs, they do not fall within the established thresholds, which might suggest some limitations. Despite this, the close political and socio-cultural ties between the two nations should be factored into the decision-making process regarding the establishment of the RTA. While the welfare impact seems to be beneficial primarily to Indonesia, with the right institutional improvements, Sudan could also gain substantial benefits from the agreement, reinforcing the case for moving forward with the RTA.

### 6.4. Conclusion

In conclusion, the findings from the Sussex Framework analysis provide a comprehensive understanding of the trade dynamics between Indonesia and Sudan. The differences in tariff structures highlight significant room for tariff reduction, which could enhance trade flows under an RTA. The RCA index and trade similarity assessments reveal complementary

strengths, suggesting that each country has unique exports that could meet the other's market demands. The Grubel-Lloyd Index results further support the potential for export diversification, especially for Sudan. Lastly, trade's contribution to each country's economy emphasizes the value of an RTA, particularly for Sudan, as it could strengthen trade ties and support economic stability. Through this RTA, Indonesia and Sudan have the potential to establish a mutually beneficial trade relationship that leverages their respective strengths and promotes economic growth.

The analysis of trade barriers reveals that Sudan imposes higher tariffs than Indonesia, which creates an uneven playing field in bilateral trade. Additionally, both countries are found to implement various non-tariff barriers, including complex regulations and technical requirements, which present significant challenges for importers. Using the Sussex Framework, which assesses the feasibility of trade agreements based on initial tariff differences and the degree of asymmetry, the research concludes that the high levels of asymmetry and tariff disparity between Indonesia and Sudan make a Regional Trade Agreement not only feasible but also potentially beneficial. The wide gaps in tariffs and other trade measures suggest that an RTA could bring substantial trade and welfare improvements for both countries.

Finally, the Indonesia-Sudan Regional Trade Agreement is moderately feasible and should ideally take the form of a Preferential Trade Agreement (PTA). To ensure mutual benefits, both parties should focus negotiations on 26 commodities with the strongest competitive performance. For Indonesia to achieve optimal welfare gains, Sudan should consider reducing tariffs by 50% (22.7% to 11.35%) on 19 key Indonesian commodities. Such an arrangement would foster improved market access, enhance trade flows, and support economic cooperation. A well-structured PTA can provide balanced benefits while addressing trade barriers, making it a practical and mutually advantageous framework for Indonesia and Sudan.

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APPENDIX 1

KREJCIE AND MORGAN TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

| *N* | *S* | *N* | *S* | *N* | *S* |
|---|---|---|---|---|---|
| 10 | 10 | 220 | 140 | 1200 | 291 |
| 15 | 14 | 230 | 144 | 1300 | 297 |
| 20 | 19 | 240 | 148 | 1400 | 302 |
| 25 | 24 | 250 | 152 | 1500 | 306 |
| 30 | 28 | 260 | 155 | 1600 | 310 |
| 35 | 32 | 270 | 159 | 1700 | 313 |
| 40 | 36 | 280 | 162 | 1800 | 317 |
| 45 | 40 | 290 | 165 | 1900 | 320 |
| 50 | 44 | 300 | 169 | 2000 | 322 |
| 55 | 48 | 320 | 175 | 2200 | 327 |
| 60 | 52 | 340 | 181 | 2400 | 331 |
| 65 | 56 | 360 | 186 | 2600 | 335 |
| 70 | 59 | 380 | 191 | 2800 | 338 |
| 75 | 63 | 400 | 196 | 3000 | 341 |
| 80 | 66 | 420 | 201 | 3500 | 346 |
| 85 | 70 | 440 | 205 | 4000 | 351 |
| 90 | 73 | 460 | 210 | 4500 | 354 |
| 95 | 76 | 480 | 214 | 5000 | 357 |
| 100 | 80 | 500 | 217 | 6000 | 361 |
| 110 | 86 | 550 | 226 | 7000 | 364 |
| 120 | 92 | 600 | 234 | 8000 | 367 |
| 130 | 97 | 650 | 242 | 9000 | 368 |
| 140 | 103 | 700 | 248 | 10000 | 370 |
| 150 | 108 | 750 | 254 | 15000 | 375 |
| 160 | 113 | 800 | 260 | 20000 | 377 |
| 170 | 118 | 850 | 265 | 30000 | 379 |
| 180 | 123 | 900 | 269 | 40000 | 380 |
| 190 | 127 | 950 | 274 | 50000 | 381 |
| 200 | 132 | 1000 | 278 | 75000 | 382 |
| 210 | 136 | 1100 | 285 | 1000000 | 384 |

Note. – *N* is population size.
*S* is sample size.

APPENDIX 2

REVEALED COMPARATIVE ADVANTAGE, GRUBEL-LLOYD INDEX AND FINGER-KREININ INDEX OF INDONESIA AND SUDAN

| HS Code | Description | $RCA_{IDN}$ | $RCA_{SDN}$ | Finger-Kreinin Index | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| | All products | 171.39 | 161.59 | 5.17 | 1.48 | 5.07 | 12.25 | 1.09 | 0.90 | 1.78 | 1.73 | 0.35 | 0.43 |
| 01 | Live animals | 0.29 | 61.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 02 | Meat and edible meat offal | 0.02 | 2.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 03 | Fish and crustaceans, molluscs and other aquatic invertebrates | 2.87 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 04 | Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ... | 0.42 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 05 | Products of animal origin, not elsewhere specified or included | 0.24 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 06 | Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 07 | Edible vegetables and certain roots and tubers | 0.16 | 1.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 08 | Edible fruit and nuts; peel of citrus fruit or melons | 0.62 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.31 | 0.14 | 0.27 |
| 09 | Coffee, tea, maté and spices | 3.68 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Cereals | 0.02 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | Products of the milling industry; malt; starches; inulin; wheat gluten | 0.42 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal ... | 0.29 | 19.65 | 0.00 | 0.31 | 0.63 | 0.57 | 0.55 | 0.81 | 0.92 | 0.48 | 0.01 | 0.16 |
| 13 | Lac; gums, resins and other vegetable saps and extracts | 1.74 | 36.39 | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | Vegetable plaiting materials; vegetable products not elsewhere specified or included | 15.03 | 1.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Animal, vegetable or microbial fats and oils and their cleavage products; prepared edible fats; ... | 21.02 | 1.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 16 | Preparations of meat, of fish, of crustaceans, molluscs or other aquatic invertebrates, or ... | 2.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | Sugars and sugar confectionery | 0.67 | 1.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | Cocoa and cocoa preparations | 2.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | Preparations of cereals, flour, starch or milk; pastrycooks' products | 1.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | Preparations of vegetables, fruit, nuts or other parts of plants | 0.49 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | Miscellaneous edible preparations | 1.49 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | Beverages, spirits and vinegar | 0.14 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | Residues and waste from the food industries; prepared animal fodder | 1.19 | 1.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | Tobacco and manufactured tobacco substitutes; products, whether or not containing nicotine, ... | 2.52 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | Salt; sulphur; earths and stone; plastering materials, lime and cement | 0.52 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | Ores, slag and ash | 1.79 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ... | 1.73 | 1.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.79 | 0.00 | 0.13 | 0.00 |
| 28 | Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, ... | 0.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | Organic chemicals | 0.66 | 0.05 | 0.00 | 0.00 | 4.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | Pharmaceutical products | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 |
| 31 | Fertilisers | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32 | Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring ... | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | Essential oils and resinoids; perfumery, cosmetic or toilet preparations | 0.56 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34 | Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial ... | 1.72 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35 | Albuminoidal substances; modified starches; glues; enzymes | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 36 | Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations | 0.25 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 37 | Photographic or cinematographic goods | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 38 | Miscellaneous chemical products | 2.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 39 | Plastics and articles thereof | 0.41 | 0.02 | 1.14 | 0.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.03 | 0.00 | 0.00 |
| 40 | Rubber and articles thereof | 3.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 |
| 41 | Raw hides and skins (other than furskins) and leather | 0.41 | 3.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 42 | Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ... | 0.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 43 | Furskins and artificial fur; manufactures thereof | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 44 | Wood and articles of wood; wood charcoal | 2.82 | 0.03 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45 | Cork and articles of cork | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork | 4.49 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or ... | 4.60 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard | 2.41 | 0.02 | 0.00 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | Printed books, newspapers, pictures and other products of the printing industry; manuscripts, ... | 0.10 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | Silk | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | Wool, fine or coarse animal hair; horsehair yarn and woven fabric | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | Cotton | 1.58 | 6.94 | 0.00 | 0.36 | 0.14 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.03 | 0.00 |
| 53 | Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn | 0.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | Man-made filaments; strip and the like of man-made textile materials | 2.24 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | Man-made staple fibres | 5.86 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof | 0.69 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | Carpets and other textile floor coverings | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 58 | Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery | 0.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 59 | Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable ... | 0.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | Knitted or crocheted fabrics | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 61 | Articles of apparel and clothing accessories, knitted or crocheted | 1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 62 | Articles of apparel and clothing accessories, not knitted or crocheted | 2.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 63 | Other made-up textile articles; sets; worn clothing and worn textile articles; rags | 0.39 | 0.01 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| 64 | Footwear, gaiters and the like; parts of such articles | 3.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65 | Headgear and parts thereof | 0.55 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 66 | Umbrellas, sun umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts thereof | 0.06 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles ... | 6.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | Articles of stone, plaster, cement, asbestos, mica or similar materials | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | Ceramic products | 0.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | Glass and glassware | 0.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ... | 0.86 | 15.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | Iron and steel | 2.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | Articles of iron or steel | 0.54 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | Copper and articles thereof | 1.26 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | Nickel and articles thereof | 4.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | Aluminium and articles thereof | 0.36 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | Lead and articles thereof | 0.21 | 3.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | Zinc and articles thereof | 0.11 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | Tin and articles thereof | 26.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | Other base metals; cermets; articles thereof | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | Miscellaneous articles of base metal | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| 84 | Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof | 0.27 | 0.00 | 3.93 | 0.76 | 0.00 | 6.51 | 0.48 | 0.04 | 0.01 | 0.14 | 0.00 | 0.00 |
| 85 | Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ... | 0.35 | 0.00 | 0.11 | 0.00 | 0.00 | 4.65 | 0.06 | 0.01 | 0.01 | 0.30 | 0.00 | 0.00 |
| 86 | Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures ... | 0.14 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | Vehicles other than railway or tramway rolling stock, and parts and accessories thereof | 0.50 | 0.01 | 0.00 | 0.00 | 0.15 | 0.09 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 |
| 88 | Aircraft, spacecraft, and parts thereof | 0.05 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | Ships, boats and floating structures | 0.59 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical ... | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 91 | Clocks and watches and parts thereof | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | Musical instruments; parts and accessories of such articles | 8.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | Arms and ammunition; parts and accessories thereof | 0.01 | 0.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ... | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 |
| 95 | Toys, games and sports requisites; parts and accessories thereof | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | Miscellaneous manufactured articles | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | Works of art, collectors' pieces and antiques | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | Commodities not elsewhere specified | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| HS Code | Grubel-Lloyd Index - Indonesia | | | | | | | | | | Grubel-Lloyd Index - Sudan | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| | 0.56 | 0.58 | 0.53 | 0.52 | 0.53 | 0.55 | 0.55 | 0.52 | 0.54 | 0.56 | 0.07 | 0.24 | 0.06 | 0.13 | 0.13 | 0.11 | 0.09 | 0.08 | 0.15 | 0.18 |
| 01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 08 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 |
| 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | 0.25 | 0.25 | 0.17 | 0.14 | 0.16 | 0.17 | 0.14 | 0.10 | 0.13 | 0.17 | 0.06 | 0.20 | 0.03 | 0.06 | 0.08 | 0.07 | 0.02 | 0.01 | 0.07 | 0.08 |
| 28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | 0.01 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 38 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 39 | 0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 |
| 53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.04 | 0.07 |
| 72 | 0.00 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 | 0.04 | 0.04 | 0.06 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 0.02 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

APPENDIX 3

REVEALED COMPARATIVE ADVANTAGE AND GRUBEL-LLOYD INDEX

OF 148 COUNTRIES/ECONOMIES

| No | Country | Export | Import | RCA | GLI |
|---|---|---|---|---|---|
| | World | 190092338443 | 192562950595 | 97.00 | 0.97 |
| 1 | Afghanistan | 10259409 | 75180279 | 588.53 | 0.11 |
| 2 | Albania | 26834814 | 57796459 | 129.03 | 0.45 |
| 3 | Algeria | 434506101 | 458890501 | 22.76 | 0.08 |
| 4 | Angola | 416886546 | 167407640 | 11.00 | 0.09 |
| 5 | Argentina | 665385473 | 618822073 | 160.28 | 0.37 |
| 6 | Armenia | 24179740 | 47164677 | 134.87 | 0.36 |
| 7 | Australia | 2649192844 | 2257730220 | 107.20 | 0.34 |
| 8 | Austria | 1695059168 | 1773018177 | 106.76 | 0.82 |
| 9 | Azerbaijan | 200199185 | 108484089 | 24.01 | 0.11 |
| 10 | Bahrain, Kingdom of | 162296013 | 176031870 | 63.12 | 0.62 |
| 11 | Bangladesh | 429727351 | 551137374 | 192.48 | 0.06 |
| 12 | Belarus | 299598702 | 340750983 | 133.86 | 0.69 |
| 13 | Belgium | 4684941333 | 4502743467 | 96.69 | 0.89 |
| 14 | Bhutan | 3402218 | 8774680 | 173.62 | 0.18 |
| 15 | Bolivia, Plurinational State of | 98915795 | 97557522 | 180.22 | 0.24 |
| 16 | Bosnia and Herzegovina | 66574896 | 110934392 | 147.35 | 0.56 |
| 17 | Botswana | 67563164 | 71181165 | 52.65 | 0.38 |
| 18 | Brazil | 2335919097 | 1962263984 | 158.82 | 0.46 |
| 19 | Brunei Darussalam | 83771924 | 47175207 | 14.50 | 0.31 |
| 20 | Bulgaria | 333729897 | 376751105 | 137.75 | 0.73 |
| 21 | Burkina Faso | 33072574 | 40980034 | 111.56 | 0.06 |
| 22 | Cambodia | 126702628 | 170818621 | 148.96 | 0.23 |
| 23 | Cameroon | 42361750 | 64279213 | 125.26 | 0.32 |
| 24 | Canada | 4543499162 | 4562296458 | 98.99 | 0.65 |
| 25 | Cayman Island | 13876562 | 40794278 | 134.32 | 0.51 |
| 26 | Chile | 755615914 | 716488552 | 148.64 | 0.19 |
| 27 | China | 25760315191 | 20670751228 | 124.36 | 0.58 |
| 28 | Colombia | 428232546 | 552080683 | 108.35 | 0.33 |
| 29 | Congo DRC | 143961072 | 96272942 | 134.91 | 0.07 |
| 30 | Costa Rica | 116832204 | 168773620 | 147.36 | 0.39 |
| 31 | Côte d'Ivoire | 131243005 | 116466794 | 220.87 | 0.33 |
| 32 | Croatia | 167284859 | 271825527 | 138.29 | 0.69 |
| 33 | Cuba | 25274990 | 88156262 | 313.11 | 0.14 |
| 34 | Czech Republic | 1900472630 | 1726131987 | 88.60 | 0.81 |
| 35 | Denmark | 1092468657 | 1000514727 | 147.09 | 0.77 |
| 36 | Djibouti | 9748713 | 46051186 | 171.73 | 0.33 |
| 37 | Dominican Rep. | 99827239 | 214690461 | 252.07 | 0.32 |
| 38 | Ecuador | 230736218 | 233972334 | 154.82 | 0.31 |

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|---|---|---|---|---|---|
| 39 | Egypt | 311742411 | 763696255 | 154.69 | 0.45 |
| 40 | El Salvador | 51662531 | 114064994 | 181.48 | 0.42 |
| 41 | Estonia | 176476380 | 197156496 | 109.00 | 0.78 |
| 42 | Ethiopia | 27762471 | 149010456 | 345.74 | 0.05 |
| 43 | Faroe Islands | 13909321 | 11050016 | 188.65 | 0.13 |
| 44 | Finland | 714505991 | 749113482 | 122.70 | 0.70 |
| 45 | Free Zones | 62363257 | 51582585 | 94.21 | 0.49 |
| 46 | French | 5434382116 | 6473004633 | 117.72 | 0.76 |
| 47 | Gabon | 95228551 | 50912885 | 62.12 | 0.39 |
| 48 | Georgia | 26698568 | 78316829 | 135.67 | 0.25 |
| 49 | Germany | 14781229857 | 12377718574 | 82.36 | 0.77 |
| 50 | Ghana | 148244424 | 144253888 | 113.78 | 0.22 |
| 51 | Greece | 377530805 | 631616824 | 122.53 | 0.65 |
| 52 | Guatemala | 115882393 | 206907714 | 205.81 | 0.38 |
| 53 | Guinea | 60617708 | 40960071 | 57.47 | 0.07 |
| 54 | Guyana | 27308459 | 34222728 | 122.97 | 0.31 |
| 55 | Haiti | 7435017 | 37410069 | 131.53 | 0.14 |
| 56 | Honduras | 96152133 | 122914106 | 163.08 | 0.33 |
| 57 | Hong Kong, China | 5576222405 | 6079818295 | 55.06 | 0.94 |
| 58 | Hungary | 1194439783 | 1137323494 | 71.23 | 0.83 |
| 59 | Iceland | 52932772 | 65930543 | 140.20 | 0.18 |
| 60 | India | 3245106190 | 4775859023 | 131.89 | 0.57 |
| 61 | Indonesia | 1856946561 | 1734831496 | 171.45 | 0.57 |
| 62 | Iran, Islamic Republic of | 754849035 | 470739701 | 76.08 | 0.20 |
| 63 | Iraq | 825401541 | 529742242 | 10.14 | 0.10 |
| 64 | Ireland | 1574480832 | 991705897 | 72.43 | 0.47 |
| 65 | Israel | 624805908 | 763653012 | 91.16 | 0.58 |
| 66 | Italy | 5335467049 | 4893058584 | 122.50 | 0.74 |
| 67 | Japan | 6968424446 | 7357513375 | 64.84 | 0.52 |
| 68 | Jordan | 85259031 | 209938535 | 184.40 | 0.34 |
| 69 | Kazakhstan | 605572324 | 375578029 | 71.41 | 0.18 |
| 70 | Kenya | 61360848 | 172152472 | 376.54 | 0.25 |
| 71 | Korea, Republic of | 5717137313 | 5214519215 | 65.07 | 0.63 |
| 72 | Kuwait | 711123827 | 322039816 | 14.50 | 0.08 |
| 73 | Kyrgyzstan | 18245926 | 52924234 | 117.67 | 0.25 |
| 74 | Lao People's Democratic Republic | 51742390 | 51874776 | 147.25 | 0.45 |
| 75 | Latvia | 150216322 | 182474500 | 127.77 | 0.71 |
| 76 | Lebanon | 36835353 | 181978451 | 154.44 | 0.32 |
| 77 | Libya, State of | 246569691 | 156425321 | 12.46 | 0.16 |
| 78 | Lithuania | 331253265 | 361738343 | 137.88 | 0.77 |
| 79 | Luxembourg | 141933591 | 226114275 | 117.23 | 0.67 |
| 80 | Macao, China | 11326381 | 122479405 | 120.86 | 0.15 |
| 81 | Macedonia, North | 61910747 | 86185823 | 96.79 | 0.51 |
| 82 | Madagascar | 24523033 | 36176505 | 435.60 | 0.11 |

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|---|---|---|---|---|---|
| 83 | Malaysia | 2442563050 | 2100727897 | 79.15 | 0.79 |
| 84 | Malta | 39376396 | 73622779 | 73.33 | 0.55 |
| 85 | Mauritania | 25289195 | 35650866 | 108.16 | 0.04 |
| 86 | Mauritius | 20219066 | 52295205 | 228.73 | 0.29 |
| 87 | Mexico | 4341707318 | 4396682922 | 64.13 | 0.74 |
| 88 | Moldova, Republic of | 26634068 | 57066453 | 145.97 | 0.38 |
| 89 | Mongolia | 69842228 | 55860130 | 124.75 | 0.24 |
| 90 | Montenegro | 4369629 | 24835815 | 134.41 | 0.24 |
| 91 | Morocco | 281976614 | 494070467 | 163.21 | 0.43 |
| 92 | Mozambique | 46677878 | 81837045 | 110.04 | 0.40 |
| 93 | Myanmar | 143878091 | 167767701 | 129.20 | 0.34 |
| 94 | Namibia | 56788597 | 75322729 | 144.25 | 0.43 |
| 95 | Nepal | 9451638 | 104220690 | 657.81 | 0.14 |
| 96 | Netherlands | 5792733468 | 5157943425 | 120.58 | 0.87 |
| 97 | New Caledonia | 18126461 | 25819118 | 195.90 | 0.06 |
| 98 | New Zealand | 387580362 | 422472367 | 218.61 | 0.28 |
| 99 | Nicaragua | 53364141 | 74598198 | 277.13 | 0.29 |
| 100 | Nigeria | 767082482 | 437160726 | 44.20 | 0.24 |
| 101 | Norway | 1337329497 | 871653862 | 55.65 | 0.30 |
| 102 | Oman | 428181578 | 289576351 | 44.96 | 0.39 |
| 103 | Pakistan | 244276531 | 540405541 | 230.64 | 0.18 |
| 104 | Palestine | 10990392 | 63424626 | 199.16 | 0.24 |
| 105 | Panama | 158450558 | 224963483 | 105.34 | 0.71 |
| 106 | Papua New Guinea | 104547427 | 49176391 | 99.17 | 0.16 |
| 107 | Paraguay | 90366069 | 121763980 | 159.92 | 0.29 |
| 108 | Peru | 445763483 | 432520979 | 184.88 | 0.25 |
| 109 | Philippines | 651952989 | 977092775 | 81.00 | 0.61 |
| 110 | Poland | 2459074617 | 2481552073 | 120.30 | 0.80 |
| 111 | Portugal | 659564474 | 844351175 | 299.56 | 0.73 |
| 112 | Qatar | 896936192 | 297597228 | 23.69 | 0.09 |
| 113 | Romania | 744214356 | 916801505 | 101.34 | 0.73 |
| 114 | Russian Federation | 4281617409 | 2394354721 | 60.52 | 0.23 |
| 115 | Saudi Arabia | 2758767944 | 1511376641 | 29.30 | 0.18 |
| 116 | Senegal | 35628231 | 75320418 | 184.65 | 0.32 |
| 117 | Serbia | 186825077 | 252757923 | 130.64 | 0.67 |
| 118 | Singapore | 4018730759 | 3587691729 | 47.84 | 0.81 |
| 119 | Slovakia | 889441833 | 881676056 | 66.95 | 0.81 |
| 120 | Slovenia | 358804452 | 362720584 | 83.02 | 0.81 |
| 121 | South Africa | 954273575 | 903772583 | 100.89 | 0.52 |
| 122 | Spain | 3316282958 | 3658466458 | 127.72 | 0.76 |
| 123 | Sri Lanka | 114942997 | 190935678 | 267.21 | 0.26 |
| 124 | Sudan | 69737465 | 92538039 | 159.75 | 0.15 |
| 125 | Suriname | 18719138 | 16379245 | 117.72 | 0.18 |
| 126 | Sweden | 1633322966 | 1624426705 | 81.17 | 0.81 |
| 127 | Switzerland | 3288553144 | 2918566131 | 80.99 | 0.75 |

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|---|---|---|---|---|---|
| 128 | Syrian Arab Rep. | 9783158 | 59675888 | 319.35 | 0.25 |
| 129 | Taipei, Chinese | 3428630253 | 2937171174 | 61.65 | 0.69 |
| 130 | Tajikistan | 12544818 | 37438496 | 170.98 | 0.11 |
| 131 | Tanzania, United Republic of | 52396188 | 107917822 | 185.68 | 0.17 |
| 132 | Thailand | 2392887630 | 2376620143 | 102.79 | 0.67 |
| 133 | Trinidad and Tobago | 108039970 | 81115155 | 71.49 | 0.40 |
| 134 | Tunisia | 154991659 | 220505745 | 111.42 | 0.54 |
| 135 | Türkiye | 1769317886 | 2439644332 | 145.49 | 0.60 |
| 136 | Turkmenistan | 84260301 | 54612144 | 64.15 | 0.08 |
| 137 | Uganda | 30663096 | 69353872 | 241.92 | 0.35 |
| 138 | Ukraine | 494082293 | 558129271 | 149.94 | 0.36 |
| 139 | United Arab Emirates | 3536361215 | 2969510647 | 50.44 | 0.67 |
| 140 | United Kingdom | 4739506705 | 6766023842 | 90.12 | 0.79 |
| 141 | United States of America | 16249995021 | 25599380918 | 89.31 | 0.68 |
| 142 | Uruguay | 84371716 | 95918919 | 245.63 | 0.27 |
| 143 | Uzbekistan | 107758986 | 169631406 | 194.48 | 0.22 |
| 144 | Venezuela, Bolivarian Republic of | 335329475 | 185544008 | 18.25 | 0.13 |
| 145 | Viet Nam | 2332418362 | 2275002453 | 112.12 | 0.65 |
| 146 | Yemen | 22631937 | 102025973 | 82.24 | 0.22 |
| 147 | Zambia | 89258334 | 83735931 | 176.47 | 0.19 |
| 148 | Zimbabwe | 42799409 | 63006799 | 258.69 | 0.11 |

APPENDIX 4

INPUT DATA OF 224 BILATERAL REGIONAL TRADE AGREEMENTS FOR REGRESSION MODEL

| | Country | N-Export | NRCA | NFKI | GLI |
|---|---|---|---|---|---|
| 1 | Afghanistan | 0.00003271765 | 0.89468828928 | 0.13421177131 | 0.11095183306 |
| 2 | Albania | 0.00002764606 | 0.19615618474 | 0.23482143662 | 0.45405043122 |
| 3 | Albania | 0.00000243208 | 0.19615618474 | 0.21967180795 | 0.45405043122 |
| 4 | Argentina | 0.00008663008 | 0.24365456369 | 0.27505178219 | 0.36912101434 |
| 5 | Armenia | 0.00000498035 | 0.20502408985 | 0.15822898340 | 0.35958025980 |
| 6 | Armenia | 0.00000042253 | 0.20502408985 | 0.10992337444 | 0.35958025980 |
| 7 | Armenia | 0.00000009768 | 0.20502408985 | 0.15809610353 | 0.35958025980 |
| 8 | Armenia | 0.00000007834 | 0.20502408985 | 0.17211263341 | 0.35958025980 |
| 9 | Armenia | 0.00000048681 | 0.20502408985 | 0.03896610572 | 0.35958025980 |
| 10 | Armenia | 0.00000082455 | 0.20502408985 | 0.16461085031 | 0.35958025980 |
| 11 | Australia | 0.00001717311 | 0.16296282708 | 0.12016626898 | 0.34310915864 |
| 12 | Australia | 0.00438676726 | 0.16296282708 | 0.16922934618 | 0.34310915864 |
| 13 | Australia | 0.00027490081 | 0.16296282708 | 0.13073570238 | 0.34310915864 |
| 14 | Australia | 0.00050187079 | 0.16296282708 | 0.28063080366 | 0.34310915864 |
| 15 | Australia | 0.00024477534 | 0.16296282708 | 0.25519560964 | 0.34310915864 |
| 16 | Australia | 0.00146237243 | 0.16296282708 | 0.17899786050 | 0.34310915864 |
| 17 | Australia | 0.00082400687 | 0.16296282708 | 0.21848248928 | 0.34310915864 |
| 18 | Australia | 0.00021557800 | 0.16296282708 | 0.28175153535 | 0.34310915864 |
| 19 | Australia | 0.00036800363 | 0.16296282708 | 0.18332356663 | 0.34310915864 |
| 20 | Australia | 0.00007904968 | 0.16296282708 | 0.12863443419 | 0.34310915864 |
| 21 | Australia | 0.00000334651 | 0.16296282708 | 0.17052659891 | 0.34310915864 |
| 22 | Australia | 0.00029076567 | 0.16296282708 | 0.28677503687 | 0.34310915864 |
| 23 | Australia | 0.00019133782 | 0.16296282708 | 0.21480834814 | 0.34310915864 |
| 24 | Australia | 0.00027021556 | 0.16296282708 | 0.28202524922 | 0.34310915864 |
| 25 | Australia | 0.00054289820 | 0.16296282708 | 0.29566299864 | 0.34310915864 |
| 26 | Azerbaijan | 0.00002784575 | 0.03650724831 | 0.06236675791 | 0.10767042726 |
| 27 | Azerbaijan | 0.00000217288 | 0.03650724831 | 0.07682346759 | 0.10767042726 |
| 28 | Azerbaijan | 0.00000037214 | 0.03650724831 | 0.07942213834 | 0.10767042726 |
| 29 | Azerbaijan | 0.00003749919 | 0.03650724831 | 0.05895564512 | 0.10767042726 |
| 30 | Azerbaijan | 0.00001411683 | 0.03650724831 | 0.07956422612 | 0.10767042726 |
| 31 | Bahrain | 0.00005013089 | 0.09595091168 | 0.29503244234 | 0.61587304644 |
| 32 | Belarus | 0.00019997932 | 0.20349388754 | 0.27711923963 | 0.69374095499 |
| 33 | Bhutan | 0.00001149689 | 0.26393361951 | 0.08124806236 | 0.18140892697 |
| 34 | Bolivia | 0.00000153141 | 0.27397392883 | 0.10994095529 | 0.23651163786 |
| 35 | Bosnia and Herzegovina | 0.00000980030 | 0.22399737923 | 0.37045568138 | 0.56168767913 |
| 36 | Brazil | 0.00023670755 | 0.24144601894 | 0.31940836982 | 0.45518774448 |
| 37 | Brunei Darussalam | 0.00013168681 | 0.02204195157 | 0.08012461808 | 0.30552840444 |
| 38 | Cambodia | 0.00004259651 | 0.22645682111 | 0.15693386936 | 0.23424238179 |
| 39 | Cambodia | 0.00000900997 | 0.22645682111 | 0.14030537019 | 0.23424238179 |

| | | | | | |
|---|---|---|---|---|---|
| 40 | Cameroon | 0.00000321106 | 0.19042658332 | 0.14511720805 | 0.32029907682 |
| 41 | Canada | 0.00004018327 | 0.15048040784 | 0.15112875665 | 0.64858254506 |
| 42 | Canada | 0.00003790030 | 0.15048040784 | 0.25830186097 | 0.64858254506 |
| 43 | Canada | 0.00000697004 | 0.15048040784 | 0.24103219196 | 0.64858254506 |
| 44 | Canada | 0.00000183654 | 0.15048040784 | 0.18286549189 | 0.64858254506 |
| 45 | Canada | 0.00001816346 | 0.15048040784 | 0.31745876509 | 0.64858254506 |
| 46 | Canada | 0.00000323267 | 0.15048040784 | 0.24279312082 | 0.64858254506 |
| 47 | Canada | 0.00021907002 | 0.15048040784 | 0.37948469343 | 0.64858254506 |
| 48 | Canada | 0.00000714413 | 0.15048040784 | 0.24975814225 | 0.64858254506 |
| 49 | Canada | 0.00003683187 | 0.15048040784 | 0.19013833528 | 0.64858254506 |
| 50 | Canada | 0.00000843159 | 0.15048040784 | 0.26689673526 | 0.64858254506 |
| 51 | Canada | 0.00007293702 | 0.15048040784 | 0.51434558714 | 0.64858254506 |
| 52 | Chile | 0.00123675810 | 0.22595659448 | 0.10788831639 | 0.18594615554 |
| 53 | Chile | 0.00004728529 | 0.22595659448 | 0.10162336084 | 0.18594615554 |
| 54 | Chile | 0.00001339216 | 0.22595659448 | 0.11953839188 | 0.18594615554 |
| 55 | Chile | 0.00000385223 | 0.22595659448 | 0.09835519040 | 0.18594615554 |
| 56 | Chile | 0.00000648546 | 0.22595659448 | 0.12340358657 | 0.18594615554 |
| 57 | Chile | 0.00000208269 | 0.22595659448 | 0.10298358572 | 0.18594615554 |
| 58 | Chile | 0.00000733930 | 0.22595659448 | 0.07418524691 | 0.18594615554 |
| 59 | Chile | 0.00008265687 | 0.22595659448 | 0.11175793425 | 0.18594615554 |
| 60 | Chile | 0.00000741226 | 0.22595659448 | 0.12560666603 | 0.18594615554 |
| 61 | Chile | 0.00034688807 | 0.22595659448 | 0.10114549121 | 0.18594615554 |
| 62 | Chile | 0.00023874752 | 0.22595659448 | 0.10406591425 | 0.18594615554 |
| 63 | Chile | 0.00000868598 | 0.22595659448 | 0.12635032437 | 0.18594615554 |
| 64 | Chile | 0.00007195087 | 0.22595659448 | 0.11617328262 | 0.18594615554 |
| 65 | Chile | 0.00000165070 | 0.22595659448 | 0.07725861439 | 0.18594615554 |
| 66 | Chile | 0.00001282750 | 0.22595659448 | 0.09410310606 | 0.18594615554 |
| 67 | Chile | 0.00009729468 | 0.22595659448 | 0.09988539799 | 0.18594615554 |
| 68 | Chile | 0.00001972610 | 0.22595659448 | 0.12170577516 | 0.18594615554 |
| 69 | Chile | 0.00001449984 | 0.22595659448 | 0.13194694983 | 0.18594615554 |
| 70 | Chile | 0.00003821514 | 0.22595659448 | 0.12543718835 | 0.18594615554 |
| 71 | Chile | 0.00057040716 | 0.22595659448 | 0.13617948149 | 0.18594615554 |
| 72 | Chile | 0.00001527793 | 0.22595659448 | 0.11533225499 | 0.18594615554 |
| 73 | Chile | 0.00002301239 | 0.22595659448 | 0.12016626898 | 0.18594615554 |
| 74 | Chile | 0.00006376776 | 0.22595659448 | 0.15112875665 | 0.18594615554 |
| 75 | China | 0.00008265822 | 0.18904716674 | 0.24030074702 | 0.57798764973 |
| 76 | China | 0.00005401647 | 0.18904716674 | 0.13918619142 | 0.57798764973 |
| 77 | China | 0.01659000443 | 0.18904716674 | 0.42288679985 | 0.57798764973 |
| 78 | China | 0.00000867714 | 0.18904716674 | 0.11300471658 | 0.57798764973 |
| 79 | China | 0.00596770396 | 0.18904716674 | 0.47022444097 | 0.57798764973 |
| 80 | China | 0.00017676951 | 0.18904716674 | 0.08478688822 | 0.57798764973 |
| 81 | China | 0.00004174219 | 0.18904716674 | 0.13937902188 | 0.57798764973 |
| 82 | China | 0.00031053562 | 0.18904716674 | 0.18066797854 | 0.57798764973 |
| 83 | China | 0.00003152281 | 0.18904716674 | 0.12460839922 | 0.57798764973 |

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| 84 | China | 0.00090664064 | 0.18904716674 | 0.09833160627 | 0.57798764973 |
| 85 | China | 0.00044175074 | 0.18904716674 | 0.10645959504 | 0.57798764973 |
| 86 | China | 0.00283008268 | 0.18904716674 | 0.48586747354 | 0.57798764973 |
| 87 | China | 0.00023172813 | 0.18904716674 | 0.27641706412 | 0.57798764973 |
| 88 | China | 0.00258164851 | 0.18904716674 | 0.16922934618 | 0.57798764973 |
| 89 | China | 0.00035257820 | 0.18904716674 | 0.15693386936 | 0.57798764973 |
| 90 | China | 0.00084975950 | 0.18904716674 | 0.10788831639 | 0.57798764973 |
| 91 | Colombia | 0.00001336358 | 0.16471722355 | 0.17462604206 | 0.32745280233 |
| 92 | Colombia | 0.00002259797 | 0.16471722355 | 0.16542401139 | 0.32745280233 |
| 93 | Colombia | 0.00002480314 | 0.16471722355 | 0.23307826678 | 0.32745280233 |
| 94 | Colombia | 0.00006487251 | 0.16471722355 | 0.22508823775 | 0.32745280233 |
| 95 | Colombia | 0.00065298106 | 0.16471722355 | 0.26448610334 | 0.32745280233 |
| 96 | Colombia | 0.00003091445 | 0.16471722355 | 0.25830186097 | 0.32745280233 |
| 97 | Colombia | 0.00005577758 | 0.16471722355 | 0.10162336084 | 0.32745280233 |
| 98 | Costa Rica | 0.00002996203 | 0.22401958317 | 0.21132139157 | 0.38962103938 |
| 99 | Costa Rica | 0.00000191372 | 0.22401958317 | 0.10979474538 | 0.38962103938 |
| 100 | Costa Rica | 0.00000178760 | 0.22401958317 | 0.21734219750 | 0.38962103938 |
| 101 | Costa Rica | 0.00000458803 | 0.22401958317 | 0.24103219196 | 0.38962103938 |
| 102 | Costa Rica | 0.00000185922 | 0.22401958317 | 0.11953839188 | 0.38962103938 |
| 103 | Costa Rica | 0.00001110388 | 0.22401958317 | 0.24030074702 | 0.38962103938 |
| 104 | Costa Rica | 0.00000376713 | 0.22401958317 | 0.17462604206 | 0.38962103938 |
| 105 | Côte d'Ivoire | 0.00001771436 | 0.33576007067 | 0.17560075267 | 0.33487070086 |
| 106 | Cuba | 0.00000001840 | 0.47598615037 | 0.09401616280 | 0.14314986138 |
| 107 | Cuba | 0.00000048397 | 0.47598615037 | 0.08115866566 | 0.14314986138 |
| 108 | Dominican Republic | 0.00000236569 | 0.38319890639 | 0.19615477072 | 0.32027525955 |
| 109 | Ecuador | 0.00000228188 | 0.23535770561 | 0.09202153694 | 0.30676071569 |
| 110 | Ecuador | 0.00000770012 | 0.23535770561 | 0.13989430857 | 0.30676071569 |
| 111 | Egypt | 0.00006147628 | 0.23516174078 | 0.27225507277 | 0.44891862201 |
| 112 | Egypt | 0.00010648580 | 0.23516174078 | 0.27889558806 | 0.44891862201 |
| 113 | El Salvador | 0.00000654788 | 0.27589345979 | 0.19529397822 | 0.41724115532 |
| 114 | El Salvador | 0.00000051050 | 0.27589345979 | 0.09835519040 | 0.41724115532 |
| 115 | El Salvador | 0.00000045335 | 0.27589345979 | 0.09401616280 | 0.41724115532 |
| 116 | El Salvador | 0.00000040315 | 0.27589345979 | 0.09202153694 | 0.41724115532 |
| 117 | Faroe Islands | 0.00000128228 | 0.28678147687 | 0.06289114808 | 0.13015057251 |
| 118 | Faroe Islands | 0.00000291388 | 0.28678147687 | 0.05040252697 | 0.13015057251 |
| 119 | Faroe Islands | 0.00000018372 | 0.28678147687 | 0.02155940716 | 0.13015057251 |
| 120 | Faroe Islands | 0.00000004080 | 0.28678147687 | 0.03340020939 | 0.13015057251 |
| 121 | Faroe Islands | 0.00001572645 | 0.28678147687 | 0.03976762388 | 0.13015057251 |
| 122 | Georgia | 0.00000007595 | 0.20625177151 | 0.08096164779 | 0.25288689810 |
| 123 | Georgia | 0.00000298705 | 0.20625177151 | 0.11880353494 | 0.25288689810 |
| 124 | Georgia | 0.00001874291 | 0.20625177151 | 0.11999077768 | 0.25288689810 |
| 125 | Georgia | 0.00001175194 | 0.20625177151 | 0.19335002740 | 0.25288689810 |
| 126 | Georgia | 0.00000089624 | 0.20625177151 | 0.04695441780 | 0.25288689810 |
| 127 | Georgia | 0.00000660863 | 0.20625177151 | 0.15974582239 | 0.25288689810 |

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| 128 | Georgia | 0.00000084564 | 0.20625177151 | 0.17065638224 | 0.25288689810 |
| 129 | Georgia | 0.00000834259 | 0.20625177151 | 0.15822898340 | 0.25288689810 |
| 130 | Georgia | 0.00001179728 | 0.20625177151 | 0.06236675791 | 0.25288689810 |
| 131 | Georgia | 0.00001443582 | 0.20625177151 | 0.13918619142 | 0.25288689810 |
| 132 | Ghana | 0.00001938467 | 0.17296989905 | 0.17454826417 | 0.22117353621 |
| 133 | Guatemala | 0.00001395645 | 0.31287993857 | 0.17276819402 | 0.37570663837 |
| 134 | Guatemala | 0.00000555242 | 0.31287993857 | 0.12340358657 | 0.37570663837 |
| 135 | Guatemala | 0.00000354307 | 0.31287993857 | 0.17729058118 | 0.37570663837 |
| 136 | Honduras | 0.00000038035 | 0.24790850728 | 0.11769586860 | 0.33038722137 |
| 137 | Honduras | 0.00001550493 | 0.24790850728 | 0.18286549189 | 0.33038722137 |
| 138 | Honduras | 0.00000047980 | 0.24790850728 | 0.10298358572 | 0.33038722137 |
| 139 | Hong Kong China | 0.00033410582 | 0.08370814796 | 0.13387584179 | 0.93733053351 |
| 140 | Hong Kong China | 0.00002946738 | 0.08370814796 | 0.13383376977 | 0.93733053351 |
| 141 | Hong Kong China | 0.00023993273 | 0.00000434525 | 0.13073570238 | 0.93733053351 |
| 142 | Hong Kong China | 0.00003326568 | 0.00000434525 | 0.07418524691 | 0.93733053351 |
| 143 | Hong Kong China | 0.01662349964 | 0.00000434525 | 0.42288679985 | 0.93733053351 |
| 144 | Hong Kong China | 0.00000192964 | 0.00000434525 | 0.08096164779 | 0.93733053351 |
| 145 | Iceland | 0.00000532779 | 0.21313060852 | 0.11300471658 | 0.18420320853 |
| 146 | Iceland | 0.00000247636 | 0.21313060852 | 0.06289114808 | 0.18420320853 |
| 147 | India | 0.00026960113 | 0.20050148803 | 0.27349740146 | 0.56626202151 |
| 148 | India | 0.00025948449 | 0.20050148803 | 0.35536030742 | 0.56626202151 |
| 149 | India | 0.00030348027 | 0.20050148803 | 0.40000141812 | 0.56626202151 |
| 150 | India | 0.00004157018 | 0.20050148803 | 0.14819795683 | 0.56626202151 |
| 151 | India | 0.00030816264 | 0.20050148803 | 0.05524004682 | 0.56626202151 |
| 152 | India | 0.00054004807 | 0.20050148803 | 0.37740496944 | 0.56626202151 |
| 153 | India | 0.00021757254 | 0.20050148803 | 0.35155718284 | 0.56626202151 |
| 154 | India | 0.00153187750 | 0.20050148803 | 0.34916680171 | 0.56626202151 |
| 155 | India | 0.00003271765 | 0.20050148803 | 0.13421177131 | 0.56626202151 |
| 156 | India | 0.00021244320 | 0.20050148803 | 0.28063080366 | 0.56626202151 |
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| 159 | India | 0.00025505662 | 0.20050148803 | 0.17114642432 | 0.56626202151 |
| 160 | Indonesia | 0.00102045002 | 0.26064258538 | 0.27364539714 | 0.56559652344 |
| 161 | Indonesia | 0.00047314518 | 0.26064258538 | 0.36418159384 | 0.56559652344 |
| 162 | Indonesia | 0.00000487717 | 0.26064258538 | 0.23997737156 | 0.56559652344 |
| 163 | Indonesia | 0.00013060142 | 0.26064258538 | 0.10890558920 | 0.56559652344 |
| 164 | Indonesia | 0.00017385484 | 0.26064258538 | 0.25519560964 | 0.56559652344 |
| 165 | Indonesia | 0.00000969393 | 0.26064258538 | 0.12560666603 | 0.56559652344 |
| 166 | Israel | 0.00004307082 | 0.13858069134 | 0.39013894341 | 0.57764934090 |
| 167 | Israel | 0.00002072332 | 0.13858069134 | 0.35821179521 | 0.57764934090 |
| 168 | Israel | 0.00010027021 | 0.13858069134 | 0.31936603884 | 0.57764934090 |
| 169 | Israel | 0.00000968943 | 0.13858069134 | 0.21586831774 | 0.57764934090 |
| 170 | Israel | 0.00020616030 | 0.13858069134 | 0.44936102636 | 0.57764934090 |
| 171 | Israel | 0.00089259404 | 0.13858069134 | 0.42136079455 | 0.57764934090 |

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|---|---|---|---|---|---|
| 172 | Israel | 0.00003504107 | 0.13858069134 | 0.31745876509 | 0.57764934090 |
| 173 | Israel | 0.00000632742 | 0.13858069134 | 0.16542401139 | 0.57764934090 |
| 174 | Japan | 0.00072761741 | 0.09857456724 | 0.43928639062 | 0.51951104039 |
| 175 | Japan | 0.00055380920 | 0.09857456724 | 0.45093013993 | 0.51951104039 |
| 176 | Japan | 0.00002075287 | 0.09857456724 | 0.03940069035 | 0.51951104039 |
| 177 | Japan | 0.00003869211 | 0.09857456724 | 0.09728085297 | 0.51951104039 |
| 178 | Japan | 0.00055040224 | 0.09857456724 | 0.36615970072 | 0.51951104039 |
| 179 | Japan | 0.00109531163 | 0.09857456724 | 0.44217537351 | 0.51951104039 |
| 180 | Japan | 0.00020270371 | 0.09857456724 | 0.28847991516 | 0.51951104039 |
| 181 | Japan | 0.00160895399 | 0.09857456724 | 0.45906419448 | 0.51951104039 |
| 182 | Japan | 0.00063778725 | 0.09857456724 | 0.40746468541 | 0.51951104039 |
| 183 | Japan | 0.00079383716 | 0.09857456724 | 0.37365842734 | 0.51951104039 |
| 184 | Japan | 0.00078787495 | 0.09857456724 | 0.17899786050 | 0.51951104039 |
| 185 | Japan | 0.00000618906 | 0.09857456724 | 0.08012461808 | 0.51951104039 |
| 186 | Japan | 0.00009265725 | 0.09857456724 | 0.10114549121 | 0.51951104039 |
| 187 | Japan | 0.00052537373 | 0.09857456724 | 0.27349740146 | 0.51951104039 |
| 188 | Japan | 0.00071300192 | 0.09857456724 | 0.27364539714 | 0.51951104039 |
| 189 | Jordan | 0.00000108051 | 0.28032729093 | 0.17249161240 | 0.33789025212 |
| 190 | Jordan | 0.00000219673 | 0.28032729093 | 0.25020225094 | 0.33789025212 |
| 191 | Jordan | 0.00009359459 | 0.28032729093 | 0.23318264893 | 0.33789025212 |
| 192 | Jordan | 0.00000356524 | 0.28032729093 | 0.24279312082 | 0.33789025212 |
| 193 | Kazakhstan | 0.00003155699 | 0.10855693072 | 0.10847249570 | 0.17709455383 |
| 194 | Kazakhstan | 0.00000028537 | 0.10855693072 | 0.14628776793 | 0.17709455383 |
| 195 | Kazakhstan | 0.00005368566 | 0.10855693072 | 0.13806521458 | 0.17709455383 |
| 196 | Kazakhstan | 0.00009244051 | 0.10855693072 | 0.11749208256 | 0.17709455383 |
| 197 | Kazakhstan | 0.00000035666 | 0.10855693072 | 0.10992337444 | 0.17709455383 |
| 198 | Kazakhstan | 0.00001063270 | 0.10855693072 | 0.07682346759 | 0.17709455383 |
| 199 | Kazakhstan | 0.00000478088 | 0.10855693072 | 0.11880353494 | 0.17709455383 |
| 200 | Kenya | 0.00002151680 | 0.57241452997 | 0.19014297043 | 0.24543628603 |
| 201 | Korea, Republic of | 0.00009002233 | 0.09892546439 | 0.17456003880 | 0.62731376022 |
| 202 | Korea, Republic of | 0.00005115650 | 0.09892546439 | 0.16462881317 | 0.62731376022 |
| 203 | Korea, Republic of | 0.00081087818 | 0.09892546439 | 0.51352179909 | 0.62731376022 |
| 204 | Korea, Republic of | 0.00032451585 | 0.09892546439 | 0.37224344717 | 0.62731376022 |
| 205 | Korea, Republic of | 0.00033141971 | 0.09892546439 | 0.45229873614 | 0.62731376022 |
| 206 | Korea, Republic of | 0.00403113474 | 0.09892546439 | 0.48790224048 | 0.62731376022 |
| 207 | Korea, Republic of | 0.00218123143 | 0.09892546439 | 0.41221312901 | 0.62731376022 |
| 208 | Korea, Republic of | 0.00001859362 | 0.09892546439 | 0.21848248928 | 0.62731376022 |
| 209 | Korea, Republic of | 0.00003308477 | 0.09892546439 | 0.14030537019 | 0.62731376022 |
| 210 | Korea, Republic of | 0.00029324518 | 0.09892546439 | 0.37948469343 | 0.62731376022 |
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| 212 | Korea, Republic of | 0.00759887534 | 0.09892546439 | 0.47022444097 | 0.62731376022 |
| 213 | Korea, Republic of | 0.00005387545 | 0.09892546439 | 0.23307826678 | 0.62731376022 |
| 214 | Korea, Republic of | 0.00073643259 | 0.09892546439 | 0.35536030742 | 0.62731376022 |
| 215 | Korea, Republic of | 0.00046021895 | 0.09892546439 | 0.36418159384 | 0.62731376022 |

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| 216 | Korea, Republic of | 0.00007710986 | 0.09892546439 | 0.39013894341 | 0.62731376022 |
| 217 | Kyrgyz Republic | 0.00000004802 | 0.17888905124 | 0.16883788288 | 0.24981525965 |
| 218 | Kyrgyz Republic | 0.00000034706 | 0.17888905124 | 0.15397519135 | 0.24981525965 |
| 219 | Kyrgyz Republic | 0.00000843158 | 0.17888905124 | 0.13688361291 | 0.24981525965 |
| 220 | Kyrgyz Republic | 0.00000000952 | 0.17888905124 | 0.15809610353 | 0.24981525965 |
| 221 | Kyrgyz Republic | 0.00000018123 | 0.17888905124 | 0.07942213834 | 0.24981525965 |
| 222 | Kyrgyz Republic | 0.00001828198 | 0.17888905124 | 0.10847249570 | 0.24981525965 |
| 223 | Lao PDR | 0.00012178028 | 0.22385561464 | 0.20675344728 | 0.45494695348 |
| 224 | Lebanon | 0.00000196593 | 0.23478496823 | 0.27351746383 | 0.32206045831 |
| 225 | Macao China | 0.00000799136 | 0.18372859471 | 0.08478688822 | 0.15090897489 |
| 226 | Macao China | 0.00004131774 | 0.18372859471 | 0.13387584179 | 0.15090897489 |
| 227 | Macedonia North | 0.00000571072 | 0.14714291532 | 0.32712750700 | 0.51409516102 |
| 228 | Macedonia North | 0.00000497583 | 0.14714291532 | 0.35462378160 | 0.51409516102 |
| 229 | Macedonia North | 0.00000071694 | 0.14714291532 | 0.27565983905 | 0.51409516102 |
| 230 | Malaysia | 0.00006144401 | 0.12031858910 | 0.19304392201 | 0.79315877588 |
| 231 | Malaysia | 0.00006634954 | 0.12031858910 | 0.09600393330 | 0.79315877588 |
| 232 | Malaysia | 0.00010333955 | 0.12031858910 | 0.38225035250 | 0.79315877588 |
| 233 | Malaysia | 0.00042663467 | 0.12031858910 | 0.28175153535 | 0.79315877588 |
| 234 | Malaysia | 0.00000977926 | 0.12031858910 | 0.12635032437 | 0.79315877588 |
| 235 | Malaysia | 0.00047605779 | 0.12031858910 | 0.40000141812 | 0.79315877588 |
| 236 | Malaysia | 0.00100065212 | 0.12031858910 | 0.43928639062 | 0.79315877588 |
| 237 | Mauritius | 0.00000004972 | 0.34771720886 | 0.09588924590 | 0.29105561856 |
| 238 | Mauritius | 0.00000011502 | 0.34771720886 | 0.17038914686 | 0.29105561856 |
| 239 | Mauritius | 0.00000130785 | 0.34771720886 | 0.13937902188 | 0.29105561856 |
| 240 | Mauritius | 0.00000139281 | 0.34771720886 | 0.14819795683 | 0.29105561856 |
| 241 | Mexico | 0.00005824478 | 0.09749531372 | 0.28531394961 | 0.73894385953 |
| 242 | Mexico | 0.00000571418 | 0.09749531372 | 0.15754881437 | 0.73894385953 |
| 243 | Mexico | 0.00008163885 | 0.09749531372 | 0.16400952592 | 0.73894385953 |
| 244 | Mexico | 0.00012744102 | 0.09749531372 | 0.51431023974 | 0.73894385953 |
| 245 | Mexico | 0.00001206081 | 0.09749531372 | 0.15390176073 | 0.73894385953 |
| 246 | Mexico | 0.00006493958 | 0.09749531372 | 0.27505178219 | 0.73894385953 |
| 247 | Mexico | 0.00000904914 | 0.09749531372 | 0.10994095529 | 0.73894385953 |
| 248 | Mexico | 0.00021080442 | 0.09749531372 | 0.31940836982 | 0.73894385953 |
| 249 | Mexico | 0.00009614865 | 0.09749531372 | 0.11617328262 | 0.73894385953 |
| 250 | Mexico | 0.00018914723 | 0.09749531372 | 0.22508823775 | 0.73894385953 |
| 251 | Mexico | 0.00001775145 | 0.09749531372 | 0.08115866566 | 0.73894385953 |
| 252 | Mexico | 0.00003398840 | 0.09749531372 | 0.13989430857 | 0.73894385953 |
| 253 | Mexico | 0.00001047231 | 0.09749531372 | 0.35821179521 | 0.73894385953 |
| 254 | Mexico | 0.00018323272 | 0.09749531372 | 0.45093013993 | 0.73894385953 |
| 255 | Moldova | 0.00000807550 | 0.22190244565 | 0.21115733969 | 0.38452135800 |
| 256 | Moldova | 0.00000764589 | 0.22190244565 | 0.22161323204 | 0.38452135800 |
| 257 | Moldova | 0.00000474066 | 0.22190244565 | 0.23446427089 | 0.38452135800 |
| 258 | Moldova | 0.00000009515 | 0.22190244565 | 0.17211263341 | 0.38452135800 |
| 259 | Moldova | 0.00000011310 | 0.22190244565 | 0.16883788288 | 0.38452135800 |

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|---|---|---|---|---|---|
| 260 | Mongolia | 0.00000088752 | 0.18964112883 | 0.03940069035 | 0.23684279654 |
| 261 | Montenegro | 0.00000080817 | 0.20432320815 | 0.14724902556 | 0.24015960860 |
| 262 | Montenegro | 0.00000005971 | 0.20432320815 | 0.12070221538 | 0.24015960860 |
| 263 | Morocco | 0.00003608794 | 0.24810993552 | 0.26263615364 | 0.43377380090 |
| 264 | Morocco | 0.00000461488 | 0.24810993552 | 0.21485909866 | 0.43377380090 |
| 265 | Morocco | 0.00004277622 | 0.24810993552 | 0.27536739844 | 0.43377380090 |
| 266 | Morocco | 0.00005481652 | 0.24810993552 | 0.27979293613 | 0.43377380090 |
| 267 | Mozambique | 0.00000068625 | 0.16728038743 | 0.23997737156 | 0.40133049763 |
| 268 | Namibia | 0.00000162384 | 0.21928686926 | 0.06511902484 | 0.42538987157 |
| 269 | Nepal | 0.00003195963 | 1.00000000000 | 0.05524004682 | 0.13832787871 |
| 270 | New Zealand | 0.00004236654 | 0.33232927221 | 0.17724560764 | 0.27673714806 |
| 271 | New Zealand | 0.00003421632 | 0.33232927221 | 0.19521603654 | 0.27673714806 |
| 272 | New Zealand | 0.00005485443 | 0.33232927221 | 0.21797141379 | 0.27673714806 |
| 273 | New Zealand | 0.00030353795 | 0.33232927221 | 0.18332356663 | 0.27673714806 |
| 274 | New Zealand | 0.00050351733 | 0.33232927221 | 0.18066797854 | 0.27673714806 |
| 275 | New Zealand | 0.00003632583 | 0.33232927221 | 0.13383376977 | 0.27673714806 |
| 276 | New Zealand | 0.00006558671 | 0.33232927221 | 0.17456003880 | 0.27673714806 |
| 277 | New Zealand | 0.00003759836 | 0.33232927221 | 0.19304392201 | 0.27673714806 |
| 278 | New Zealand | 0.00004402166 | 0.33232927221 | 0.16970982011 | 0.27673714806 |
| 279 | Nicaragua | 0.00000234892 | 0.42129727718 | 0.15955025904 | 0.29243630815 |
| 280 | Nicaragua | 0.00000023336 | 0.42129727718 | 0.07725861439 | 0.29243630815 |
| 281 | Nicaragua | 0.00000140240 | 0.42129727718 | 0.12460839922 | 0.29243630815 |
| 282 | Norway | 0.00000749593 | 0.08459994921 | 0.05040252697 | 0.30138967380 |
| 283 | Oman | 0.00003694244 | 0.06834491822 | 0.30140875115 | 0.39014732500 |
| 284 | Pakistan | 0.00011197532 | 0.35062473519 | 0.09833160627 | 0.17952489935 |
| 285 | Pakistan | 0.00000858483 | 0.35062473519 | 0.10890558920 | 0.17952489935 |
| 286 | Pakistan | 0.00001206535 | 0.35062473519 | 0.09600393330 | 0.17952489935 |
| 287 | Pakistan | 0.00000114373 | 0.35062473519 | 0.09588924590 | 0.17952489935 |
| 288 | Pakistan | 0.00001579056 | 0.35062473519 | 0.09247214753 | 0.17952489935 |
| 289 | Palestine | 0.00000040283 | 0.30276401007 | 0.16247110706 | 0.23680222721 |
| 290 | Palestine | 0.00000032206 | 0.30276401007 | 0.12841164158 | 0.23680222721 |
| 291 | Panama | 0.00001405471 | 0.16014303524 | 0.08783492938 | 0.70843226631 |
| 292 | Panama | 0.00000050095 | 0.16014303524 | 0.29140516752 | 0.70843226631 |
| 293 | Panama | 0.00010922954 | 0.16014303524 | 0.32589823596 | 0.70843226631 |
| 294 | Panama | 0.00000159345 | 0.16014303524 | 0.24975814225 | 0.70843226631 |
| 295 | Panama | 0.00001725773 | 0.16014303524 | 0.09410310606 | 0.70843226631 |
| 296 | Panama | 0.00003971883 | 0.16014303524 | 0.21132139157 | 0.70843226631 |
| 297 | Panama | 0.00002870171 | 0.16014303524 | 0.19615477072 | 0.70843226631 |
| 298 | Panama | 0.00001903119 | 0.16014303524 | 0.19529397822 | 0.70843226631 |
| 299 | Panama | 0.00002715989 | 0.16014303524 | 0.17276819402 | 0.70843226631 |
| 300 | Panama | 0.00000918336 | 0.16014303524 | 0.28531394961 | 0.70843226631 |
| 301 | Panama | 0.00001886912 | 0.16014303524 | 0.15955025904 | 0.70843226631 |
| 302 | Panama | 0.00000164607 | 0.16014303524 | 0.27696972082 | 0.70843226631 |
| 303 | Papua New Guinea | 0.00013185843 | 0.15076535559 | 0.12863443419 | 0.16355110306 |

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|---|---|---|---|---|---|
| 304 | Paraguay | 0.00000448901 | 0.24310780827 | 0.15754881437 | 0.28679582307 |
| 305 | Peru | 0.00000137745 | 0.28105293833 | 0.15932622776 | 0.24583174284 |
| 306 | Peru | 0.00035637013 | 0.28105293833 | 0.18898086757 | 0.24583174284 |
| 307 | Peru | 0.00000790953 | 0.28105293833 | 0.17052659891 | 0.24583174284 |
| 308 | Peru | 0.00011382816 | 0.28105293833 | 0.19013833528 | 0.24583174284 |
| 309 | Peru | 0.00007161358 | 0.28105293833 | 0.09988539799 | 0.24583174284 |
| 310 | Peru | 0.00062162110 | 0.28105293833 | 0.10645959504 | 0.24583174284 |
| 311 | Peru | 0.00000337690 | 0.28105293833 | 0.10979474538 | 0.24583174284 |
| 312 | Peru | 0.00000914598 | 0.28105293833 | 0.11769586860 | 0.24583174284 |
| 313 | Peru | 0.00010437017 | 0.28105293833 | 0.09728085297 | 0.24583174284 |
| 314 | Peru | 0.00010431037 | 0.28105293833 | 0.16462881317 | 0.24583174284 |
| 315 | Peru | 0.00002834424 | 0.28105293833 | 0.16400952592 | 0.24583174284 |
| 316 | Peru | 0.00002727271 | 0.28105293833 | 0.08783492938 | 0.24583174284 |
| 317 | Philippines | 0.00058970939 | 0.12314001968 | 0.36615970072 | 0.60836089194 |
| 318 | Russian Federation | 0.00010531478 | 0.09200455510 | 0.20665320614 | 0.23299399783 |
| 319 | Russian Federation | 0.00009677743 | 0.09200455510 | 0.05895564512 | 0.23299399783 |
| 320 | Russian Federation | 0.00004438915 | 0.09200455510 | 0.11999077768 | 0.23299399783 |
| 321 | Serbia | 0.00000105487 | 0.19859428387 | 0.14628776793 | 0.67422906709 |
| 322 | Serbia | 0.00005110373 | 0.19859428387 | 0.20665320614 | 0.67422906709 |
| 323 | Serbia | 0.00001616533 | 0.19859428387 | 0.44538485832 | 0.67422906709 |
| 324 | Serbia | 0.00001587932 | 0.19859428387 | 0.40624527222 | 0.67422906709 |
| 325 | Singapore | 0.00003302453 | 0.07272165975 | 0.32001960881 | 0.80851525927 |
| 326 | Singapore | 0.00020318226 | 0.07272165975 | 0.49334149376 | 0.80851525927 |
| 327 | Singapore | 0.00162776417 | 0.07272165975 | 0.49680833425 | 0.80851525927 |
| 328 | Singapore | 0.00065376287 | 0.07272165975 | 0.28677503687 | 0.80851525927 |
| 329 | Singapore | 0.00278624911 | 0.07272165975 | 0.48586747354 | 0.80851525927 |
| 330 | Singapore | 0.00000335348 | 0.07272165975 | 0.21734219750 | 0.80851525927 |
| 331 | Singapore | 0.00059601031 | 0.07272165975 | 0.37740496944 | 0.80851525927 |
| 332 | Singapore | 0.00092529475 | 0.07272165975 | 0.44217537351 | 0.80851525927 |
| 333 | Singapore | 0.00000400198 | 0.07272165975 | 0.17249161240 | 0.80851525927 |
| 334 | Singapore | 0.00087986591 | 0.07272165975 | 0.51352179909 | 0.80851525927 |
| 335 | Singapore | 0.00011518058 | 0.07272165975 | 0.17724560764 | 0.80851525927 |
| 336 | Singapore | 0.00031968042 | 0.07272165975 | 0.29140516752 | 0.80851525927 |
| 337 | Singapore | 0.00000346762 | 0.07272165975 | 0.15932622776 | 0.80851525927 |
| 338 | Singapore | 0.00093313777 | 0.07272165975 | 0.58278347345 | 0.80851525927 |
| 339 | Sri Lanka | 0.00004357940 | 0.40621101504 | 0.17114642432 | 0.25788871356 |
| 340 | Sri Lanka | 0.00000404497 | 0.40621101504 | 0.09247214753 | 0.25788871356 |
| 341 | Switzerland | 0.00135486580 | 0.12312206722 | 0.27641706412 | 0.75461006475 |
| 342 | Switzerland | 0.00000003544 | 0.12312206722 | 0.02155940716 | 0.75461006475 |
| 343 | Switzerland | 0.00040936294 | 0.12312206722 | 0.28847991516 | 0.75461006475 |
| 344 | Syrian Arab Republic | 0.00000677926 | 0.48547917732 | 0.10311076482 | 0.24943363029 |
| 345 | Taipei Chinese | 0.00000785724 | 0.09372802832 | 0.17729058118 | 0.69094464262 |
| 346 | Taipei Chinese | 0.00002683960 | 0.09372802832 | 0.16970982011 | 0.69094464262 |
| 347 | Taipei Chinese | 0.00000692044 | 0.09372802832 | 0.27696972082 | 0.69094464262 |

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|---|---|---|---|---|---|
| 348 | Taipei Chinese | 0.00105688391 | 0.09372802832 | 0.58278347345 | 0.69094464262 |
| 349 | Tajikistan | 0.00000009029 | 0.25992051367 | 0.08116412585 | 0.11079689514 |
| 350 | Thailand | 0.00053839306 | 0.15626636993 | 0.21480834814 | 0.67421222798 |
| 351 | Thailand | 0.00003110504 | 0.15626636993 | 0.12170577516 | 0.67421222798 |
| 352 | Thailand | 0.00035077377 | 0.15626636993 | 0.35155718284 | 0.67421222798 |
| 353 | Thailand | 0.00119671042 | 0.15626636993 | 0.45906419448 | 0.67421222798 |
| 354 | Thailand | 0.00020811898 | 0.15626636993 | 0.20675344728 | 0.67421222798 |
| 355 | Thailand | 0.00007813584 | 0.15626636993 | 0.19521603654 | 0.67421222798 |
| 356 | Tunisia | 0.00000985877 | 0.16937931611 | 0.31205221948 | 0.53537651621 |
| 357 | Tunisia | 0.00002084251 | 0.16937931611 | 0.34718815586 | 0.53537651621 |
| 358 | Türkiye | 0.00017767884 | 0.22118099667 | 0.27889558806 | 0.59639571039 |
| 359 | Türkiye | 0.00000427896 | 0.22118099667 | 0.14724902556 | 0.59639571039 |
| 360 | Türkiye | 0.00002215525 | 0.22118099667 | 0.35462378160 | 0.59639571039 |
| 361 | Türkiye | 0.00006548445 | 0.22118099667 | 0.44538485832 | 0.59639571039 |
| 362 | Türkiye | 0.00058674447 | 0.22118099667 | 0.44856059127 | 0.59639571039 |
| 363 | Türkiye | 0.00000714196 | 0.22118099667 | 0.07787524913 | 0.59639571039 |
| 364 | Türkiye | 0.00002515123 | 0.22118099667 | 0.23482143662 | 0.59639571039 |
| 365 | Türkiye | 0.00002250396 | 0.22118099667 | 0.37045568138 | 0.59639571039 |
| 366 | Türkiye | 0.00001710336 | 0.22118099667 | 0.13194694983 | 0.59639571039 |
| 367 | Türkiye | 0.00000095918 | 0.22118099667 | 0.03340020939 | 0.59639571039 |
| 368 | Türkiye | 0.00007877174 | 0.22118099667 | 0.19335002740 | 0.59639571039 |
| 369 | Türkiye | 0.00021772616 | 0.22118099667 | 0.31936603884 | 0.59639571039 |
| 370 | Türkiye | 0.00004051136 | 0.22118099667 | 0.37224344717 | 0.59639571039 |
| 371 | Türkiye | 0.00001891644 | 0.22118099667 | 0.38225035250 | 0.59639571039 |
| 372 | Türkiye | 0.00000329406 | 0.22118099667 | 0.17038914686 | 0.59639571039 |
| 373 | Türkiye | 0.00001802631 | 0.22118099667 | 0.21115733969 | 0.59639571039 |
| 374 | Türkiye | 0.00010356059 | 0.22118099667 | 0.26263615364 | 0.59639571039 |
| 375 | Türkiye | 0.00000470615 | 0.22118099667 | 0.16247110706 | 0.59639571039 |
| 376 | Türkiye | 0.00002899793 | 0.22118099667 | 0.32001960881 | 0.59639571039 |
| 377 | Türkiye | 0.00008832208 | 0.22118099667 | 0.10311076482 | 0.59639571039 |
| 378 | Türkiye | 0.00005428648 | 0.22118099667 | 0.31205221948 | 0.59639571039 |
| 379 | Turkmenistan | 0.00000423574 | 0.09752429565 | 0.06095734049 | 0.07890085035 |
| 380 | Turkmenistan | 0.00000033769 | 0.09752429565 | 0.03896610572 | 0.07890085035 |
| 381 | Turkmenistan | 0.00000554478 | 0.09752429565 | 0.04695441780 | 0.07890085035 |
| 382 | Ukraine | 0.00000026756 | 0.22793914213 | 0.12070221538 | 0.35628150918 |
| 383 | Ukraine | 0.00000238463 | 0.22793914213 | 0.27565983905 | 0.35628150918 |
| 384 | Ukraine | 0.00003002030 | 0.22793914213 | 0.26286745133 | 0.35628150918 |
| 385 | Ukraine | 0.00001346913 | 0.22793914213 | 0.12806036545 | 0.35628150918 |
| 386 | Ukraine | 0.00000650435 | 0.22793914213 | 0.16461085031 | 0.35628150918 |
| 387 | Ukraine | 0.00002144592 | 0.22793914213 | 0.07956422612 | 0.35628150918 |
| 388 | Ukraine | 0.00006510007 | 0.22793914213 | 0.27711923963 | 0.35628150918 |
| 389 | Ukraine | 0.00000397139 | 0.22793914213 | 0.26689673526 | 0.35628150918 |
| 390 | Ukraine | 0.00002190854 | 0.22793914213 | 0.00000000000 | 0.35628150918 |
| 391 | Ukraine | 0.00003058020 | 0.22793914213 | 0.21586831774 | 0.35628150918 |

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|---|---|---|---|---|---|
| 392 | Ukraine | 0.00003415657 | 0.22793914213 | 0.13806521458 | 0.35628150918 |
| 393 | Ukraine | 0.00000307898 | 0.22793914213 | 0.15397519135 | 0.35628150918 |
| 394 | Ukraine | 0.00003864340 | 0.22793914213 | 0.22161323204 | 0.35628150918 |
| 395 | Ukraine | 0.00000166642 | 0.22793914213 | 0.08116412585 | 0.35628150918 |
| 396 | Ukraine | 0.00000742082 | 0.22793914213 | 0.06095734049 | 0.35628150918 |
| 397 | United Arab Emirates | 0.00080081850 | 0.07667229642 | 0.34916680171 | 0.66851899549 |
| 398 | United Arab Emirates | 0.00002240824 | 0.07667229642 | 0.21485909866 | 0.66851899549 |
| 399 | United Kingdom | 0.00001170408 | 0.13700654826 | 0.40624527222 | 0.79055882289 |
| 400 | United Kingdom | 0.00000142881 | 0.13700654826 | 0.21967180795 | 0.79055882289 |
| 401 | United Kingdom | 0.00030050375 | 0.13700654826 | 0.28202524922 | 0.79055882289 |
| 402 | United Kingdom | 0.00000334645 | 0.13700654826 | 0.14511720805 | 0.79055882289 |
| 403 | United Kingdom | 0.00036001659 | 0.13700654826 | 0.51434558714 | 0.79055882289 |
| 404 | United Kingdom | 0.00004173704 | 0.13700654826 | 0.12543718835 | 0.79055882289 |
| 405 | United Kingdom | 0.00000747353 | 0.13700654826 | 0.17560075267 | 0.79055882289 |
| 406 | United Kingdom | 0.00008593786 | 0.13700654826 | 0.27225507277 | 0.79055882289 |
| 407 | United Kingdom | 0.00000120225 | 0.13700654826 | 0.03976762388 | 0.79055882289 |
| 408 | United Kingdom | 0.00000542265 | 0.13700654826 | 0.17065638224 | 0.79055882289 |
| 409 | United Kingdom | 0.00002812926 | 0.13700654826 | 0.17454826417 | 0.79055882289 |
| 410 | United Kingdom | 0.00009472759 | 0.13700654826 | 0.44936102636 | 0.79055882289 |
| 411 | United Kingdom | 0.00038542387 | 0.13700654826 | 0.40746468541 | 0.79055882289 |
| 412 | United Kingdom | 0.00001961563 | 0.13700654826 | 0.25020225094 | 0.79055882289 |
| 413 | United Kingdom | 0.00002555210 | 0.13700654826 | 0.19014297043 | 0.79055882289 |
| 414 | United Kingdom | 0.00034402990 | 0.13700654826 | 0.45229873614 | 0.79055882289 |
| 415 | United Kingdom | 0.00002459220 | 0.13700654826 | 0.27351746383 | 0.79055882289 |
| 416 | United Kingdom | 0.00009108188 | 0.13700654826 | 0.51431023974 | 0.79055882289 |
| 417 | United Kingdom | 0.00000251278 | 0.13700654826 | 0.23446427089 | 0.79055882289 |
| 418 | United Kingdom | 0.00004564979 | 0.13700654826 | 0.27536739844 | 0.79055882289 |
| 419 | United Kingdom | 0.00005443511 | 0.13700654826 | 0.21797141379 | 0.79055882289 |
| 420 | United Kingdom | 0.00006512471 | 0.13700654826 | 0.32712750700 | 0.79055882289 |
| 421 | United Kingdom | 0.00000033621 | 0.13700654826 | 0.12841164158 | 0.79055882289 |
| 422 | United Kingdom | 0.00034590855 | 0.13700654826 | 0.49334149376 | 0.79055882289 |
| 423 | United Kingdom | 0.00001179949 | 0.13700654826 | 0.34718815586 | 0.79055882289 |
| 424 | United Kingdom | 0.00039285569 | 0.13700654826 | 0.44856059127 | 0.79055882289 |
| 425 | United Kingdom | 0.00003211300 | 0.13700654826 | 0.26286745133 | 0.79055882289 |
| 426 | United Kingdom | 0.00003676573 | 0.13700654826 | 0.30739678805 | 0.79055882289 |
| 427 | United States of America | 0.00134434682 | 0.13576875820 | 0.29566299864 | 0.68041255586 |
| 428 | United States of America | 0.00005979005 | 0.13576875820 | 0.29503244234 | 0.68041255586 |
| 429 | United States of America | 0.00084285447 | 0.13576875820 | 0.13617948149 | 0.68041255586 |
| 430 | United States of America | 0.00084294128 | 0.13576875820 | 0.26448610334 | 0.68041255586 |
| 431 | United States of America | 0.00070231773 | 0.13576875820 | 0.42136079455 | 0.68041255586 |
| 432 | United States of America | 0.00008421906 | 0.13576875820 | 0.23318264893 | 0.68041255586 |
| 433 | United States of America | 0.00274314983 | 0.13576875820 | 0.48790224048 | 0.68041255586 |
| 434 | United States of America | 0.00013399634 | 0.13576875820 | 0.27979293613 | 0.68041255586 |
| 435 | United States of America | 0.00009519742 | 0.13576875820 | 0.30140875115 | 0.68041255586 |

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|---|---|---|---|---|---|
| 436 | United States of America | 0.00042686121 | 0.13576875820 | 0.32589823596 | 0.68041255586 |
| 437 | United States of America | 0.00050762827 | 0.13576875820 | 0.18898086757 | 0.68041255586 |
| 438 | United States of America | 0.00167417688 | 0.13576875820 | 0.49680833425 | 0.68041255586 |
| 439 | Uruguay | 0.00000932410 | 0.37341132678 | 0.15390176073 | 0.27047379361 |
| 440 | Uzbekistan | 0.00004612146 | 0.29564593601 | 0.11749208256 | 0.22450573558 |
| 441 | Uzbekistan | 0.00000911737 | 0.29564593601 | 0.13688361291 | 0.22450573558 |
| 442 | Uzbekistan | 0.00000644243 | 0.29564593601 | 0.12806036545 | 0.22450573558 |
| 443 | Venezuela | 0.00000106143 | 0.02774108502 | 0.07787524913 | 0.13358248840 |
| 444 | Viet Nam | 0.00025036346 | 0.17043941513 | 0.30739678805 | 0.64716424866 |
| 445 | Viet Nam | 0.00004082479 | 0.17043941513 | 0.11533225499 | 0.64716424866 |
| 446 | Viet Nam | 0.00087060478 | 0.17043941513 | 0.37365842734 | 0.64716424866 |
| 447 | Viet Nam | 0.00070276062 | 0.17043941513 | 0.41221312901 | 0.64716424866 |
| 448 | Zimbabwe | 0.00000054920 | 0.39326111116 | 0.06511902484 | 0.11282532685 |

APPENDIX 5

COMPLETE DOCUMENTATION OF THE OLS MODEL

**R-studio command**

```
install.packages("nlme")
library(nlme)

# Check for missing values
summary(GLS_01_09012024)

# Check the names of variables in your dataset
names(GLS_01_09012024)
#First step OLS regression
# Run the OLS regression
ols_model <- lm(Export ~ NRCA + NFKI + NGLI, data = GLS_01_09012024)

summary(ols_model)

# Install the necessary package if you haven't already
install.packages("lmtest")

# Load the package
library(lmtest)

# Perform the Durbin-Watson test
dwtest(ols_model)

# Install the necessary package if you haven't already
install.packages("car")

# Load the package
library(car)

# Perform the Breusch-Pagan test
bptest(ols_model)
```

```
# View the summary of the regression model
summary(ols_model)

# Load the package
library(car)

# Calculate VIF
vif(ols_model)
summary(ols_model)
```

**R-Studio Result**

Call:

lm(formula = Export ~ NRCA + NFKI + NGLI, data = GLS_01_09012024)

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---|---|---|---|---|
| -0.0012016 | -0.0003363 | -0.0000957 | 0.0000770 | 0.0156282 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(>\|t\|) |
|---|---|---|---|---|
| (Intercept) | -0.0001122 | 0.0002525 | -0.444 | 0.657 |
| NRCA | -0.0008638 | 0.0006912 | -1.250 | 0.212 |
| NFKI | 0.0032217 | 0.0005652 | 5.700 | 2.19e-08 *** |
| NGLI | -0.0002164 | 0.0003454 | -0.627 | 0.531 |

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.001211 on 444 degrees of freedom

Multiple R-squared: 0.0966, Adjusted R-squared: 0.0905

F-statistic: 15.83 on 3 and 444 DF, p-value: 8.567e-10

Durbin-Watson test

data: ols_model

DW = 1.9276, p-value = 0.2017

alternative hypothesis: true autocorrelation is greater than 0

the Breusch-Pagan test
studentized Breusch-Pagan test
data:  ols_model
BP = 9.9855, df = 3, p-value = 0.01869

Calculate VIF

| NRCA | NFKI | NGLI |
|---|---|---|
| 1.368670 | 1.413794 | 1.752702 |

APPENDIX 6

COMPLETE DOCUMENTATION OF THE GLS MODELS

**R-studio command**

```
model_gls <- gls(Export ~ NRCA + NFKI + NGLI, data = GLS_01_09012024)
summary(model_gls)

model_gls_het <- gls(Export ~ NFKI + NGLI, data = GLS_01_09012024, weights = varPower(form = ~ fitted(.)))

model_gls_auto <- gls(Export ~ NRCA + NFKI + NGLI,
                      correlation = corAR1(form = ~ 1 | Country),
                      data = GLS_01_09012024)

model_gls_corr <- gls(Export ~ NRCA + NFKI + NGLI,
                      data = GLS_01_09012024,
                      correlation = corAR1(form = ~ 1 | Country))

model_gls_no_varPower <- gls(Export ~ NRCA + NFKI + NGLI,
                      data = GLS_01_09012024,
                      correlation = corAR1(form = ~ 1 | Country))

model_gls_no_corAR1 <- gls(Export ~ NRCA + NFKI + NGLI,
                      data = GLS_01_09012024,
                      weights = varPower(form = ~ fitted(.)),
                      control = glsControl(opt = "optim", maxIter = 500))

model_gls_alt_opt <- gls(Export ~ NRCA + NFKI + NGLI,
                      data = GLS_01_09012024,
                      weights = varPower(form = ~ fitted(.)),
                      correlation = corAR1(form = ~ 1 | Country),
                      control = glsControl(opt = "nlminb", maxIter = 500))

GLS_01_09012024_scaled <- GLS_01_09012024
```

```
GLS_01_09012024_scaled$NRCA_centered <- scale(GLS_01_09012024$NRCA, center = TRUE, scale = FALSE)
model_simple_no_weights <- gls(Export ~ NRCA + NFKI + NGLI,
                               data = GLS_01_09012024_scaled)

model_gls_no_correlation <- gls(Export ~ NRCA + NFKI + NGLI,
                                data = GLS_01_09012024_scaled,
                                weights = varPower(form = ~ fitted(.)),
                                control = glsControl(opt = "optim", maxIter = 500))

GLS_01_09012024_scaled$log_Export <- log(GLS_01_09012024_scaled$Export)
model_gls_log <- gls(log_Export ~ NRCA + NFKI + NGLI,
                     data = GLS_01_09012024_scaled,
                     weights = varPower(form = ~ fitted(.)),
                     correlation = corAR1(form = ~ 1 | Country),
                     control = glsControl(opt = "optim", maxIter = 500))

model_gls_corr <- gls(Export ~ NRCA + NFKI + NGLI,
                      data = GLS_01_09012024,
                      correlation = corAR1(form = ~ 1 | Country),
                      control = glsControl(opt = "optim", maxIter = 500))

model_gls_alt_corr <- gls(Export ~ NRCA + NFKI + NGLI,
                          data = GLS_01_09012024,
                          correlation = corAR1(form = ~ 1 | Country))

GLS_01_09012024$Country <- as.factor(GLS_01_09012024$Country)
model_gls_custom_ctrl <- gls(Export ~ NRCA + NFKI + NGLI,
                             data = GLS_01_09012024,
                             weights = varPower(form = ~ fitted(.)),
                             correlation = corAR1(form = ~ 1 | Country),
                             control = glsControl(opt = "nlminb", maxIter = 500))

model_gls_custom_ctrl <- gls(Export ~ NRCA + NFKI + NGLI,
```

```
                data = GLS_01_09012024,
                weights = varPower(form = ~ fitted(.)),
                correlation = corAR1(form = ~ 1 | Country),
                control = glsControl(opt = "nlminb", maxIter = 1000, tolerance = 1e-8))

model_gls_simplified <- gls(Export ~ NRCA + NFKI + NGLI,
                data = GLS_01_09012024,
                weights = varIdent(form = ~ 1 | Country),
                correlation = corAR1(form = ~ 1 | Country),
                control = glsControl(opt = "nlminb", maxIter = 1000))

GLS_01_09012024$log_Export <- log(GLS_01_09012024$Export + 1)
model_gls_log <- gls(log_Export ~ NRCA + NFKI + NGLI,
                data = GLS_01_09012024,
                weights = varPower(form = ~ fitted(.)),
                correlation = corAR1(form = ~ 1 | Country),
                control = glsControl(opt = "nlminb", maxIter = 1000))

GLS_01_09012024$log_NFKI <- log(GLS_01_09012024$NFKI + 1)
GLS_01_09012024$log_NGLI <- log(GLS_01_09012024$NGLI + 1)
model_gls_log <- gls(Export ~ NRCA + log_NFKI + log_NGLI,
                data = GLS_01_09012024,
                weights = varPower(form = ~ fitted(.)),
                correlation = corAR1(form = ~ 1 | Country),
                control = glsControl(opt = "nlminb", maxIter = 1000))

model_gls_no_weights <- gls(Export ~ NRCA + log_NFKI + log_NGLI,
                data = GLS_01_09012024,
                correlation = corAR1(form = ~ 1 | Country),
                control = glsControl(opt = "nlminb", maxIter = 1000))
plot(residuals(model_gls_no_weights), main = "Residuals")

model_gls_more_iter <- gls(Export ~ NRCA + NFKI + NGLI,
                data = GLS_01_09012024,
```

```
weights = varPower(form = ~ fitted(.)),
correlation = corAR1(form = ~ 1 | Country),
control = glsControl(opt = "nlminb", maxIter = 2000))
```

**R-Studio Result**

summary(model_gls)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -4681.875 | -4661.396 | 2345.938 |

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.000112198 | 0.0002524767 | -0.444389 | 0.6570 |
| NRCA | -0.000863828 | 0.0006911902 | -1.249768 | 0.2120 |
| NFKI | 0.003221681 | 0.0005651986 | 5.700087 | 0.0000 |
| NGLI | -0.000216435 | 0.0003454270 | -0.626571 | 0.5313 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.824 | | |
| NFKI | -0.186 | 0.035 | |
| NGLI | -0.660 | 0.441 | -0.469 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -0.99179498 | -0.27760512 | -0.07896045 | 0.06355561 | 12.89989248 |

Residual standard error: 0.001211498

Degrees of freedom: 448 total; 444 residual

summary(model_gls_het)

Generalized least squares fit by REML

Model: Export ~ NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -5462.589 | -5442.098 | 2736.294 |

Variance function:

Structure: Power of variance covariate

Formula: ~fitted(.)

Parameter estimates:

power

1.580563

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.0000341543 | 5.037710e-06 | -6.779720 | 0 |
| NFKI | 0.0005280942 | 7.659233e-05 | 6.894871 | 0 |
| NGLI | 0.0001763533 | 2.602391e-05 | 6.776590 | 0 |

Correlation:

| | (Intr) | NFKI |
|---|---|---|
| NFKI | -1.000 | |
| NGLI | -1.000 | 0.999 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.49078455 | -0.25973773 | -0.17252406 | 0.01544546 | 10.34722040 |

Residual standard error: 688.2111

Degrees of freedom: 448 total; 445 residual

> summary(model_gls_auto)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -4680.553 | -4655.978 | 2346.277 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi

0.03790355

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.000131674 | 0.0002579552 | -0.510454 | 0.6100 |
| NRCA | -0.000825679 | 0.0007025618 | -1.175241 | 0.2405 |
| NFKI | 0.003358138 | 0.0005664963 | 5.927908 | 0.0000 |
| NGLI | -0.000254593 | 0.0003537053 | -0.719788 | 0.4720 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.823 | | |
| NFKI | -0.181 | 0.033 | |
| NGLI | -0.668 | 0.442 | -0.461 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.01796386 | -0.27560694 | -0.07944625 | 0.07460187 | 12.88061701 |

Residual standard error: 0.001211496

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_corr)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|

| | | |
|---|---|---|
| -4680.553 | -4655.978 | 2346.277 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi

0.03790359

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.000131674 | 0.0002579553 | -0.510454 | 0.6100 |
| NRCA | -0.000825679 | 0.0007025618 | -1.175241 | 0.2405 |
| NFKI | 0.003358138 | 0.0005664963 | 5.927908 | 0.0000 |
| NGLI | -0.000254593 | 0.0003537053 | -0.719789 | 0.4720 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.823 | | |
| NFKI | -0.181 | 0.033 | |
| NGLI | -0.668 | 0.442 | -0.461 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.01796388 | -0.27560695 | -0.07944626 | 0.07460188 | 12.88061697 |

Residual standard error: 0.001211496

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_no_varpower)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -4680.553 | -4655.978 | 2346.277 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi

0.03790359

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.000131674 | 0.0002579553 | -0.510454 | 0.6100 |
| NRCA | -0.000825679 | 0.0007025618 | -1.175241 | 0.2405 |
| NFKI | 0.003358138 | 0.0005664963 | 5.927908 | 0.0000 |
| NGLI | -0.000254593 | 0.0003537053 | -0.719789 | 0.4720 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.823 | | |
| NFKI | -0.181 | 0.033 | |
| NGLI | -0.668 | 0.442 | -0.461 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.01796388 | -0.27560695 | -0.07944626 | 0.07460188 | 12.88061697 |

Residual standard error: 0.001211496

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_no_corAR1)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -5549.077 | -5524.502 | 2780.538 |

Variance function:

Structure: Power of variance covariate

Formula: ~fitted(.)

Parameter estimates:

power

1.734707

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | 0.0000387193 | 4.933060e-06 | 7.848943 | 0 |
| NRCA | -0.0001864593 | 2.528862e-05 | -7.373248 | 0 |
| NFKI | 0.0004782367 | 6.475535e-05 | 7.385284 | 0 |
| NGLI | 0.0000355510 | 7.440170e-06 | 4.778244 | 0 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.999 | | |
| NFKI | 0.999 | -1.000 | |
| NGLI | 0.944 | -0.960 | 0.959 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.81117969 | -0.22154985 | -0.12896126 | 0.06533296 | 9.46389592 |

Residual standard error: 3835.287

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_alt_opt)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -5180.252 | -5151.581 | 2597.126 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi

0.007986123

Variance function:

Structure: Power of variance covariate

Formula: ~fitted(.)

Parameter estimates:

power

1.298665

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.0000364073 | 7.370530e-06 | -4.939573 | 0.0000 |
| NRCA | -0.0001181753 | 1.853684e-05 | -6.375159 | 0.0000 |
| NFKI | -0.0000317682 | 1.876592e-05 | -1.692868 | 0.0912 |
| NGLI | 0.0006682663 | 1.084826e-04 | 6.160122 | 0.0000 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | 0.830 | | |
| NFKI | -0.035 | -0.039 | |
| NGLI | -0.942 | -0.958 | -0.075 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -0.85946022 | -0.27381459 | -0.21076317 | -0.03765858 | 12.66190128 |

Residual standard error: 45.52418

Degrees of freedom: 448 total; 444 residual

> summary(model_simple_no_weights)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024_scaled

| AIC | BIC | logLik |
|---|---|---|
| -4681.875 | -4661.396 | 2345.938 |

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.000112198 | 0.0002524767 | -0.444389 | 0.6570 |
| NRCA | -0.000863828 | 0.0006911902 | -1.249768 | 0.2120 |
| NFKI | 0.003221681 | 0.0005651986 | 5.700087 | 0.0000 |
| NGLI | -0.000216435 | 0.0003454270 | -0.626571 | 0.5313 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.824 | | |
| NFKI | -0.186 | 0.035 | |
| NGLI | -0.660 | 0.441 | -0.469 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -0.99179498 | -0.27760512 | -0.07896045 | 0.06355561 | 12.89989248 |

Residual standard error: 0.001211498

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_no_correlation)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024_scaled

| AIC | BIC | logLik |
|---|---|---|
| -5549.077 | -5524.502 | 2780.538 |

Variance function:

Structure: Power of variance covariate

Formula: ~fitted(.)

Parameter estimates:

power

1.734707

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | 0.0000387193 | 4.933060e-06 | 7.848943 | 0 |
| NRCA | -0.0001864593 | 2.528862e-05 | -7.373248 | 0 |
| NFKI | 0.0004782367 | 6.475535e-05 | 7.385284 | 0 |
| NGLI | 0.0000355510 | 7.440170e-06 | 4.778244 | 0 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.999 | | |
| NFKI | 0.999 | -1.000 | |
| NGLI | 0.944 | -0.960 | 0.959 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.81117969 | -0.22154985 | -0.12896126 | 0.06533296 | 9.46389592 |

Residual standard error: 3835.287

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_corr)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -4680.553 | -4655.978 | 2346.277 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi

0.03790359

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.000131674 | 0.0002579553 | -0.510454 | 0.6100 |
| NRCA | -0.000825679 | 0.0007025618 | -1.175241 | 0.2405 |
| NFKI | 0.003358138 | 0.0005664963 | 5.927908 | 0.0000 |
| NGLI | -0.000254593 | 0.0003537053 | -0.719789 | 0.4720 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.823 | | |
| NFKI | -0.181 | 0.033 | |
| NGLI | -0.668 | 0.442 | -0.461 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.01796388 | -0.27560695 | -0.07944626 | 0.07460188 | 12.88061697 |

Residual standard error: 0.001211496

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_no_weights)

Generalized least squares fit by REML

Model: Export ~ NRCA + log_NFKI + log_NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -4679.644 | -4655.069 | 2345.822 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi
0.03736041

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.000140372 | 0.0002758884 | -0.508801 | 0.6111 |
| NRCA | -0.000897036 | 0.0006995510 | -1.282303 | 0.2004 |
| log_NFKI | 0.004126732 | 0.0007186481 | 5.742354 | 0.0000 |
| log_NGLI | -0.000425480 | 0.0005203049 | -0.817752 | 0.4139 |

Correlation:

| | (Intr) | NRCA | l_NFKI |
|---|---|---|---|
| NRCA | -0.803 | | |
| log_NFKI | -0.156 | 0.025 | |
| log_NGLI | -0.687 | 0.432 | -0.482 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -0.94824742 | -0.28933368 | -0.09088216 | 0.07712211 | 12.87792836 |

Residual standard error: 0.001214372
Degrees of freedom: 448 total; 444 residual

> summary (model_gls_more_iter)
Generalized least squares fit by REML
Model: Export ~ NRCA + NFKI + NGLI
Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -5180.252 | -5151.581 | 2597.126 |

Correlation Structure: AR(1)
Formula: ~1 | Country
Parameter estimate(s):
Phi

0.007986123

Variance function:

Structure: Power of variance covariate

Formula: ~fitted(.)

Parameter estimates:

power

1.298665

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.0000364073 | 7.370530e-06 | -4.939573 | 0.0000 |
| NRCA | -0.0001181753 | 1.853684e-05 | -6.375159 | 0.0000 |
| NFKI | -0.0000317682 | 1.876592e-05 | -1.692868 | 0.0912 |
| NGLI | 0.0006682663 | 1.084826e-04 | 6.160122 | 0.0000 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | 0.830 | | |
| NFKI | -0.035 | -0.039 | |
| NGLI | -0.942 | -0.958 | -0.075 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -0.85946022 | -0.27381459 | -0.21076317 | -0.03765858 | 12.66190128 |

Residual standard error: 45.52418

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_log)

Generalized least squares fit by REML

Model: Export ~ NRCA + log_NFKI + log_NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -5180.065 | -5151.394 | 2597.032 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi

0.008279403

Variance function:

Structure: Power of variance covariate

Formula: ~fitted(.)

Parameter estimates:

power

1.419175

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.0000420094 | 8.342180e-06 | -5.035784 | 0.0000 |
| NRCA | -0.0001241309 | 2.005217e-05 | -6.190398 | 0.0000 |
| log_NFKI | -0.0000373732 | 1.226334e-05 | -3.047557 | 0.0024 |
| log_NGLI | 0.0007808697 | 1.312659e-04 | 5.948763 | 0.0000 |

Correlation:

| | (Intr) | NRCA | l_NFKI |
|---|---|---|---|
| NRCA | 0.925 | | |
| log_NFKI | -0.018 | -0.020 | |
| log_NGLI | -0.976 | -0.981 | -0.043 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.19243654 | -0.25282778 | -0.18209853 | -0.01638966 | 12.68638954 |

Residual standard error: 143.4608

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_custom_ctrl)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -5180.252 | -5151.581 | 2597.126 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi

0.007985509

Variance function:

Structure: Power of variance covariate

Formula: ~fitted(.)

Parameter estimates:

power

1.298665

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | -0.0000364073 | 7.370530e-06 | -4.939576 | 0.0000 |
| NRCA | -0.0001181753 | 1.853683e-05 | -6.375163 | 0.0000 |
| NFKI | -0.0000317682 | 1.876591e-05 | -1.692870 | 0.0912 |
| NGLI | 0.0006682663 | 1.084826e-04 | 6.160125 | 0.0000 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | 0.830 | | |
| NFKI | -0.035 | -0.039 | |
| NGLI | -0.942 | -0.958 | -0.075 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -0.8594604 | -0.2738146 | -0.2107632 | -0.0376586 | 12.6619008 |

Residual standard error: 45.52421

Degrees of freedom: 448 total; 444 residual

> summary(model_gls_simplified)

Generalized least squares fit by REML

Model: Export ~ NRCA + NFKI + NGLI

Data: GLS_01_09012024

| AIC | BIC | logLik |
|---|---|---|
| -6688.243 | -6307.331 | 3437.122 |

Correlation Structure: AR(1)

Formula: ~1 | Country

Parameter estimate(s):

Phi

0.2339623

Variance function:

Structure: Different standard deviations per stratum

Formula: ~1 | Country

Parameter estimates:

| Afghanistan | Albania | Argentina | Armenia | Australia |
|---|---|---|---|---|
| 1.000000e+00 | 4.123798e-01 | 2.058789e+00 | 1.177204e-01 | 3.471797e+01 |
| Azerbaijan | Bahrain | Belarus | Bhutan | Bolivia |
| 5.169007e-01 | 1.038653e+00 | 5.264991e+00 | 2.412211e-01 | 5.535661e-02 |
| Bosnia and Herzegovina | Brazil | Brunei Darussalam | Cambodia | Cameroon |
| 1.505635e-01 | 6.147821e+00 | 3.484737e+00 | 7.009518e-01 | 7.369433e-02 |
| Canada | Chile | China | Colombia | Costa Rica |
| 1.900217e+00 | 8.319316e+00 | 1.307975e+02 | 6.901914e+00 | 2.498198e-01 |
| Côte d'Ivoire | Cuba | Dominican Republic | Ecuador | Egypt |
| 3.472355e-01 | 1.907504e-02 | 9.116571e-02 | 5.360601e-02 | 1.938810e+00 |
| El Salvador | Faroe Islands | Georgia | Ghana | Guatemala |
| 6.154243e-03 | 1.935656e-01 | 1.786687e-01 | 2.848913e-01 | 1.520178e-01 |
| Honduras | Hong Kong China | Iceland | India | Indonesia |
| 1.699916e-01 | 1.970726e+02 | 1.934636e-06 | 1.317594e+01 | 1.192614e+01 |
| Israel | Japan | Jordan | Kazakhstan | Kenya |
| 8.752243e+00 | 1.731450e+01 | 1.280173e+00 | 1.033882e+00 | 5.048368e-01 |
| Korea, Republic of | Kyrgyz Republic | Lao PDR | Lebanon | Macao China |
| 6.277406e+01 | 2.226765e-01 | 3.152848e+00 | 2.887575e-01 | 6.665991e-01 |
| Macedonia North | Malaysia | Mauritius | Mexico | Moldova |

| | | | | |
|---|---|---|---|---|
| 2.467916e- | 1.148426e+01 | 7.585538e-02 | 2.551757e+00 | 1.034476e-01 |
| Mongolia | Montenegro | Morocco | Mozambique | Namibia |
| 1.612268e-06 | 1.382378e-01 | 7.842226e-01 | 2.752864e-01 | 5.546679e-02 |
| Nepal | New Zealand | Nicaragua | Norway | Oman |
| 1.158368e+00 | 4.986639e+00 | 3.393294e-02 | 1.392768e-01 | 5.787879e-01 |
| Pakistan | Palestine | Panama | Papua New Guinea | Paraguay |
| 1.389658e+00 | 1.208205e-01 | 9.534536e-01 | 3.423831e+00 | 4.562525e-02 |
| Peru | Philippines | Russian Federation | Serbia | Singapore |
| 6.015212e+00 | 1.578961e+01 | 1.903019e+00 | 6.804773e-01 | 2.667676e+01 |
| Sri Lanka | Switzerland | Syrian Arab Republic | Taipei Chinese | Tajikistan |
| 7.652495e-01 | 2.291915e+01 | 1.981358e-01 | 1.458192e+01 | 9.773958e-02 |
| Thailand | Tunisia | Türkiye | Turkmenistan | Ukraine |
| 1.460482e+01 | 1.444054e-01 | 3.974835e+00 | 6.868665e-02 | 5.821555e-01 |
| United Arab Emirates | United Kingdom | United States of America | Uruguay | Uzbekistan |
| 1.566140e+01 | 4.534710e+00 | 2.984734e+01 | 1.457415e-01 | 6.796899e-01 |
| Venezuela | Viet Nam | Zimbabwe | | |
| 1.615979e-01 | 1.419201e+01 | 2.534634e-05 | | |

Coefficients:

| | Value | Std.Error | t-value | p-value |
|---|---|---|---|---|
| (Intercept) | 4.552720e-06 | 2.078718e-09 | 2190.16 | 0 |
| NRCA | -1.615858e-05 | 6.379137e-09 | -2533.03 | 0 |
| NFKI | 5.689926e-05 | 1.735935e-09 | 32777.30 | 0 |
| NGLI | -1.200266e-05 | 3.979858e-09 | -3015.85 | 0 |

Correlation:

| | (Intr) | NRCA | NFKI |
|---|---|---|---|
| NRCA | -0.966 | | |
| NFKI | -0.363 | 0.163 | |
| NGLI | -0.950 | 0.840 | 0.519 |

Standardized residuals:

| Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|
| -1.821881336 | 0.005270591 | 0.174348874 | 0.983790515 | 4.076155983 |

Residual standard error: 3.632909e-05

Degrees of freedom: 448 total; 444 residual

APPENDIX 7

LIST OF INDONESIAN COMMODITIES WITH BEST COMPETITIVE PERFORMANCE

| No | HS code | Product label | RCA | CMSA1 | CMSA2 | CMSA3 | CMSA4 | Predicate |
|---|---|---|---|---|---|---|---|---|
| | | All products | 1.76 | 5642 | -21827 | 450118 | 3543372 | GREAT |
| 1 | 13 | Lac; gums, resins and other vegetable saps and extracts | 1.70 | 3 | -1 | 17 | 247 | GREAT |
| 2 | 15 | Animal, vegetable or microbial fats and oils and their cleavage products; prepared edible fats; ... | 20.97 | 4410 | 5721 | 384 | 48535 | GREAT |
| 3 | 64 | Footwear, gaiters and the like; parts of such articles | 3.83 | 0 | 0 | 0 | 76 | GREAT |
| 4 | 09 | Coffee, tea, maté and spices | 3.69 | 0 | 0 | 0 | 294 | GREAT |
| 5 | 21 | Miscellaneous edible preparations | 1.51 | 284 | 194 | 650 | 4029 | GREAT |
| 6 | 92 | Musical instruments; parts and accessories of such articles | 8.84 | 0 | 0 | 0 | 2 | GREAT |
| 7 | 87 | Vehicles other than railway or tramway rolling stock, and parts and accessories thereof | 0.51 | 11 | -4 | 38 | 98 | SUNRISE |
| 8 | 83 | Miscellaneous articles of base metal | 0.21 | 0 | 0 | 0 | 41 | SUNRISE |
| 9 | 39 | Plastics and articles thereof | 0.41 | 168 | 22 | -117 | 1744 | SUNRISE |
| 10 | 29 | Organic chemicals | 0.66 | 845 | -113 | 442 | 380 | SUNRISE |
| 11 | 73 | Articles of iron or steel | 0.54 | 16 | -6 | -18 | 26 | SUNRISE |
| 12 | 33 | Essential oils and resinoids; perfumery, cosmetic or toilet preparations | 0.57 | 6 | 5 | -4 | 120 | SUNRISE |
| 13 | 95 | Toys, games and sports requisites; parts and accessories thereof | 0.45 | 6 | 4 | -3 | 202 | SUNRISE |
| 14 | 96 | Miscellaneous manufactured articles | 0.80 | 20 | 1 | -10 | 320 | SUNRISE |
| 15 | 42 | Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ... | 0.83 | 0 | 0 | 0 | 31 | SUNRISE |
| 16 | 05 | Products of animal origin, not elsewhere specified or included | 0.24 | 0 | 0 | 0 | 1 | SUNRISE |
| 17 | 99 | Commodities not elsewhere specified | 0.01 | 0 | 0 | 0 | 2 | SUNRISE |
| 18 | 49 | Printed books, newspapers, pictures and other products of | 0.10 | 0 | 0 | 0 | 3 | SUNRISE |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | the printing industry; manuscripts, ... | | | | | | |
| 19 | 76 | Aluminium and articles thereof | 0.36 | 0 | 0 | 0 | 1 | SUNRISE |

GREAT if RCA > 1 and CMSA4 >0; SUNRISE if RCA <1 and CMSA4 >0

APPENDIX 8

LIST OF SUDANESE COMMODITIES WITH BEST COMPETITIVE PERFORMANCE

| No | HS code | Product label | RCA | CMSA1 | CMSA2 | CMSA3 | CMSA4 | Predicate |
|---|---|---|---|---|---|---|---|---|
| | | All products | 1.66 | 1278 | 0 | -4092 | 35579 | GREAT |
| 1 | 13 | Lac; gums, resins and other vegetable saps and extracts | 35.49 | 0 | 0 | 0 | 22 | GREAT |
| 2 | 12 | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal ... | 19.84 | 1201 | 815 | 7919 | 20730 | GREAT |
| 3 | 01 | Live animals | 61.27 | 0 | 0 | 0 | 4 | GREAT |
| 4 | 87 | Vehicles other than railway or tramway rolling stock, and parts and accessories thereof | 0.01 | 0 | 0 | 0 | 107 | SUNRISE |
| 5 | 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard | 0.02 | 0 | 0 | 0 | 22 | SUNRISE |
| 6 | 84 | Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof | 0.00 | 10 | -2 | 157 | 880 | SUNRISE |
| 7 | 85 | Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ... | 0.00 | 0 | 0 | 0 | 536 | SUNRISE |
| 8 | 08 | Edible fruit and nuts; peel of citrus fruit or melons | 0.12 | 0 | 0 | 0 | 37 | SUNRISE |

GREAT if RCA > 1 and CMSA4 >0; SUNRISE if RCA <1 and CMSA4 >0

# APPENDIX 9

## SOCIAL ACCOUNTING MATRIX (SAM) OF THE AGGREGATION

GSAM Size: SAMA * SAMA [*Sum over REG] GTAP Data in Social Accounting Matrix (SAM) format

| GTAPSAM | 1 m_GRSUN | 2 m_MASAT | 3 d_GRSUN | 4 d_MASAT | 5 a_GRSUN | 6 a_MASAT | 7 Land | 8 GenLab | 9 Capital | 10 NatRes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 m_GRSUN | 0 | 0 | 0 | 0 | 3828513 | 2292358 | 0 | 0 | 0 | 0 |
| 2 m_MASAT | 0 | 0 | 0 | 0 | 1364564 | 6373218 | 0 | 0 | 0 | 0 |
| 3 d_GRSUN | 0 | 0 | 0 | 0 | 8763071 | 6572333 | 0 | 0 | 0 | 0 |
| 4 d_MASAT | 0 | 0 | 0 | 0 | 8687165 | 43267848 | 0 | 0 | 0 | 0 |
| 5 a_GRSUN | 0 | 0 | 32519964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 a_MASAT | 0 | 0 | 0 | 1.26E+08 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 Land | 0 | 0 | 0 | 0 | 125575.2 | 653045.6 | 0 | 0 | 0 | 0 |
| 8 GenLab | 0 | 0 | 0 | 0 | 4006222 | 27505484 | 0 | 0 | 0 | 0 |
| 9 Capital | 0 | 0 | 0 | 0 | 4205710 | 29436274 | 0 | 0 | 0 | 0 |
| 10 NatRes | 0 | 0 | 0 | 0 | 0 | 791756.3 | 0 | 0 | 0 | 0 |
| 11 tmm_IDN | 4734.54 | 977.26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 tmm_SDN | 4.18 | 23.84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 tmm_ROW | 246157 | 144468.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 tee_IDN | 0 | 0 | 830.72 | 947.97 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 tee_SDN | 0 | 0 | 68.19 | 38.84 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 tee_ROW | 0 | 0 | 70087.84 | 56498.89 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 tssm_GRSUN | 0 | 0 | 0 | 0 | 120515.1 | 86870.33 | 0 | 0 | 0 | 0 |
| 18 tssm_MASAT | 0 | 0 | 0 | 0 | 53533.78 | 302773.4 | 0 | 0 | 0 | 0 |
| 19 tssd_GRSUN | 0 | 0 | 0 | 0 | 175186.7 | 111872.7 | 0 | 0 | 0 | 0 |
| 20 tssd_MASAT | 0 | 0 | 0 | 0 | 170794.2 | 1050907 | 0 | 0 | 0 | 0 |
| 21 tfe_Land | 0 | 0 | 0 | 0 | -7406.72 | -50113.9 | 0 | 0 | 0 | 0 |
| 22 tfe_GenLab | 0 | 0 | 0 | 0 | 781314.3 | 5144307 | 0 | 0 | 0 | 0 |
| 23 tfe_Capital | 0 | 0 | 0 | 0 | 93290.9 | 778271.6 | 0 | 0 | 0 | 0 |
| 24 tfe_NatRes | 0 | 0 | 0 | 0 | 0 | 13961.47 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 25 MASAT_IDN | 5062.04 | 6363.77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 MASAT_SDN | 63.85 | 103.64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 MASAT_ROW | 287098.5 | 267984.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 MASAT_pvst | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 ww_IDN | 111608.8 | 93462.98 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 ww_SDN | 3013.68 | 2779.48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 ww_ROW | 10172093 | 10132094 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 tprd_GRSUN | 0 | 0 | 0 | 0 | 151914.4 | 0 | 0 | 0 | 0 | 0 |
| 33 tprd_MASAT | 0 | 0 | 0 | 0 | 0 | 1883200 | 0 | 0 | 0 | 0 |
| 34 tinc_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 10138.06 | 639713.2 | 301069.3 | 0 |
| 35 tinc_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 50460.93 | 4613176 | 1967882 | 56744.8 |
| 36 REGHOUS | 0 | 0 | 0 | 0 | 0 | 0 | 718021.8 | 26258818 | 16526557 | 735011.5 |
| 37 PRIV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 38 GOVT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 SAVINV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14846477 | 0 |
| Total | 10829836 | 10648259 | 32590951 | 1.26E+08 | 32519962 | 1.26E+08 | 778620.7 | 31511707 | 33641985 | 791756.3 |

| GTAPSAM | 11 tmm_IDN | 12 tmm_SDN | 13 tmm_ROW | 14 tee_IDN | 15 tee_SDN | 16 tee_ROW | 17 tssm_GRSUN | 18 tssm_MASAT | 19 tssd_GRSUN | 20 tssd_MASAT |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 m_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 m_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 d_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 d_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 a_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 a_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 GenLab | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 NatRes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 tmm_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 tmm_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 tmm_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 tee_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 tee_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 tee_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 tssm_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 tssm_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 tssd_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 tssd_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 tfe_Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 tfe_GenLab | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 tfe_Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 tfe_NatRes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 MASAT_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 MASAT_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 MASAT_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 MASAT_pvst | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 ww_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 ww_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 ww_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 tprd_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33 tprd_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34 tinc_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 tinc_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 REGHOUS | 5711.81 | 28.01 | 390625.7 | 1778.69 | 107.03 | 126586.7 | 685205.3 | 699960.9 | 642915.4 | 3328355 |
| 37 PRIV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 38 GOVT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 SAVINV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 5711.81 | 28.01 | 390625.7 | 1778.69 | 107.03 | 126586.7 | 685205.3 | 699960.9 | 642915.4 | 3328355 |

| GTAPSAM | 21 tfe_Land | 22 tfe_GenLab | 23 tfe_Capital | 24 tfe_NatRes | 25 MASAT_IDN | 26 MASAT_SDN | 27 MASAT_ROW | 28 MASAT_pvst | 29 ww_IDN | 30 ww_SDN |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 m_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 m_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 d_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80140.77 | 5009.09 |
| 4 d_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 566674.8 | 96049.45 | 5289.52 |
| 5 a_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 a_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 GenLab | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 NatRes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 tmm_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 tmm_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 tmm_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 tee_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 tee_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 tee_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 tssm_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 tssm_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 tssd_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 tssd_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 tfe_Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 tfe_GenLab | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 tfe_Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 tfe_NatRes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 MASAT_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 MASAT_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 MASAT_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 28 MASAT_pvst | 0 | 0 | 0 | 0 | 11425.81 | 167.49 | 555083.4 | 0 | 0 | 0 |
| 29 ww_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 ww_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 ww_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 tprd_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33 tprd_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34 tinc_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 tinc_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 REGHOUS | -57520.6 | 5925622 | 871562.4 | 13961.47 | 0 | 0 | 0 | 0 | 0 | 0 |
| 37 PRIV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 38 GOVT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 SAVINV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.94 | 28881.52 | -4505.45 |
| Total | -57520.6 | 5925622 | 871562.4 | 13961.47 | 11425.81 | 167.49 | 555083.4 | 566676.7 | 205071.8 | 5793.16 |

| GTAPSAM | 31 ww_ROW | 32 tprd_GRSUN | 33 tprd_MASAT | 34 tinc_GRSUN | 35 tinc_MASAT | 36 REGHOUS | 37 PRIV | 38 GOVT | 39 SAVINV | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 m_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 2504174 | 74305.34 | 2130483 | 10829832 |
| 2 m_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 2133358 | 194614.5 | 582503.1 | 10648257 |
| 3 d_GRSUN | 10201565 | 0 | 0 | 0 | 0 | 0 | 4093022 | 76206.35 | 2799604 | 32590951 |
| 4 d_MASAT | 10126997 | 0 | 0 | 0 | 0 | 0 | 35831284 | 13057963 | 14632581 | 1.26E+08 |
| 5 a_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32519964 |
| 6 a_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.26E+08 |
| 7 Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 778620.8 |
| 8 GenLab | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31511706 |
| 9 Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33641984 |
| 10 NatRes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 791756.3 |
| 11 tmm_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5711.81 |
| 12 tmm_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28.01 |
| 13 tmm_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 390625.7 |
| 14 tee_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1778.69 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 15 tee_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 107.03 |
| 16 tee_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126586.7 |
| 17 tssm_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 332715.1 | 4085.25 | 141019.5 | 685205.3 |
| 18 tssm_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 320365.9 | 13017.32 | 10270.39 | 699960.9 |
| 19 tssd_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 201944.3 | 3948.51 | 149963.2 | 642915.4 |
| 20 tssd_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 1585394 | 232445.3 | 288814.5 | 3328355 |
| 21 tfe_Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -57520.6 |
| 22 tfe_GenLab | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5925621 |
| 23 tfe_Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 871562.5 |
| 24 tfe_NatRes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13961.47 |
| 25 MASAT_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11425.81 |
| 26 MASAT_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 167.49 |
| 27 MASAT_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 555083.4 |
| 28 MASAT_pvst | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 566676.7 |
| 29 ww_IDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 205071.8 |
| 30 ww_SDN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5793.16 |
| 31 ww_ROW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20304187 |
| 32 tprd_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 151914.4 |
| 33 tprd_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1883200 |
| 34 tinc_GRSUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 950920.6 |
| 35 tinc_MASAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6688264 |
| 36 REGHOUS | 0 | 151914.4 | 1883200 | 950920.6 | 6688264 | 0 | 0 | 0 | 0 | 66547606 |
| 37 PRIV | 0 | 0 | 0 | 0 | 0 | 47002260 | 0 | 0 | 0 | 47002260 |
| 38 GOVT | 0 | 0 | 0 | 0 | 0 | 13656586 | 0 | 0 | 0 | 13656586 |
| 39 SAVINV | -24376.1 | 0 | 0 | 0 | 0 | 5888770 | 0 | 0 | 0 | 20735249 |
| Total | 20304186 | 151914.4 | 1883200 | 950920.6 | 6688264 | 66547616 | 47002258 | 13656586 | 20735239 | 5.98E+08 |

APPENDIX 10

COMPLETE DOCUMENTATION OF GTAP APPLICATION

Indonesia - Sudan Regional Trade Agreement

I. SUMMARY

This small version of GTAP uses a 2-good, 3-region and 4-factor aggregation. Closures will be amended accordingly.

II. REGIONS AND COMMODITIES

The regions are:

| | |
|---|---|
| IDN | Indonesia |
| SDN | Sudan |
| ROW | Rest of the World |

The 2 goods are:

| | |
|---|---|
| GRSUN | ocr oap vol ofd wap lea ppp rpp i_s nfm fmp ele eeq ome mvh omf |
| MASAT | pdr wht gro v_f osd c_b pfb ctl rmk wol frs fsh coa oil gas oxt cmt omt mil pcr sgr b_t tex lum p_c chm bph nmm i_s otn ely gdt wtr cns trd afs otp wtp atp whs cmn ofi ins rsa obs ros osg edu hht dwe |

the 4 factors are:

| | |
|---|---|
| LAND | land |
| LABOUR | tech_aspros clerks service_shop off_mgr_pros ag_othlowsk |
| CAPITAL | capital |
| NATRES | natural resources |

III. EXPERIMENT FILES: SHOCKS, CLOSURES AND SOLUTION METHOD:

SHOCKS

Variable to shock tms source-spec change in tax on imports of c from s to d

Elements to shock GRSUN IDN SDN

Shock value 9.6442 type of shock %target rate

file tms.shk: -16.1696 initial AV%rate: 19.2884 final AV%: 9.6442 %powershock: -8.0848

Shock tms ("GRSUN", "IDN", "SDN") = -8.0848

Variable to shock tms source-spec change in tax on imports of c from s to d

Elements to shock GRSUN IDN SDN

Shock value 4.8221 type of shock %target rate

file tms.shk: -16.1696 initial AV%rate: 19.2884 final AV%: 4.8225 %powershock: -12.1272

Shock tms ("GRSUN", "IDN", "SDN") = -12.1272

Variable to shock tms source-spec change in tax on imports of c from s to d

Elements to shock GRSUN IDN SDN

Shock value 2.8382 type of shock %target rate

file tms.shk: -16.1696 initial AV%rate: 19.2884 final AV%: 2.8382 %powershock: -13.7903

Shock tms ("GRSUN", "IDN", "SDN") = -13.7903

CLOSURES

will be decided

SOLUTION METHODS

Solution method for policy analysis is Gragg 2-4-6 -- with automatic accuracy if large shocks are undertaken.

Results

Scenario 1

Change in GDP %

| | Pre | Post | Ch/%ch |
|---|---|---|---|
| Indonesia | 1015617.19 | 1015618.50 | 1.31 |
| Sudan | 129697.15 | 129698.57 | 1.42 |

Change on quantity of bilateral export (%)

| | |
|---|---|
| Indonesia to Sudan | |
| GREAT and SUNRISE Commodities | 103.12 |
| MATURE and SATURATED Commodities | -0.12 |
| | |
| Sudan to Indonesia | |
| GREAT and SUNRISE commodities | 0.34 |
| MATURE and Saturated commodities | 0.25 |

Welfare impact (US$ mil)

| | Allocate efficiency | Technical efficiency | Term of trade (goods) | Term of trade (invest) | Total |
|---|---|---|---|---|---|
| Indonesia | 1.32 | 0.00 | 10.72 | -1.15 | 10.89 |
| Sudan | 1.43 | 0.00 | -2.48 | -2.08 | -3.13 |

Changes in import volume %

| | Indonesia from Sudan | Indonesia from Rest of World | net trade creation | trade creation? |
|---|---|---|---|---|
| GREAT and SUNRISE commodities | 0.000700 | 10.683600 | 10.68 | YES |
| MATURE and SATURATED commodities | 0.073200 | 11.683200 | 11.76 | YES |
| | Sudan from Indonesia | Sudan from Rest of World | net trade creation | trade creation? |
| GREAT and SUNRISE commodities | 69.306700 | -52.734600 | 16.57 | YES |
| MATURE and SATURATED commodities | -0.016900 | -4.510600 | -4.53 | NO |
| | 69.36 | -34.88 | 34.49 | |

Scenario 2

Change in GDP %

| | Pre | Post | Ch/%ch |
|---|---|---|---|
| Indonesia | 1015617.19 | 1015619.69 | 2.50 |
| Sudan | 129697.15 | 129694.74 | -2.41 |

Change on quantity of bilateral export (%)

| Indonesia to Sudan | |
|---|---|
| GREAT and SUNRISE commodities | 196.48 |
| MATURE and SATURATED commodities | -0.24 |
| | |
| Sudan to Indonesia | |
| GREAT and Sunrise commodities | 0.68 |
| MATURE and SATURATED commodities | 0.51 |

Welfare impact (US$ mil)

| | Allocate efficiency | Technical efficiency | Term of trade (goods) | Term of trade (invest) | Total |
|---|---|---|---|---|---|
| Indonesia | 2.52 | 0.00 | 20.43 | -2.20 | 20.75 |
| Sudan | -2.41 | 0.00 | -4.95 | -4.15 | -11.50 |

Changes in import volume %

| | Indonesia from Sudan | Indonesia from Rest of World | Net trade creation | Trade creation? |
|---|---|---|---|---|
| GREAT and SUNRISE commodities | 0.001 | 20.355 | 20.357 | YES |
| MATURE and SATURATED commodities | 0.147 | 22.255 | 22.402 | YES |
| | Sudan from Indonesia | Sudan from Rest of World | Net trade creation | Trade creation? |
| GREAT and SUNRISE commodities | 132.053 | -97.805 | 34.248 | YES |
| MATURE and SATURATED commodities | -0.034 | -9.137 | -9.171 | NO |
| | 132.17 | -64.33 | 67.84 | |

Scenario 3

Change in GDP %

| | Pre | Post | Ch/%ch |
|---|---|---|---|
| Indonesia | 1015617.19 | 1015620.63 | 3.44 |
| Sudan | 129697.15 | 129689.77 | -7.38 |

Change on quantity of bilateral export (%)

| | |
|---|---|
| Indonesia to Sudan | |
| GREAT and SUNRISE commodities | 267.37 |
| MATURE and SATURATED commodities | -0.33 |
| | |
| Sudan to Indonesia | |
| GREAT and SUNRISE commodities | 0.95 |
| MATURE and SATURATED commodities | 0.71 |
| | |

Welfare impact (US$ mil)

| | Allocate efficiency | Technical efficiency | Term of trade (goods) | Term of trade (invest) | Total |
|---|---|---|---|---|---|
| Indonesia | 3.44 | 0.00 | 27.79 | -2.99 | 28.24 |
| Sudan | -6.52 | 0.00 | -6.91 | -5.80 | -19.23 |

Changes in import volume %

| | Indonesia from Sudan | Indonesia from Rest of World | Net trade creation | Trade creation? |
|---|---|---|---|---|
| GREAT and SUNRISE commodities | 0.002 | 27.70 | 27.701 | yes |

| | | | | |
|---|---|---|---|---|
| MATURE and SATURATED commodities | 0.206 | 30.28 | 30.486 | yes |
| | Sudan from Indonesia | Sudan from Rest of World | Net trade creation | Trade creation? |
| GREAT and SUNRISE commodities | 179.69 | -130.927 | 48.768 | yes |
| MATURE and SATURATED commodities | -0.047 | -12.869 | -12.916 | no |
| | 179.85 | -85.82 | 94.04 | |

APPENDIX 11

TRADE DYNAMIC DATA BETWEEN INDONESIA AND SUDAN

Indonesia

| Series Name | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Trade surplus (US$) | 5,833,232,478.62 | 6,982,569,777.35 | 14,048,569,144.21 | 15,317,989,719.11 | 18,813,932,315.73 |
| Economic growth (%) | 5.56 | 5.01 | 4.88 | 5.03 | 5.07 |
| GDP (current US$) | 912,524,136,718.02 | 890,814,755,511.29 | 860,854,232,717.85 | 931,877,364,033.90 | 1,015,618,744,168.15 |
| Population (number) | 253,275,918 | 256,229,761 | 259,091,970 | 261,850,182 | 264,498,852 |
| Population growth (%) | 1.21 | 1.16 | 1.11 | 1.06 | 1.01 |
| GDP per capita (US$) | 3,602.89 | 3,476.62 | 3,322.58 | 3,558.82 | 3,839.79 |
| Labor force (number) | 122,963,171 | 124,478,016 | 126,141,822 | 127,339,758 | 129,760,147 |
| Unemployment rate (%) | 4.34 | 4.05 | 4.51 | 4.30 | 3.78 |
| Output per worker (US$) | 20,244.81 | 20,936.23 | 21,771.91 | 22,602.87 | 23,179.85 |
| Export share to GDP (%) | 23.92 | 23.67 | 21.16 | 19.09 | 20.18 |
| Import share to GDP (%) | 24.71 | 24.41 | 20.78 | 18.33 | 19.18 |
| Trade share to GDP (%) | 48.64 | 48.08 | 41.94 | 37.42 | 39.36 |
| Agricultural value added (US$) | 121,883,103,723.84 | 118,805,781,439.39 | 116,151,993,173.62 | 125,605,406,664.79 | 133,621,208,975.69 |
| Industrial value added (US$) | 302,456,343,607.45 | 285,688,355,255.68 | 256,842,164,500.23 | 269,554,975,118.76 | 294,529,095,545.96 |
| Container port traffic (TEU: 20 ft equivalent units) | 10,488,947.00 | 10,063,117.00 | 9,575,881.00 | 10,072,227.00 | 11,600,194.00 |
| Liner shipping connectivity index (maximum value in 2004 = 100) | 35.33 | 35.09 | 34.47 | 33.27 | 44.15 |
| Average time to clear exports through customs (days) | .. | .. | 8.30 | .. | .. |
| Bribery incidence (% of firms experiencing at least one bribe payment request) | .. | .. | 30.60 | .. | .. |
| Cost of business start-up procedures (% of GNI per capita) | 22.00 | 21.20 | 20.00 | 19.40 | 11.00 |

| | | | | | |
|---|---|---|---|---|---|
| Cost to export, border compliance (US$) | .. | 253.74 | 253.74 | 253.74 | 253.74 |
| Cost to import, border compliance (US$) | .. | 382.59 | 382.59 | 382.59 | 382.59 |
| Ease of doing business score (0 = lowest performance to 100 = best performance) | .. | .. | 62.11 | 64.66 | 66.87 |
| Lead time to export, median case (days) | .. | 3.00 | .. | 3.00 | .. |
| Lead time to import, median case (days) | .. | 4.00 | .. | 5.00 | .. |
| Logistics performance index: Overall (1=low to 5=high) | .. | 3.08 | .. | 2.98 | .. |
| Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high) | .. | 2.92 | .. | 2.65 | .. |
| Time to export, border compliance (hours) | .. | 62.57 | 62.57 | 62.57 | 62.57 |
| Time to import, border compliance (hours) | .. | 99.36 | 99.36 | 99.36 | 99.36 |
| Control of Corruption: Estimate | -0.66 | -0.60 | -0.50 | -0.44 | -0.28 |
| Government Effectiveness: Estimate | -0.24 | -0.06 | -0.30 | -0.02 | 0.01 |
| Regulatory Quality: Estimate | -0.12 | -0.01 | -0.14 | -0.02 | 0.04 |
| Rule of Law: Estimate | -0.53 | -0.31 | -0.41 | -0.32 | -0.33 |
| Voice and Accountability: Estimate | 0.04 | 0.15 | 0.18 | 0.17 | 0.13 |

…countinued

| Series Name | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Trade surplus (US$) | -228,302,712.77 | 3,507,733,912.25 | 28,301,275,850.47 | 43,806,016,676.37 | 62,672,201,692.22 |
| Economic growth (%) | 5.17 | 5.02 | -2.07 | 3.70 | 5.31 |
| GDP (current US$) | 1,042,271,532,953.36 | 1,119,099,871,386.16 | 1,059,054,842,711.72 | 1,186,505,455,720.81 | 1,319,100,220,389.02 |
| Population (number) | 267,066,843 | 269,582,878 | 271,857,970 | 273,753,191.00 | 275,501,339 |

| | | | | | |
|---|---|---|---|---|---|
| Population growth (%) | 0.97 | 0.94 | 0.84 | 0.69 | 0.64 |
| GDP per capita (US$) | 3,902.66 | 4,151.23 | 3,895.62 | 4,334.22 | 4,788.00 |
| Labor force (number) | 133,327,294 | 136,201,933 | 136,106,881 | 134,381,716 | 138,099,491 |
| Unemployment rate (%) | 4.39 | 3.59 | 4.25 | 3.83 | 3.46 |
| Output per worker (US$) | 23,878.37 | 24,343.93 | 24,022.20 | 25,121.36 | 25,644.20 |
| Export share to GDP (%) | 21.00 | 18.59 | 17.33 | 21.42 | 24.50 |
| Import share to GDP (%) | 22.07 | 19.04 | 15.64 | 18.79 | 20.96 |
| Trade share to GDP (%) | 43.07 | 37.63 | 32.97 | 40.20 | 45.47 |
| Agricultural value added (US$) | 133,499,323,853.25 | 142,266,719,992.74 | 145,073,719,802.96 | 157,570,493,808.95 | 163,563,932,038.23 |
| Industrial value added (US$) | 304,356,285,360.37 | 315,624,994,827.97 | 291,631,550,018.17 | 348,936,167,715.29 | 417,672,552,648.88 |
| Container port traffic (TEU: 20 ft equivalent units) | 12,028,360.00 | 12,111,471.00 | 11,169,757.00 | 11,804,619.00 | .. |
| Liner shipping connectivity index (maximum value in 2004 = 100) | 43.20 | 45.66 | 34.91 | 32.71 | .. |
| Average time to clear exports through customs (days) | .. | .. | .. | .. | .. |
| Bribery incidence (% of firms experiencing at least one bribe payment request) | .. | .. | .. | .. | .. |
| Cost of business start-up procedures (% of GNI per capita) | 6.10 | 5.70 | .. | .. | .. |
| Cost to export, border compliance (US$) | 253.74 | 211.07 | .. | .. | .. |
| Cost to import, border compliance (US$) | 382.59 | 382.59 | .. | .. | .. |
| Ease of doing business score (0 = lowest performance to 100 = best performance) | 68.18 | 69.58 | .. | .. | .. |
| Lead time to export, median case (days) | 2.00 | .. | .. | .. | .. |
| Lead time to import, median case (days) | 4.00 | .. | .. | .. | .. |

| | | | | | |
|---|---|---|---|---|---|
| Logistics performance index: Overall (1=low to 5=high) | 3.15 | .. | .. | .. | 3.00 |
| Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high) | 2.89 | .. | .. | .. | 2.90 |
| Time to export, border compliance (hours) | 62.57 | 56.28 | .. | .. | .. |
| Time to import, border compliance (hours) | 99.36 | 99.36 | .. | .. | .. |
| Control of Corruption: Estimate | -0.28 | -0.45 | -0.43 | -0.43 | .. |
| Government Effectiveness: Estimate | 0.18 | 0.17 | 0.35 | 0.38 | .. |
| Regulatory Quality: Estimate | -0.01 | 0.04 | 0.23 | 0.30 | .. |
| Rule of Law: Estimate | -0.29 | -0.32 | -0.33 | -0.22 | .. |
| Voice and Accountability: Estimate | 0.15 | 0.13 | 0.10 | 0.16 | .. |

Sudan

| Series Name | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Trade surplus (US$) | -3,938,167,840.00 | -3,652,199,880.00 | -5,389,192,500.00 | -4,385,907,300.00 | -4,119,920,616.85 |
| Economic growth (%) | 1.96 | 4.66 | 1.91 | 3.47 | 0.71 |
| GDP (current US$) | 66,027,147,864.79 | 76,818,773,784.76 | 84,984,672,415.94 | 102,943,515,502.99 | 129,718,581,297.43 |
| Population (number) | 35,990,704 | 37,003,245 | 38,171,178 | 39,377,169 | 40,679,828 |
| Population growth (%) | 2.34 | 2.77 | 3.11 | 3.11 | 3.25 |
| GDP per capita (US$) | 1,834.56 | 2,076.00 | 2,226.41 | 2,614.29 | 3,188.77 |
| Labor force (number) | 10,162,621 | 10,453,300 | 10,803,999 | 11,164,657 | 11,559,482 |
| Unemployment rate (%) | 18.04 | 17.75 | 17.06 | 17.00 | 17.14 |
| Output per worker (US$) | 20,276.17 | 20,556.24 | 20,100.42 | 20,112.52 | 19,596.27 |
| Export share to GDP (%) | 9.51 | 7.61 | 6.42 | 5.00 | 6.11 |
| Import share to GDP (%) | 17.35 | 13.24 | 11.96 | 10.28 | 11.72 |
| Trade share to GDP (%) | 26.86 | 20.85 | 18.38 | 15.28 | 17.83 |

| | | | | | |
|---|---|---|---|---|---|
| Agricultural value added (US$) | 19,549,077,900.70 | 25,061,564,803.73 | 26,818,146,777.52 | 21,763,053,236.73 | 27,539,955,689.35 |
| Industrial value added (US$) | 11,074,283,487.79 | 11,120,862,399.97 | 10,594,748,268.96 | 13,046,794,198.45 | 17,903,126,478.45 |
| Container port traffic (TEU: 20 ft equivalent units) | 447,495.00 | 434,445.00 | 481,815.00 | 465,355.00 | 487,336.00 |
| Liner shipping connectivity index (maximum value in 2004 = 100) | 13.54 | 13.28 | 16.80 | 18.43 | 19.14 |
| Average time to clear exports through customs (days) | .. | .. | .. | .. | .. |
| Bribery incidence (% of firms experiencing at least one bribe payment request) | .. | 17.60 | .. | .. | .. |
| Cost of business start-up procedures (% of GNI per capita) | 28.10 | 25.10 | 14.80 | 30.50 | 27.80 |
| Cost to export, border compliance (US$) | .. | 966.50 | 966.50 | 966.50 | 966.50 |
| Cost to import, border compliance (US$) | .. | 1,092.50 | 1,092.50 | 1,092.50 | 1,092.50 |
| Ease of doing business score (0 = lowest performance to 100 = best performance) | .. | .. | 45.52 | 44.82 | 45.00 |
| Lead time to export, median case (days) | .. | 6.00 | .. | 11.00 | .. |
| Lead time to import, median case (days) | .. | 5.00 | .. | 12.00 | .. |
| Logistics performance index: Overall (1=low to 5=high) | .. | 2.16 | .. | 2.53 | .. |
| Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high) | .. | 1.90 | .. | 2.20 | .. |
| Time to export, border compliance (hours) | .. | 180.00 | 180.00 | 180.00 | 180.00 |
| Time to import, border compliance (hours) | .. | 144.00 | 144.00 | 144.00 | 144.00 |

| | | | | | |
|---|---|---|---|---|---|
| Control of Corruption: Estimate | -1.49 | -1.46 | -1.48 | -1.55 | -1.55 |
| Government Effectiveness: Estimate | -1.48 | -1.56 | -1.48 | -1.53 | -1.45 |
| Regulatory Quality: Estimate | -1.46 | -1.45 | -1.48 | -1.48 | -1.57 |
| Rule of Law: Estimate | -1.28 | -1.17 | -1.22 | -1.27 | -1.11 |
| Voice and Accountability: Estimate | -1.78 | -1.74 | -1.78 | -1.83 | -1.84 |

…continued

| Series Name | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Trade surplus (US$) | -3,580,391,037.06 | -4,626,818,440.46 | -5,051,335,393.10 | -3,877,256,542.00 | -5,627,945,772.25 |
| Economic growth (%) | -2.68 | -2.18 | -3.63 | -1.87 | -0.95 |
| GDP (current US$) | 32,333,780,383.29 | 32,338,079,165.29 | 27,034,593,750.00 | 34,229,513,774.99 | 51,662,241,775.24 |
| Population (number) | 41,999,059 | 43,232,093 | 44,440,486 | 45,657,202 | 46,874,204 |
| Population growth (%) | 3.19 | 2.89 | 2.76 | 2.70 | 2.63 |
| GDP per capita (US$) | 769.87 | 748.01 | 608.33 | 749.71 | 1,102.15 |
| Labor force (number) | 11,955,984 | 12,312,408 | 12,568,105 | 13,019,583 | 13,450,131 |
| Unemployment rate (%) | 17.31 | 17.51 | 19.21 | 19.19 | 17.59 |
| Output per worker (US$) | 18,475.31 | 17,593.97 | 16,958.52 | 16,448.22 | 15,221.77 |
| Export share to GDP (%) | 7.65 | 8.45 | 5.13 | 2.25 | 1.57 |
| Import share to GDP (%) | 14.22 | 17.67 | 4.83 | 1.88 | 1.13 |
| Trade share to GDP (%) | 21.87 | 26.12 | 9.96 | 4.13 | 2.70 |
| Agricultural value added (US$) | 8,964,088,071.19 | 7,096,250,666.73 | 7,006,995,197.16 | 6,941,838,362.00 | 7,390,581,671.07 |
| Industrial value added (US$) | 9,952,082,153.50 | 6,393,568,643.77 | 6,109,441,069.13 | 6,639,710,753.74 | 6,720,050,293.08 |
| Container port traffic (TEU: 20 ft equivalent units) | 451,712.00 | 469,526.00 | .. | .. | .. |
| Liner shipping connectivity index (maximum value in 2004 = 100) | 10.03 | 8.91 | 9.52 | 8.38 | .. |
| Average time to clear exports through customs (days) | .. | .. | .. | .. | .. |
| Bribery incidence (% of firms experiencing at least one bribe payment request) | .. | .. | .. | .. | .. |

| | | | | | |
|---|---|---|---|---|---|
| Cost of business start-up procedures (% of GNI per capita) | 20.90 | 17.80 | .. | .. | .. |
| Cost to export, border compliance (US$) | 966.50 | 966.50 | .. | .. | .. |
| Cost to import, border compliance (US$) | 1,092.50 | 1,092.50 | .. | .. | .. |
| Ease of doing business score (0 = lowest performance to 100 = best performance) | 48.02 | 44.83 | .. | .. | .. |
| Lead time to export, median case (days) | .. | .. | .. | .. | .. |
| Lead time to import, median case (days) | .. | .. | .. | .. | .. |
| Logistics performance index: Overall (1=low to 5=high) | 2.43 | .. | .. | .. | 2.40 |
| Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high) | 2.18 | .. | .. | .. | 2.30 |
| Time to export, border compliance (hours) | 180.00 | 180.00 | .. | .. | .. |
| Time to import, border compliance (hours) | 144.00 | 144.00 | .. | .. | .. |
| Control of Corruption: Estimate | -1.44 | -1.42 | -1.43 | -1.29 | .. |
| Government Effectiveness: Estimate | -1.61 | -1.64 | -1.53 | -1.64 | .. |
| Regulatory Quality: Estimate | -1.62 | -1.65 | -1.55 | -1.47 | .. |
| Rule of Law: Estimate | -1.12 | -1.16 | -1.08 | -1.21 | .. |
| Voice and Accountability: Estimate | -1.85 | -1.66 | -1.44 | -1.47 | .. |

APPENDIX 12

BILATERAL TRADE DATA ON HS2 BASIS

| Code | Product label | Indonesia's exports to Sudan | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| | All products | 83343 | 74384 | 77881 | 72372 | 61118 | 89620 | 102292 | 113111 | 120640 | 106961 |
| 01 | Live animals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02 | Meat and edible meat offal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03 | Fish and crustaceans, molluscs and other aquatic invertebrates | 0 | 1 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04 | Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05 | Products of animal origin, not elsewhere specified or included | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 3 | 1 |
| 06 | Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07 | Edible vegetables and certain roots and tubers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08 | Edible fruit and nuts; peel of citrus fruit or melons | 166 | 639 | 591 | 513 | 821 | 581 | 605 | 1005 | 321 | 126 |
| 09 | Coffee, tea, maté and spices | 0 | 15 | 83 | 106 | 369 | 474 | 2118 | 2034 | 991 | 294 |
| 10 | Cereals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | Products of the milling industry; malt; starches; inulin; wheat gluten | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal ... | 255 | 466 | 443 | 397 | 495 | 826 | 491 | 15 | 195 | 158 |
| 13 | Lac; gums, resins and other vegetable saps and extracts | 9 | 40 | 109 | 92 | 128 | 115 | 61 | 29 | 130 | 276 |
| 14 | Vegetable plaiting materials; vegetable products not elsewhere specified or included | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 15 | Animal, vegetable or microbial fats and oils and their cleavage products; prepared edible fats; ... | 12650 | 12750 | 17722 | 19455 | 3930 | 40283 | 60681 | 65163 | 81043 | 71700 |
| 16 | Preparations of meat, of fish, of crustaceans, molluscs or other aquatic invertebrates, or ... | 254 | 433 | 621 | 482 | 287 | 143 | 97 | 500 | 0 | 192 |
| 17 | Sugars and sugar confectionery | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 |
| 18 | Cocoa and cocoa preparations | 5 | 0 | 0 | 0 | 0 | 27 | 0 | 55 | 41 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | Preparations of cereals, flour, starch or milk; pastrycooks' products | 15 | 0 | 4 | 0 | 0 | 0 | 228 | 0 | 0 | 0 |
| 20 | Preparations of vegetables, fruit, nuts or other parts of plants | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | Miscellaneous edible preparations | 814 | 1053 | 1273 | 1460 | 2944 | 2345 | 3711 | 5909 | 4203 | 5971 |
| 22 | Beverages, spirits and vinegar | 159 | 135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | Residues and waste from the food industries; prepared animal fodder | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | Tobacco and manufactured tobacco substitutes; products, whether or not containing nicotine, ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | Salt; sulphur; earths and stone; plastering materials, lime and cement | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| 26 | Ores, slag and ash | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ... | 0 | 0 | 1 | 0 | 0 | 712 | 491 | 146 | 0 | 0 |
| 28 | Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, ... | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | Organic chemicals | 2423 | 3042 | 388 | 667 | 1222 | 2668 | 1569 | 809 | 1131 | 3976 |
| 30 | Pharmaceutical products | 669 | 1250 | 102 | 199 | 1030 | 1597 | 459 | 397 | 74 | 679 |
| 31 | Fertilisers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 | Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33 | Essential oils and resinoids; perfumery, cosmetic or toilet preparations | 18 | 72 | 278 | 59 | 39 | 15 | 186 | 209 | 91 | 145 |
| 34 | Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial ... | 1415 | 909 | 764 | 156 | 281 | 289 | 493 | 1697 | 1985 | 1125 |
| 35 | Albuminoidal substances; modified starches; glues; enzymes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 | Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 37 | Photographic or cinematographic goods | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 38 | Miscellaneous chemical products | 1236 | 866 | 542 | 339 | 297 | 335 | 494 | 848 | 77 | 338 |
| 39 | Plastics and articles thereof | 482 | 526 | 627 | 965 | 1216 | 762 | 2070 | 2435 | 2461 | 2299 |
| 40 | Rubber and articles thereof | 3227 | 3373 | 3227 | 1789 | 2162 | 2099 | 1463 | 944 | 313 | 232 |
| 41 | Raw hides and skins (other than furskins) and leather | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ... | 0 | 0 | 1 | 1 | 5 | 0 | 1 | 0 | 0 | 31 |
| 43 | Furskins and artificial fur; manufactures thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | Wood and articles of wood; wood charcoal | 196 | 35 | 51 | 1136 | 114 | 370 | 123 | 71 | 821 | 0 |
| 45 | Cork and articles of cork | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork | 0 | 2 | 0 | 1 | 5 | 2 | 2 | 0 | 0 | 0 |
| 47 | Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or ... | 0 | 0 | 0 | 0 | 0 | 92 | 0 | 0 | 0 | 0 |
| 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard | 15882 | 10696 | 10015 | 10729 | 10305 | 8496 | 2392 | 69 | 444 | 105 |
| 49 | Printed books, newspapers, pictures and other products of the printing industry; manuscripts, ... | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| 50 | Silk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 51 | Wool, fine or coarse animal hair; horsehair yarn and woven fabric | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 52 | Cotton | 298 | 105 | 65 | 0 | 7 | 0 | 46 | 33 | 0 | 0 |
| 53 | Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54 | Man-made filaments; strip and the like of man-made textile materials | 2565 | 2516 | 2618 | 2528 | 1955 | 1529 | 2068 | 1591 | 1169 | 685 |
| 55 | Man-made staple fibres | 2729 | 2058 | 1669 | 1644 | 1286 | 785 | 198 | 858 | 762 | 183 |
| 56 | Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57 | Carpets and other textile floor coverings | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable ... | 0 | 19 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | Knitted or crocheted fabrics | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 | Articles of apparel and clothing accessories, knitted or crocheted | 2517 | 2337 | 4111 | 3372 | 383 | 4 | 2 | 1 | 1 | 0 |
| 62 | Articles of apparel and clothing accessories, not knitted or crocheted | 8666 | 9537 | 7546 | 5960 | 6324 | 3451 | 2879 | 2659 | 1667 | 738 |
| 63 | Other made-up textile articles; sets; worn clothing and worn textile articles; rags | 166 | 320 | 5 | 0 | 1 | 4 | 10 | 8 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 64 | Footwear, gaiters and the like; parts of such articles | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 76 |
| 65 | Headgear and parts thereof | 1 | 0 | 615 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 | Umbrellas, sun umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts thereof | 19 | 25 | 150 | 11 | 11 | 11 | 22 | 12 | 0 | 0 |
| 67 | Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles ... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 68 | Articles of stone, plaster, cement, asbestos, mica or similar materials | 0 | 2 | 0 | 0 | 7 | 56 | 46 | 50 | 0 | 0 |
| 69 | Ceramic products | 0 | 11 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 |
| 70 | Glass and glassware | 298 | 167 | 322 | 64 | 141 | 22 | 9 | 16 | 25 | 33 |
| 71 | Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 72 | Iron and steel | 39 | 53 | 112 | 37 | 30 | 1 | 0 | 4 | 0 | 1 |
| 73 | Articles of iron or steel | 45 | 9 | 18 | 46 | 1119 | 105 | 7 | 0 | 68 | 63 |
| 74 | Copper and articles thereof | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 75 | Nickel and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76 | Aluminium and articles thereof | 0 | 1 | 0 | 0 | 2 | 0 | 5 | 0 | 0 | 1 |
| 78 | Lead and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79 | Zinc and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80 | Tin and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 81 | Other base metals; cermets; articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 82 | Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal | 0 | 2 | 0 | 0 | 0 | 8 | 2 | 3 | 0 | 0 |
| 83 | Miscellaneous articles of base metal | 0 | 0 | 2 | 367 | 0 | 28 | 10 | 31 | 0 | 41 |
| 84 | Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof | 2223 | 2766 | 5070 | 3419 | 6526 | 6509 | 2942 | 5709 | 3626 | 2468 |
| 85 | Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ... | 23540 | 17536 | 18321 | 15777 | 17276 | 14241 | 15764 | 19263 | 18309 | 14183 |
| 86 | Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 87 | Vehicles other than railway or tramway rolling stock, and parts and accessories thereof | 32 | 111 | 73 | 202 | 1 | 79 | 85 | 318 | 151 | 175 |
| 88 | Aircraft, spacecraft, and parts thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 89 | Ships, boats and floating structures | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90 | Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical ... | 1 | 0 | 0 | 3 | 145 | 50 | 2 | 0 | 0 | 0 |
| 91 | Clocks and watches and parts thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 92 | Musical instruments; parts and accessories of such articles | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 93 | Arms and ammunition; parts and accessories thereof | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 94 | Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ... | 118 | 119 | 138 | 64 | 101 | 318 | 75 | 16 | 290 | 43 |
| 95 | Toys, games and sports requisites; parts and accessories thereof | 17 | 276 | 181 | 253 | 96 | 108 | 156 | 0 | 111 | 225 |
| 96 | Miscellaneous manufactured articles | 56 | 92 | 7 | 41 | 50 | 76 | 218 | 186 | 128 | 387 |
| 97 | Works of art, collectors' pieces and antiques | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 99 | Commodities not elsewhere specified | 0 | 0 | 1 | 2 | 2 | 1 | 2 | 1 | 0 | 2 |

| Code | Product label | Sudan export to Indonesia | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| | All products | 3667 | 743 | 344 | 1666 | 48433 | 242017 | 110843 | 67536 | 16185 | 36432 |
| 01 | Live animals | 0 | 3 | 5 | 0 | 6 | 38 | 0 | 0 | 8 | 4 |
| 02 | Meat and edible meat offal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03 | Fish and crustaceans, molluscs and other aquatic invertebrates | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04 | Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05 | Products of animal origin, not elsewhere specified or included | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06 | Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07 | Edible vegetables and certain roots and tubers | 0 | 0 | 0 | 0 | 129 | 0 | 0 | 101 | 0 | 0 |
| 08 | Edible fruit and nuts; peel of citrus fruit or melons | 0 | 0 | 0 | 0 | 0 | 110 | 341 | 93 | 304 | 37 |
| 09 | Coffee, tea, maté and spices | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 10 | Cereals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | Products of the milling industry; malt; starches; inulin; wheat gluten | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal ... | 3445 | 275 | 54 | 1614 | 16211 | 46744 | 88093 | 27113 | 15872 | 34109 |
| 13 | Lac; gums, resins and other vegetable saps and extracts | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 5 | 0 | 22 |
| 14 | Vegetable plaiting materials; vegetable products not elsewhere specified or included | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 15 | Animal, vegetable or microbial fats and oils and their cleavage products; prepared edible fats; ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| 16 | Preparations of meat, of fish, of crustaceans, molluscs or other aquatic invertebrates, or ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | Sugars and sugar confectionery | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | Cocoa and cocoa preparations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | Preparations of cereals, flour, starch or milk; pastrycooks' products | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | Preparations of vegetables, fruit, nuts or other parts of plants | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | Miscellaneous edible preparations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | Beverages, spirits and vinegar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | Residues and waste from the food industries; prepared animal fodder | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | Tobacco and manufactured tobacco substitutes; products, whether or not containing nicotine, ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | Salt; sulphur; earths and stone; plastering materials, lime and cement | 48 | 64 | 8 | 7 | 2 | 0 | 0 | 0 | 0 | 0 |
| 26 | Ores, slag and ash | 0 | 0 | 1 | 3 | 3 | 3 | 1 | 1 | 0 | 0 |
| 27 | Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ... | 0 | 0 | 0 | 0 | 31881 | 194988 | 0 | 39688 | 0 | 0 |
| 28 | Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | Organic chemicals | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | Pharmaceutical products | 0 | 0 | 0 | 0 | 0 | 0 | 238 | 0 | 0 | 0 |
| 31 | Fertilisers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 | Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring ... | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33 | Essential oils and resinoids; perfumery, cosmetic or toilet preparations | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial ... | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 35 | Albuminoidal substances; modified starches; glues; enzymes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 | Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 37 | Photographic or cinematographic goods | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 38 | Miscellaneous chemical products | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 39 | Plastics and articles thereof | 1 | 0 | 0 | 0 | 4 | 0 | 28 | 0 | 0 | 1 |
| 40 | Rubber and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 0 | 0 |
| 41 | Raw hides and skins (other than furskins) and leather | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42 | Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43 | Furskins and artificial fur; manufactures thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | Wood and articles of wood; wood charcoal | 0 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | Cork and articles of cork | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 47 | Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 49 | Printed books, newspapers, pictures and other products of the printing industry; manuscripts, ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50 | Silk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 51 | Wool, fine or coarse animal hair; horsehair yarn and woven fabric | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 52 | Cotton | 70 | 105 | 0 | 32 | 154 | 0 | 0 | 501 | 0 | 0 |
| 53 | Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54 | Man-made filaments; strip and the like of man-made textile materials | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55 | Man-made staple fibres | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 56 | Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | Carpets and other textile floor coverings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | Knitted or crocheted fabrics | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 | Articles of apparel and clothing accessories, knitted or crocheted | 0 | 0 | 0 | 0 | 0 | 10 | 3 | 0 | 0 | 0 |
| 62 | Articles of apparel and clothing accessories, not knitted or crocheted | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 0 |
| 63 | Other made-up textile articles; sets; worn clothing and worn textile articles; rags | 1 | 0 | 0 | 0 | 1 | 91 | 54 | 1 | 0 | 0 |
| 64 | Footwear, gaiters and the like; parts of such articles | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| 65 | Headgear and parts thereof | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 |
| 66 | Umbrellas, sun umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 67 | Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 | Articles of stone, plaster, cement, asbestos, mica or similar materials | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 | Ceramic products | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 | Glass and glassware | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 71 | Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 72 | Iron and steel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 73 | Articles of iron or steel | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74 | Copper and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 | Nickel and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76 | Aluminium and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 78 | Lead and articles thereof | 0 | 0 | 181 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79 | Zinc and articles thereof | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80 | Tin and articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 81 | Other base metals; cermets; articles thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 82 | Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 83 | Miscellaneous articles of base metal | 0 | 0 | 0 | 0 | 0 | 0 | 292 | 0 | 0 | 0 |
| 84 | Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof | 28 | 0 | 60 | 8 | 21 | 15 | 155 | 1 | 0 | 1073 |
| 85 | Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ... | 0 | 0 | 16 | 1 | 4 | 13 | 337 | 0 | 0 | 536 |
| 86 | Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures ... | 0 | 0 | 0 | 0 | 0 | 0 | 433 | 0 | 0 | 0 |
| 87 | Vehicles other than railway or tramway rolling stock, and parts and accessories thereof | 0 | 150 | 6 | 0 | 0 | 0 | 18334 | 0 | 0 | 107 |
| 88 | Aircraft, spacecraft, and parts thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 89 | Ships, boats and floating structures | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90 | Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical ... | 0 | 0 | 11 | 0 | 0 | 0 | 12 | 0 | 0 | 0 |
| 91 | Clocks and watches and parts thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 92 | Musical instruments; parts and accessories of such articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 93 | Arms and ammunition; parts and accessories thereof | 0 | 0 | 0 | 0 | 0 | 0 | 2255 | 0 | 0 | 522 |
| 94 | Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ... | 0 | 0 | 0 | 0 | 0 | 0 | 147 | 0 | 0 | 0 |
| 95 | Toys, games and sports requisites; parts and accessories thereof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 96 | Miscellaneous manufactured articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 97 | Works of art, collectors' pieces and antiques | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 99 | Commodities not elsewhere specified | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

APPENDIX 13

BILATERAL TRADE DATA ON HS6 BASIS

| Code | Product label | Indonesia's exports to Sudan | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| | All products | 83343 | 74384 | 77881 | 72372 | 61118 | 89620 | 102292 | 113111 | 120640 | 106961 |
| 151190 | Palm oil and its fractions, whether or not refined (excl. chemically modified and crude) | 588 | 2563 | 10911 | 12910 | 1541 | 37520 | 57482 | 60103 | 74846 | 62897 |
| 850610 | Manganese dioxide cells and batteries (excl. spent) | 9419 | 10607 | 13049 | 9341 | 12076 | 8799 | 9631 | 13000 | 7136 | 7173 |
| 850710 | Lead-acid accumulators of a kind used for starting piston engine "starter batteries" (excl. spent) | 11538 | 6863 | 5096 | 6045 | 4690 | 4630 | 5325 | 5230 | 8158 | 4328 |
| 151790 | Edible mixtures or preparations of animal or vegetable fats or oils and edible fractions of different fats or oils (excl. fats, oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared, mixtures of olive oils and their fractions, and solid margarine) | 8897 | 10139 | 6784 | 6271 | 1927 | 1943 | 2589 | 4415 | 5681 | 8437 |
| 210390 | Preparations for sauces and prepared sauces; mixed condiments and seasonings (excl. soya sauce, tomato ketchup and other tomato sauces, mustard, and mustard flour and meal) | 5 | 275 | 785 | 1263 | 2301 | 1813 | 3210 | 5508 | 4203 | 5971 |
| 480257 | Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, and non-perforated punchcards and punch-tape paper, in square or rectangular sheets with one side > 435 mm or with one side <= 435 mm and the other side > 297 mm in the unfolded state, not containing fibres obtained by a mechanical or chemi-mechanical process or of which <= 10% by weight of the total fibre content consists of such fibres, and weighing 40 g to 150 g/m², n.e.s. | 184 | 2378 | 3517 | 5583 | 5466 | 5199 | 1658 | 0 | 0 | 0 |
| 841850 | Furniture "chests, cabinets, display counters, show-cases and the like" for storage and display, incorporating refrigerating or freezing equipment (excl. combined refrigerator-freezers with separate external doors, household refrigerators and freezers of the chest type of a capacity <= 800 l or of the upright type of a capacity <= 900 l) | 1350 | 1587 | 2793 | 780 | 2623 | 2722 | 1442 | 3204 | 2105 | 1572 |
| 290545 | Glycerol | 2390 | 2982 | 388 | 597 | 1157 | 2571 | 1498 | 751 | 1062 | 3940 |
| 480256 | Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, and non-perforated punchcards and punch-tape paper, in square or rectangular sheets with one side <= 435 mm | 8871 | 1514 | 1525 | 443 | 1004 | 0 | 0 | 0 | 0 | 0 |

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| | and the other side <= 297 mm in the unfolded state, not containing fibres obtained by a mechanical or chemi-mechanical process or of which <= 10% by weight of the total fibre content consists of such fibres, and weighing 40 g to 150 g/m², n.e.s. | | | | | | | | | | |
| 480255 | Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, and non-perforated punchcards and punch-tape paper, in rolls of any size, not containing fibres obtained by a mechanical or chemi-mechanical process or of which <= 10% by weight of the total fibre content consists of such fibres, and weighing 40 g to 150 g/m², n.e.s. | 1600 | 1984 | 2194 | 3223 | 1564 | 1024 | 355 | 0 | 0 | 0 |
| 392119 | Plates, sheets, film, foil and strip, of cellular plastic, unworked or merely surface-worked or merely cut into squares or rectangles (excl.those of polymers of styrene, vinyl chloride, polyurethanes and regenerated cellulose, self-adhesive products, floor, wall and ceiling coverings of heading 3918 and sterile surgical or dental adhesion barriers of subheading 3006.10.30) | 236 | 438 | 502 | 641 | 1072 | 663 | 1824 | 2287 | 2267 | 1971 |
| 401110 | New pneumatic tyres, of rubber, of a kind used for motor cars, incl. station wagons and racing cars | 1829 | 2193 | 1756 | 579 | 1227 | 998 | 1090 | 667 | 312 | 125 |
| 840999 | Parts suitable for use solely or principally with compression-ignition internal combustion piston engine "diesel or semi-diesel engine", n.e.s. | 681 | 949 | 930 | 1430 | 938 | 1374 | 1007 | 875 | 559 | 644 |
| 620442 | Women's or girls' dresses of cotton (excl. knitted or crocheted and petticoats) | 943 | 402 | 1069 | 1084 | 4002 | 1358 | 219 | 127 | 115 | 0 |
| 620819 | Women's or girls' slips and petticoats of textile materials (excl. man-made fibres, knitted or crocheted and vests) | 1836 | 1097 | 670 | 1589 | 746 | 448 | 894 | 998 | 277 | 163 |
| 620449 | Women's or girls' dresses of textile materials (excl. of wool, fine animal hair, cotton or man-made fibres, knitted or crocheted and petticoats) | 1951 | 3285 | 1175 | 549 | 276 | 639 | 222 | 213 | 161 | 0 |
| 340111 | Soap and organic surface-active products and preparations, in the form of bars, cakes, moulded pieces or shapes, and paper, wadding, felt and nonwovens, impregnated, coated or covered with soap or detergent, for toilet use, incl. medicated products | 1324 | 712 | 622 | 133 | 280 | 289 | 352 | 1612 | 1856 | 1072 |
| 540754 | Woven fabrics of yarn containing >= 85% by weight of textured polyester filaments, incl. monofilament of >= 67 decitex and a maximum diameter of <= 1 mm, printed | 75 | 609 | 978 | 1321 | 893 | 944 | 1268 | 1040 | 741 | 370 |
| 480591 | Paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing <= 150 g/m², n.e.s. | 2123 | 1926 | 1564 | 105 | 417 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 300220 | Vaccines for human medicine | 669 | 1250 | 102 | 199 | 1030 | 1597 | 457 | 397 | 74 | 0 |
| 401519 | Gloves, mittens and mitts, of vulcanised rubber (excl. of a kind used for medical, surgical, dental or veterinary purposes) | 682 | 365 | 1105 | 1174 | 678 | 1012 | 354 | 277 | 0 | 0 |
| 551311 | Plain woven fabrics containing predominantly, but < 85% polyester staple fibres by weight, mixed principally or solely with cotton and weighing <= 170 g/m², unbleached or bleached | 1602 | 831 | 1399 | 896 | 847 | 57 | 0 | 0 | 0 | 0 |
| 540752 | Woven fabrics of yarn containing >= 85% by weight of textured polyester filaments, incl. monofilament of >= 67 decitex and a maximum diameter of <= 1 mm, dyed | 1906 | 1616 | 805 | 779 | 388 | 0 | 14 | 0 | 21 | 0 |
| 080111 | Desiccated coconuts | 166 | 639 | 591 | 513 | 821 | 581 | 605 | 1005 | 321 | 126 |
| 090710 | Cloves, whole fruit, cloves and stems, neither crushed nor ground | 0 | 0 | 0 | 0 | 0 | 466 | 1914 | 1445 | 715 | 118 |
| 540761 | Woven fabrics of yarn containing >= 85% by weight of non-textured polyester filaments, incl. monofilament of >= 67 decitex and a maximum diameter of <= 1 mm | 336 | 169 | 463 | 428 | 625 | 585 | 638 | 490 | 350 | 315 |
| 210690 | Food preparations, n.e.s. | 809 | 777 | 421 | 197 | 643 | 532 | 501 | 401 | 0 | 0 |
| 121190 | Plants, parts of plants, incl. seeds and fruits, used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh, chilled, frozen or dried, whether or not cut, crushed or powdered (excl. ginseng roots, coca leaf, poppy straw, ephedra and bark of African cherry) | 255 | 466 | 443 | 397 | 495 | 826 | 491 | 15 | 195 | 158 |
| 620829 | Women's or girls' nightdresses and pyjamas of textile materials (excl. cotton and man-made fibres, knitted or crocheted, vests and négligés) | 530 | 815 | 1112 | 976 | 0 | 0 | 0 | 0 | 0 | 0 |
| 551611 | Woven fabrics containing >= 85% artificial staple fibres by weight, unbleached or bleached | 261 | 209 | 213 | 304 | 305 | 476 | 198 | 597 | 676 | 183 |
| 151620 | Vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared | 2862 | 17 | 0 | 22 | 0 | 193 | 0 | 27 | 82 | 178 |
| 620453 | Women's or girls' skirts and divided skirts of synthetic fibres (excl. knitted or crocheted and petticoats) | 1004 | 715 | 236 | 218 | 257 | 269 | 162 | 125 | 185 | 142 |
| 160413 | Prepared or preserved sardines, sardinella and brisling or sprats, whole or in pieces (excl. minced) | 254 | 433 | 621 | 482 | 287 | 143 | 97 | 500 | 0 | 192 |
| 852990 | Parts suitable for use solely or principally with flat panel display modules, transmission and reception apparatus for radio-broadcasting or television, television cameras,digital cameras, video camera recorders, radar apparatus, radio navigational aid apparatus or radio remote control apparatus, monitors and projectors, n.e.s. (excl. for aerials and aerial reflectors of all kinds) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 220 | 1109 | 1654 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 620811 | Women's or girls' slips and petticoats of man-made fibres (excl. knitted or crocheted and vests) | 84 | 35 | 0 | 0 | 196 | 234 | 247 | 849 | 876 | 424 |
| 610449 | Women's or girls' dresses of textile materials, knitted or crocheted (excl. of wool, fine animal hair, cotton, man-made fibres and petticoats) | 396 | 62 | 1269 | 936 | 260 | 0 | 0 | 0 | 0 | 0 |
| 610819 | Women's or girls' slips and petticoats of textile materials, knitted or crocheted (excl. man-made fibres, T-shirts and vests) | 238 | 1179 | 717 | 727 | 0 | 0 | 0 | 0 | 0 | 0 |
| 380891 | Insecticides, put up in forms or packings for retail sale or as preparations or articles (excl. goods of subheadings 3808.52 to 3808.69) | 248 | 439 | 407 | 339 | 297 | 167 | 360 | 147 | 55 | 338 |
| 840690 | Parts of steam and other vapour turbines, n.e.s. | 0 | 0 | 0 | 0 | 1642 | 1096 | 0 | 0 | 0 | 0 |
| 850680 | Primary cells and primary batteries, electric (excl. spent, and those of silver oxide, mercuric oxide, manganese dioxide, lithium and air-zinc) | 57 | 40 | 84 | 175 | 412 | 640 | 702 | 256 | 294 | 0 |
| 841810 | Combined refrigerator-freezers, with separate external doors or drawers, or combinations thereof | 0 | 0 | 651 | 145 | 484 | 30 | 15 | 408 | 764 | 82 |
| 151329 | Palm kernel and babassu oil and their fractions, whether or not refined, but not chemically modified (excl. crude) | 0 | 0 | 0 | 217 | 426 | 448 | 598 | 591 | 115 | 124 |
| 852872 | Reception apparatus for television, colour, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, designed to incorporate a video display or screen | 2472 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 6 | 36 |
| 480519 | Fluting paper, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state (excl. semi-chemical fluting paper and straw fluting paper) | 715 | 776 | 71 | 0 | 171 | 535 | 0 | 0 | 145 | 0 |
| 620443 | Women's or girls' dresses of synthetic fibres (excl. knitted or crocheted and petticoats) | 126 | 248 | 121 | 594 | 303 | 214 | 736 | 40 | 24 | 0 |
| 482020 | Exercise books of paper or paperboard | 860 | 345 | 80 | 327 | 208 | 406 | 0 | 0 | 0 | 78 |
| 382319 | Fatty acids, industrial, monocarboxylic; acid oils from refining (excl. stearic acid, oleic acid and tall oil fatty acids) | 973 | 344 | 135 | 0 | 0 | 81 | 46 | 689 | 0 | 0 |
| 480920 | Self-copy paper, whether or not printed, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state (excl. carbon and similar copying papers) | 79 | 97 | 75 | 113 | 902 | 507 | 147 | 49 | 0 | 0 |
| 851310 | Portable electrical lamps designed to function by their own source of energy | 7 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 953 | 836 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 620459 | Women's or girls' skirts and divided skirts of textile materials (excl. of wool, fine animal hair, cotton or synthetic fibres, knitted or crocheted and petticoats) | 349 | 814 | 334 | 32 | 0 | 137 | 11 | 0 | 0 | 0 |
| 441114 | Medium density fibreboard "MDF" of wood, of a thickness > 9 mm | 72 | 0 | 0 | 854 | 0 | 0 | 44 | 54 | 596 | 0 |
| 481029 | Paper and paperboard used for writing, printing or other graphic purposes, of which > 10% by weight of the total fibre content consists of fibres obtained by a mechanical or chemi-mechanical process, coated on one or both sides with kaolin or other inorganic substances, in rolls or in square or rectangular sheets, of any size (excl. lightweight paper) | 178 | 372 | 128 | 537 | 88 | 94 | 198 | 0 | 0 | 0 |
| 611490 | Special garments for professional, sporting or other purposes, n.e.s., of textile materials, knitted or crocheted (excl. of cotton and man-made fibres) | 0 | 1 | 1482 | 30 | 0 | 0 | 0 | 0 | 0 | 0 |
| 090422 | Fruits of the genus Capsicum or of the genus Pimenta, crushed or ground | 0 | 15 | 83 | 106 | 269 | 8 | 39 | 507 | 277 | 177 |
| 271019 | Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel, n.e.s. | 0 | 0 | 1 | 0 | 0 | 712 | 491 | 146 | 0 | 0 |
| 845019 | Household or laundry-type washing machines, of a dry linen capacity <= 6 kg (excl. fully-automatic machines and washing machines with built-in centrifugal drier) | 0 | 0 | 317 | 958 | 0 | 0 | 0 | 0 | 0 | 0 |
| 550951 | Yarn containing predominantly, but < 85% polyester staple fibres by weight, mixed principally or solely with artificial staple fibres (excl. sewing thread and yarn put up for retail sale) | 576 | 687 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 620920 | Babies' garments and clothing accessories of cotton (excl. knitted or crocheted and hats, napkins and napkin liners [see 9619]) | 657 | 263 | 95 | 67 | 88 | 0 | 23 | 0 | 0 | 0 |
| 620821 | Women's or girls' nightdresses and pyjamas of cotton (excl. knitted or crocheted, vests and négligés) | 383 | 760 | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 0 |
| 620349 | Men's or boys' trousers, bib and brace overalls, breeches and shorts of textile materials (excl. of wool, fine animal hair, cotton or synthetic fibres, knitted or crocheted, underpants and swimwear) | 0 | 0 | 0 | 565 | 0 | 0 | 295 | 298 | 0 | 0 |
| 401120 | New pneumatic tyres, of rubber, of a kind used for buses and lorries (excl. tyres with lug, corner or similar treads) | 472 | 412 | 241 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 730890 | Structures and parts of structures, of iron or steel, n.e.s. (excl. bridges and bridge-sections, towers and lattice masts, doors and windows and their frames, thresholds for doors, props and similar equipment for scaffolding, shuttering, propping or pit-propping) | 0 | 0 | 0 | 0 | 1119 | 0 | 0 | 0 | 0 | 0 |
| 610990 | T-shirts, singlets and other vests of textile materials, knitted or crocheted (excl. cotton) | 166 | 0 | 1 | 868 | 0 | 4 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 611430 | Special garments for professional, sporting or other purposes, n.e.s., of man-made fibres, knitted or crocheted | 0 | 0 | 297 | 717 | 0 | 0 | 2 | 0 | 0 | 0 |
| 392020 | Plates, sheets, film, foil and strip, of non-cellular polymers of ethylene, not reinforced, laminated, supported or similarly combined with other materials, without backing, unworked or merely surface-worked or merely cut into squares or rectangles (excl. self-adhesive products, and floor, wall and ceiling coverings of heading 3918) | 69 | 69 | 98 | 158 | 66 | 31 | 60 | 113 | 124 | 204 |
| 130190 | Lac; natural gums, resins, gum-resins, balsams and other natural oleoresins (excl. gum Arabic) | 9 | 40 | 109 | 92 | 128 | 115 | 61 | 29 | 130 | 276 |
| 870322 | Motor cars and other motor vehicles principally designed for the transport of 1.000 cm³ but <= 1.500 cm³ (excl. vehicles for travelling on snow and other specially designed vehicles of subheading 8703.10) | 32 | 111 | 71 | 31 | 0 | 41 | 85 | 266 | 139 | 175 |
| 480592 | Paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing > 150 g to < 225 g/m², n.e.s. | 584 | 318 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 842240 | Packing or wrapping machinery, incl. heat-shrink wrapping machinery (excl. machinery for filling, closing, sealing or labelling bottles, cans, boxes, bags or other containers and machinery for capsuling bottles, jars, tubes and similar containers) | 0 | 0 | 0 | 29 | 12 | 7 | 120 | 691 | 19 | 16 |
| 610832 | Women's or girls' nightdresses and pyjamas of man-made fibres, knitted or crocheted (excl. T-shirts, vests and négligés) | 891 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 620319 | Men's or boys' suits of textile materials (excl. of wool, fine animal hair or synthetic fibres, knitted or crocheted, tracksuits, ski suits and swimwear) | 0 | 389 | 490 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540710 | Woven fabrics of high-tenacity yarn, nylon, other polyamides or polyesters, incl. monofilament of >= 67 decitex and with a cross sectional dimension of <= 1 mm | 246 | 123 | 371 | 0 | 50 | 0 | 0 | 0 | 58 | 0 |
| 401320 | Inner tubes, of rubber, of a kind used for bicycles | 167 | 268 | 0 | 0 | 224 | 60 | 0 | 0 | 0 | 106 |
| 950669 | Balls (excl. inflatable, tennis balls, golf balls, and table-tennis balls) | 0 | 216 | 135 | 253 | 95 | 0 | 0 | 0 | 0 | 114 |
| 620452 | Women's or girls' skirts and divided skirts of cotton (excl. knitted or crocheted and petticoats) | 0 | 205 | 0 | 0 | 425 | 77 | 33 | 7 | 28 | 0 |
| 480258 | Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, and non-perforated punchcards and punch-tape paper, in rolls or in square or rectangular sheets, of any size, not containing fibres obtained by a mechanical or chemi-mechanical process or of which <= 10% by weight of the total fibre content consists of such fibres, weighing > 150 g/m², n.e.s. | 102 | 64 | 66 | 150 | 112 | 268 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 960321 | Tooth brushes, incl. dental-plate brushes | 0 | 0 | 0 | 0 | 13 | 44 | 161 | 168 | 127 | 243 |
| 551211 | Woven fabrics containing >= 85% polyester staple fibres by weight, unbleached or bleached | 43 | 80 | 58 | 150 | 111 | 251 | 0 | 36 | 0 | 0 |
| 842123 | Oil or petrol-filters for internal combustion engines | 41 | 93 | 49 | 45 | 48 | 57 | 198 | 197 | 0 | 0 |
| 482010 | Registers, account books, notebooks, order books, receipt books, letter pads, memorandum pads, diaries and similar articles, of paper or paperboard | 88 | 74 | 323 | 53 | 53 | 136 | 0 | 0 | 0 | 0 |
| 441112 | Medium density fibreboard "MDF" of wood, of a thickness <= 5 mm | 0 | 0 | 34 | 113 | 0 | 353 | 61 | 0 | 153 | 0 |
| 620520 | Men's or boys' shirts of cotton (excl. knitted or crocheted, nightshirts, singlets and other vests) | 75 | 0 | 616 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610419 | Women's or girls' suits of textile materials, knitted or crocheted (excl. of synthetic fibres, and ski overalls and swimwear) | 452 | 189 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 300241 | Vaccines for human medicine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 646 |
| 650699 | Headgear, whether or not lined or trimmed, n.e.s. | 0 | 0 | 615 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 330610 | Dentifrices, incl. those used by dental practitioners | 0 | 0 | 0 | 0 | 4 | 15 | 186 | 168 | 90 | 135 |
| 481092 | Multi-ply paper and paperboard, coated on one or both sides with kaolin or other inorganic substances, in rolls or in square or rectangular sheets, of any size (excl. that for writing, printing or other graphic purposes, kraft paper and paperboard) | 0 | 56 | 435 | 0 | 0 | 55 | 35 | 0 | 0 | 0 |
| 610459 | Women's or girls' skirts and divided skirts of textile materials, knitted or crocheted (excl. of wool, fine animal hair, cotton or synthetic fibres, and petticoats) | 168 | 236 | 173 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 151710 | Margarine (excl. liquid) | 303 | 31 | 26 | 35 | 36 | 38 | 12 | 27 | 5 | 63 |
| 701342 | Glassware for table or kitchen purposes of glass having a linear coefficient of expansion <= 5 x 10 -6 per kelvin within a temperature range of 0°C to 300°C (excl. glassware of glass ceramics or lead crystal, articles of heading 7018, drinking glasses, glass preserving jars "sterilising jars", vacuum flasks and other vacuum vessels) | 209 | 122 | 61 | 61 | 99 | 18 | 0 | 0 | 0 | 0 |
| 620342 | Men's or boys' trousers, bib and brace overalls, breeches and shorts, of cotton (excl. knitted or crocheted, underpants and swimwear) | 129 | 0 | 420 | 0 | 0 | 19 | 0 | 0 | 0 | 0 |
| 481019 | Paper and paperboard used for writing, printing or other graphic purposes, not containing fibres obtained by a mechanical or chemi-mechanical process or of which <= 10% by weight of the total fibre content consists of such fibres, coated on one or both sides with kaolin or other inorganic substances, in square or rectangular sheets with one | 39 | 504 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | side > 435 mm or with one side <= 435 mm and the other side > 297 mm in the unfolded state | | | | | | | | | | |
| 852352 | Cards incorporating one or more electronic integrated circuits "smart cards" | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 538 | 0 | 0 |
| 940290 | Operating tables, examination tables, and other medical, dental, surgical or veterinary furniture (excl. dentists' or similar chairs, special tables for X-ray examination, and stretchers and litters, incl. trolley-stretchers) | 0 | 0 | 0 | 0 | 0 | 156 | 35 | 0 | 286 | 43 |
| 842940 | Self-propelled tamping machines and roadrollers | 0 | 0 | 0 | 0 | 241 | 153 | 0 | 98 | 0 | 0 |
| 630710 | Floorcloths, dishcloths, dusters and similar cleaning cloths, of all types of textile materials | 166 | 320 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 950662 | Inflatable balls | 0 | 0 | 0 | 0 | 0 | 108 | 156 | 0 | 111 | 111 |
| 620192 | Men's or boys' anoraks, windcheaters, wind jackets and similar articles, of cotton (not knitted or crocheted and excluding suits, ensembles, jackets, blazers, trousers and tops of ski suits) | 0 | 0 | 480 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 620412 | Women's or girls' suits of cotton (excl. knitted or crocheted, ski overalls and swimwear) | 0 | 469 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 841899 | Parts of refrigerating or freezing equipment and heat pumps, n.e.s. | 54 | 25 | 32 | 29 | 93 | 51 | 51 | 100 | 18 | 10 |
| 961900 | Sanitary towels (pads) and tampons, napkins and napkin liners, and similar articles, of any material | 56 | 91 | 7 | 41 | 37 | 32 | 56 | 18 | 0 | 97 |
| 294000 | Sugars, chemically pure (excl. sucrose, lactose, maltose, glucose and fructose); sugar ethers, sugar acetals and sugar esters, and their salts (excl. natural or reproduced by synthesis, provitamins, vitamins, hormones, glycosides, vegetable alkaloids and their salts, ethers, esters and other derivatives) | 16 | 60 | 0 | 70 | 66 | 40 | 40 | 33 | 68 | 36 |
| 480524 | Testliner "recycled liner board", uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing <= 150 g/m² | 157 | 268 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 521215 | Woven fabrics of cotton, containing predominantly, but < 85% cotton by weight, other than those mixed principally or solely with man-made fibres, weighing <= 200 g/m², printed | 298 | 105 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 854231 | Electronic integrated circuits as processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 401 | 0 |
| 841199 | Parts of gas turbines, n.e.s. | 0 | 0 | 0 | 0 | 0 | 386 | 0 | 0 | 0 | 0 |
| 550921 | Single yarn containing >= 85% polyester staple fibres by weight (excl. sewing thread and yarn put up for retail sale) | 0 | 251 | 0 | 116 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 441113 | Medium density fibreboard "MDF" of wood, of a thickness > 5 mm but <= 9 mm | 107 | 0 | 0 | 158 | 0 | 0 | 17 | 17 | 65 | 0 |
| 830990 | Stoppers, caps and lids, incl. screw caps and pouring stoppers, capsules for bottles, threaded bungs, bung covers, seals and other packing accessories of base metal (excl. crow corks) | 0 | 0 | 0 | 357 | 0 | 0 | 0 | 0 | 0 | 0 |
| 701349 | Glassware for table or kitchen purposes (excl. glass having a linear coefficient of expansion <= 5 x 10 -6 per kelvin within a temperature range of 0°C to 300°C, glassware of glass ceramics or lead crystal, articles of heading 7018, drinking glasses, glass preserving jars "sterilising jars", vacuum flasks and other vacuum vessels) | 0 | 17 | 220 | 0 | 42 | 0 | 0 | 16 | 20 | 33 |
| 090811 | Nutmeg, neither crushed nor ground | 0 | 0 | 0 | 0 | 100 | 0 | 164 | 82 | 0 | 0 |
| 620899 | Women's or girls' singlets and other vests, briefs, panties, négligés, bathrobes, dressing gowns, housecoats and similar articles of textile materials (excl. of cotton or man-made fibres, knitted or crocheted, slips, petticoats, nightdresses and pyjamas, brassières, girdles, corsets and similar articles) | 341 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 340120 | Soap in the form of flakes, granules, powder, paste or in aqueous solution | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 85 | 128 | 52 |
| 610329 | Men's or boys' ensembles of textile materials (excl. wool, fine animal hair, cotton or synthetic fibres, ski ensembles and swimwear) | 67 | 251 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610811 | Women's or girls' slips and petticoats of man-made fibres, knitted or crocheted (excl. T-shirts and vests) | 48 | 264 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 220300 | Beer made from malt | 159 | 135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 843141 | Buckets, shovels, grabs and grips for machinery of heading 8426, 8429 and 8430 | 0 | 0 | 0 | 0 | 280 | 0 | 0 | 0 | 0 | 0 |
| 841319 | Pumps for liquids, fitted or designed to be fitted with a measuring device (excl. pumps for dispensing fuel or lubricants, of the type used in filling stations or in garages) | 0 | 0 | 0 | 0 | 0 | 262 | 0 | 0 | 0 | 0 |
| 660200 | Walking sticks, seat-sticks, whips, riding-crops and the like (excl. measure walking sticks, crutches, firearm-sticks and sports sticks) | 19 | 25 | 150 | 11 | 11 | 11 | 22 | 12 | 0 | 0 |
| 482320 | Filter paper and paperboard, in strips or rolls of a width <= 36 cm, in rectangular or square sheets, of which no side > 36 cm in the unfolded state, or cut to shape other than rectangular or square | 0 | 0 | 0 | 0 | 98 | 105 | 0 | 0 | 51 | 0 |
| 550931 | Single yarn containing >= 85% acrylic or modacrylic staple fibres by weight (excl. sewing thread and yarn put up for retail sale) | 246 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 620990 | Babies' garments and clothing accessories of textile materials (excl. of cotton or synthetic fibres, knitted or crocheted and hats, napkins and napkin liners [see 9619]) | 0 | 0 | 0 | 234 | 0 | 0 | 0 | 0 | 1 | 0 |
| 190531 | Sweet biscuits | 4 | 0 | 0 | 0 | 0 | 0 | 228 | 0 | 0 | 0 |
| 620620 | Women's or girls' blouses, shirts and shirt-blouses of wool or fine animal hair (excl. knitted or crocheted and vests) | 0 | 0 | 228 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940360 | Wooden furniture (excl. for offices, kitchens and bedrooms, and seats) | 24 | 2 | 73 | 50 | 26 | 46 | 5 | 1 | 0 | 0 |
| 482090 | Blotting pads and similar articles of stationery, of paper and paperboard, and book covers of paper or paperboard (excl. registers, account books, notebooks, order books, receipt books, letter pads, memorandum pads, diaries, exercise books, binders, folders, file covers, manifold business forms and interleaved carbon sets, and albums for samples or for collections) | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 198 | 0 |
| 854370 | Electrical machines and apparatus, having individual functions, n.e.s. in chapter 85 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 4 | 149 | 20 |
| 480411 | Unbleached kraftliner, uncoated, in rolls of a width > 36 cm | 0 | 0 | 0 | 0 | 220 | 0 | 0 | 0 | 0 | 0 |
| 843490 | Parts of milking machines and dairy machinery, n.e.s. | 0 | 0 | 217 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 401310 | Inner tubes, of rubber, of a kind used on motor cars, incl. station wagons and racing cars, buses and lorries | 29 | 85 | 39 | 10 | 11 | 26 | 17 | 0 | 0 | 0 |
| 620463 | Women's or girls' trousers, bib and brace overalls, breeches and shorts of synthetic fibres (excl. knitted or crocheted, panties and swimwear) | 0 | 0 | 196 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| 340220 | Surface-active preparations, washing preparations, auxiliary washing preparations and cleaning preparations put up for retail sale (excluding organic surface-active agents, soap and organic surface-active preparations in the form of bars, cakes, moulded pieces or shapes, and products and preparations for washing the skin in the form of liquid or cream) | 0 | 80 | 102 | 24 | 0 | 0 | 0 | 0 | 0 | 0 |
| 730799 | Tube or pipe fittings, of iron or steel (excl. cast iron or stainless steel products; flanges; threaded elbows, bends and sleeves; butt welding fittings) | 44 | 8 | 17 | 12 | 0 | 0 | 6 | 0 | 55 | 62 |
| 850720 | Lead acid accumulators (excl. spent and starter batteries) | 0 | 0 | 0 | 197 | 0 | 0 | 0 | 0 | 0 | 0 |
| 330300 | Perfumes and toilet waters (excl. aftershave lotions, personal deodorants and hair lotions) | 0 | 0 | 192 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 845012 | Household or laundry-type washing machines, with built-in centrifugal drier (excl. fully-automatic machines) | 0 | 28 | 2 | 0 | 85 | 74 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 620419 | Women's or girls' suits of textile materials (excl. of wool, fine animal hair, cotton or synthetic fibres, knitted or crocheted, ski overalls and swimwear) | 0 | 7 | 181 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 841430 | Compressors for refrigerating equipment | 0 | 0 | 10 | 0 | 0 | 0 | 52 | 0 | 63 | 62 |
| 391722 | Rigid tubes, pipes and hoses of polymers of propylene | 50 | 14 | 16 | 15 | 44 | 23 | 16 | 0 | 0 | 0 |
| 870323 | Motor cars and other motor vehicles principally designed for the transport of 1.500 $cm^3$ but <= 3.000 $cm^3$ (excl. vehicles for travelling on snow and other specially designed vehicles of subheading 8703.10) | 0 | 0 | 0 | 171 | 0 | 0 | 0 | 0 | 0 | 0 |
| 152200 | Degras; residues resulting from the treatment of fatty substances or animal or vegetable waxes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 169 | 0 |
| 382311 | Stearic acid, industrial | 0 | 83 | 0 | 0 | 0 | 0 | 52 | 13 | 19 | 0 |
| 940169 | Seats, with wooden frames (excl. upholstered) | 0 | 4 | 33 | 8 | 36 | 52 | 18 | 5 | 4 | 0 |
| 681140 | Articles of asbestos-cement, cellulose fibre-cement or the like, containing asbestos | 0 | 0 | 0 | 0 | 7 | 55 | 46 | 50 | 0 | 0 |
| 610442 | Women's or girls' dresses of cotton, knitted or crocheted (excl. petticoats) | 0 | 0 | 153 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 480525 | Testliner "recycled liner board", uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing > 150 $g/m^2$ | 21 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 |
| 481710 | Envelopes of paper or paperboard (excl. letter cards) | 119 | 16 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540742 | Woven fabrics of filament yarn containing >= 85% nylon or other polyamides by weight, incl. monofilament of >= 67 decitex and a maximum diameter of <= 1 mm, dyed | 0 | 0 | 0 | 0 | 0 | 0 | 148 | 0 | 0 | 0 |
| 481820 | Handkerchiefs, cleansing or facial tissues and towels, of paper pulp, paper, cellulose wadding or webs of cellulose fibres | 0 | 0 | 0 | 148 | 0 | 0 | 0 | 0 | 0 | 0 |
| 151800 | Animal or vegetable fats and oils and their fractions, boiled, oxidised, dehydrated, sulphurised, blown, polymerised by heat in vacuum or in inert gas or otherwise chemically modified, inedible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 145 | 0 |
| 610690 | Women's or girls' blouses, shirts and shirt-blouses of textile materials, knitted or crocheted (excl. of cotton or man-made fibres, T-shirts and vests) | 0 | 20 | 0 | 0 | 122 | 0 | 0 | 0 | 0 | 0 |
| 152000 | Glycerol, crude; glycerol waters and glycerol lyes | 0 | 0 | 0 | 0 | 0 | 142 | 0 | 0 | 0 | 0 |
| 842290 | Parts of dishwashing machines, packing or wrapping machinery and other machinery and apparatus of heading 8422, n.e.s. | 0 | 0 | 0 | 4 | 11 | 21 | 15 | 0 | 46 | 39 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 551519 | Woven fabrics containing predominantly, but < 85% polyester staple fibres by weight, other than those mixed principally or solely with wool or fine animal hair, man-made filament, viscose staple fibres or cotton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 133 | 0 | 0 |
| 291590 | Saturated acyclic monocarboxylic acids, their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives (excl. formic acid and acetic acid, mono-, di- or trichloroacetic acids, propionic acid, butanoic and pentanoic acids, palmitic and stearic acids, their salts and esters, and acetic anhydride) | 17 | 0 | 0 | 0 | 0 | 57 | 31 | 25 | 0 | 0 |
| 620413 | Women's or girls' suits of synthetic fibres (excl. knitted or crocheted, ski overalls and swimwear) | 50 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391220 | Cellulose nitrates, incl. collodions, in primary forms | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 0 | 58 | 0 |
| 392190 | Plates, sheets, film, foil and strip, of plastics, reinforced, laminated, supported or similarly combined with other materials, unworked or merely surface-worked or merely cut into squares or rectangles (excl. of cellular plastic; self-adhesive products, floor, wall and ceiling coverings of heading 3918) | 28 | 0 | 0 | 36 | 17 | 39 | 0 | 9 | 0 | 0 |
| 390760 | Poly"ethylene terephthalate", in primary forms | 63 | 0 | 0 | 63 | 0 | 0 | 0 | 0 | 0 | 0 |
| 330491 | Make-up or skin care powders, incl. baby powders, whether or not compressed (excl. medicaments) | 0 | 0 | 31 | 59 | 35 | 0 | 0 | 0 | 0 | 0 |
| 841821 | Household refrigerators, compression-type | 64 | 56 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 720230 | Ferro-silico-manganese | 0 | 53 | 0 | 37 | 30 | 0 | 0 | 0 | 0 | 0 |
| 901590 | Parts and accessories for instruments and appliances used in geodesy, topography, photogrammetrical surveying, hydrography, oceanography, hydrology, meteorology or geophysics, and for rangefinders, n.e.s. | 0 | 0 | 0 | 0 | 120 | 0 | 0 | 0 | 0 | 0 |
| 330499 | Beauty or make-up preparations and preparations for the care of the skin (other than medicaments), incl. sunscreen or suntan preparations (excl. medicaments, lip and eye make-up preparations, manicure or pedicure preparations and make-up or skin care powders, incl. baby powders) | 0 | 69 | 50 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 551312 | Woven fabrics containing predominantly, but < 85% polyester staple fibres by weight, mixed principally or solely with cotton and weighing <= 170 g/m², in three-thread or four-thread twill, incl. cross twill, unbleached or bleached | 0 | 0 | 0 | 119 | 0 | 0 | 0 | 0 | 0 | 0 |
| 850151 | AC motors, multi-phase, of an output > 37,5 W but <= 750 W | 0 | 0 | 0 | 14 | 21 | 21 | 18 | 0 | 21 | 23 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 340290 | Surface-active preparations, washing preparations, incl. auxiliary washing preparations and cleaning preparations (excl. those put up for retail sale, organic surface-active agents, soap and organic surface-active preparations in the form of bars, cakes, moulded pieces or shapes, and products and preparations for washing the skin in the form of liquid or cream) | 0 | 115 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 401169 | Pneumatic tyres, new, of rubber, having a "herring-bone" or similar tread (excluding of a kind used on agricultural or forestry and construction or industrial handling vehicles and machines) | 39 | 32 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 720827 | Flat-rolled products of iron or non-alloy steel, of a width of >= 600 mm, in coils, simply hot-rolled, not clad, plated or coated, of a thickness of < 3 mm, pickled, without patterns in relief | 0 | 0 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 831110 | Coated electrodes of base metal, for electric arc-welding | 0 | 0 | 0 | 0 | 0 | 28 | 10 | 31 | 0 | 41 |
| 340211 | Anionic organic surface-active agents, whether or not put up for retail sale (excluding soap) | 25 | 0 | 0 | 0 | 0 | 0 | 84 | 0 | 0 | 0 |
| 340119 | Soap and organic surface-active products and preparations, in the form of bars, cakes, moulded pieces or shapes, and paper, wadding, felt and nonwovens, impregnated, coated or covered with soap or detergent (excl. those for toilet use, incl. medicated products) | 66 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 843143 | Parts for boring or sinking machinery of subheading 8430.41 or 8430.49, n.e.s. | 2 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 |
| 730423 | Drill pipe, seamless, of a kind used in drilling for oil or gas, of iron or steel (excl. products of stainless steel or of cast iron) | 0 | 0 | 0 | 0 | 0 | 101 | 0 | 0 | 0 | 0 |
| 180620 | Chocolate and other food preparations containing cocoa, in blocks, slabs or bars weighing > 2 kg or in liquid, paste, powder, granular or other bulk form, in containers or immediate packings of a content > 2 kg (excl. cocoa powder) | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 30 | 41 | 0 |
| 401699 | Articles of vulcanised rubber (excl. hard rubber), n.e.s. | 0 | 12 | 39 | 21 | 21 | 0 | 0 | 0 | 0 | 0 |
| 470620 | Pulps of fibres derived from recovered "waste and scrap" paper or paperboard | 0 | 0 | 0 | 0 | 0 | 92 | 0 | 0 | 0 | 0 |
| 551321 | Plain woven fabrics containing predominantly, but < 85% polyester staple fibres by weight, mixed principally or solely with cotton and weighing <= 170 g/m², dyed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 0 | 0 |
| 850213 | Generating sets with compression-ignition internal combustion piston engine "diesel or semi-diesel engine" of an output > 375 kVA | 0 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 0 |
| 551512 | Woven fabrics containing predominantly, but < 85% polyester staple fibres by weight, mixed principally or solely with man-made filament | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 380861 | Goods of heading 3808, containing alpha-cypermethrin "ISO", bendiocarb "ISO", bifenthrin "ISO", chlorfenapyr "ISO", cyfluthrin "ISO", deltamethrin "INN, ISO", etofenprox "INN", fenitrothion "ISO", lambda-cyhalothrin "ISO", malathion "ISO", pirimiphos-methyl "ISO" or propoxur "ISO", in packings of a net weight content <= 300 g | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 0 | 0 |
| 870880 | Suspension systems and parts thereof, incl. shock-absorbers, for tractors, motor vehicles for the transport of ten or more persons, motor cars and other motor vehicles principally designed for the transport of persons, motor vehicles for the transport of goods and special purpose motor vehicles, n.e.s. | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 46 | 0 | 0 |
| 392310 | Boxes, cases, crates and similar articles for the conveyance or packaging of goods, of plastics | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 0 |
| 940381 | Furniture of bamboo or rattan (excluding seats and medical, surgical, dental or veterinary furniture) | 23 | 25 | 26 | 5 | 1 | 0 | 0 | 0 | 0 | 0 |
| 520921 | Plain woven fabrics of cotton, containing >= 85% cotton by weight and weighing > 200 g/m², bleached | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 33 | 0 | 0 |
| 441820 | Doors and their frames and thresholds, of wood | 1 | 16 | 0 | 9 | 46 | 5 | 0 | 0 | 0 | 0 |
| 441193 | Fibreboard of wood or other ligneous materials, whether or not agglomerated with resins or other organic bonding agents, of a density of >0,5 g/cm³ but <=0,8 g/cm³ (excl. medium density fibreboard "MDF"; particle board, whether or not bonded with one or more sheets of fibreboard; laminated wood with a layer of plywood; cellular wood panels of which both sides are fibreboard; paperboard; identifiable furniture components) | 0 | 0 | 0 | 0 | 65 | 9 | 0 | 0 | 0 | 0 |
| 392062 | Plates, sheets, film, foil and strip, of non-cellular poly"ethylene terephthalate", not reinforced, laminated, supported or similarly combined with other materials, without backing, unworked or merely surface-worked or merely cut into squares or rectangles (excl. those of poly"methyl methacrylate", self-adhesive products, and floor, wall and ceiling coverings of heading 3918) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 |
| 701310 | Glassware of glass ceramics, of a kind used for table, kitchen, toilet, office, indoor decoration or similar purposes (excl. goods of heading 7018, cooking hobs, leaded lights and the like, lighting fittings and parts thereof, atomizers for perfume and the like) | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 852862 | Projectors capable of directly connecting to and designed for use with an automatic data processing machine of heading 8471 (excl. with TV receiver) | 0 | 0 | 0 | 0 | 0 | 0 | 72 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 851762 | Machines for the reception, conversion and transmission or regeneration of voice, images or other data, incl. switching and routing apparatus (excl. telephone sets, telephones for cellular networks or for other wireless networks) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 23 | 43 |
| 840721 | Spark-ignition outboard motors for marine propulsion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 0 | 0 |
| 620343 | Men's or boys' trousers, bib and brace overalls, breeches and shorts of synthetic fibres (excl. knitted or crocheted, underpants and swimwear) | 0 | 0 | 0 | 29 | 0 | 41 | 0 | 0 | 0 | 0 |
| 940153 | Seats of rattan | 0 | 0 | 0 | 0 | 17 | 39 | 3 | 10 | 0 | 0 |
| 210420 | Food preparations consisting of finely homogenised mixtures of two or more basic ingredients, such as meat, fish, vegetables or fruit, put up for retail sale as infant food or for dietetic purposes, in containers of <= 250 g | 0 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 560314 | Nonwovens, whether or not impregnated, coated, covered or laminated, n.e.s., of man-made filaments, weighing > 150 g | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 520611 | Single cotton yarn containing predominantly, but < 85% cotton by weight, of uncombed fibres and with a linear density of >= 714,29 decitex "<= MN 14" (excl. sewing thread and yarn put up for retail sale) | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 850450 | Inductors (excl. inductors for discharge lamps or tubes) | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 480593 | Paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state, weighing >= 225 g/m², n.e.s. | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540751 | Woven fabrics of yarn containing >= 85% by weight of textured polyester filaments, incl. monofilament of >= 67 decitex and a maximum diameter of <= 1 mm, unbleached or bleached | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 0 | 0 |
| 230660 | Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of palm nuts or kernels | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610453 | Women's or girls' skirts and divided skirts of synthetic fibres, knitted or crocheted (excl. petticoats) | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 950300 | Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys; reduced-size "scale" recreational models, working or not; puzzles of all kinds | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 551521 | Woven fabrics containing predominantly, but < 85% acrylic or modacrylic staple fibres by weight, mixed principally or solely with man-made filament | 0 | 0 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610452 | Women's or girls' skirts and divided skirts of cotton, knitted or crocheted (excl. petticoats) | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 620640 | Women's or girls' blouses, shirts and shirt-blouses of man-made fibres (excl. knitted or crocheted and vests) | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940389 | Furniture of other materials, including cane, osier or similar materials (excl. of bamboo, rattan, metal, wood and plastics, and seats and medical, surgical, dental or veterinary furniture) | 52 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940350 | Wooden furniture for bedrooms (excl. seats) | 0 | 48 | 0 | 0 | 4 | 3 | 1 | 0 | 0 | 0 |
| 620530 | Men's or boys' shirts of man-made fibres (excl. knitted or crocheted, nightshirts, singlets and other vests) | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 853710 | Boards, cabinets and similar combinations of apparatus for electric control or the distribution of electricity, for a voltage <= 1.000 V | 0 | 0 | 0 | 0 | 55 | 0 | 0 | 0 | 0 | 0 |
| 610610 | Women's or girls' blouses, shirts and shirt-blouses of cotton, knitted or crocheted (excl. T-shirts and vests) | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 843890 | Parts of machinery for the industrial preparation or manufacture of food or drink, n.e.s. | 0 | 11 | 5 | 0 | 4 | 0 | 8 | 2 | 23 | 0 |
| 481014 | Paper and paperboard used for writing, printing or other graphic purposes, not containing fibres obtained by a mechanical or chemi-mechanical process or of which <= 10% by weight of the total fibre content consists of such fibres, coated on one or both sides with kaolin or other inorganic substances, in square or rectangular sheets with one side <= 435 mm and the other side <= 297 mm in the unfolded state | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 902790 | Microtomes; parts and accessories of instruments and apparatus for physical or chemical analysis, instruments and apparatus for measuring or checking viscosity, porosity, expansion, surface tension or the like, instruments and apparatus for measuring or checking quantities of heat, sound or light, and of microtomes, n.e.s. | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 |
| 843049 | Boring or sinking machinery for boring earth or extracting minerals or ores, not self-propelled and not hydraulic (excl. tunnelling machinery and hand-operated tools) | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 |
| 392010 | Plates, sheets, film, foil and strip, of non-cellular polymers of ethylene, not reinforced, laminated, supported or similarly combined with other materials, without backing, unworked or merely surface-worked or merely cut into squares or rectangles (excl. self-adhesive products, and floor, wall and ceiling coverings of heading 3918) | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 34 |
| 590310 | Textile fabrics impregnated, coated, covered or laminated with poly"vinyl chloride" (excl. wallcoverings of textile materials impregnated or covered with poly"vinyl chloride"; floor coverings consisting of a textile backing and a top layer or covering of poly"vinyl chloride") | 0 | 18 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 950659 | Badminton and similar rackets, whether or not strung (other than tennis rackets and table-tennis bats) | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 640192 | Waterproof footwear covering the ankle, but not the knee, with outer soles and uppers of rubber or of plastics, the uppers of which are neither fixed to the sole nor assembled by stitching, riveting, nailing, screwing, plugging or similar processes (excl. incorporating a protective metal toecap, orthopaedic footwear, sports and toy footwear) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 960990 | Pencils, pastels, drawing charcoals, writing or drawing chalks and tailors' chalks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 481910 | Cartons, boxes and cases, of corrugated paper or paperboard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 16 | 27 |
| 848390 | Toothed wheels, chain sprockets and other transmission elements presented separately; parts of transmission shafts, ball screws, couplings and other articles of heading 8483, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 14 | 13 | 8 |
| 854442 | Electric conductors for a voltage <= 1.000 V, insulated, fitted with connectors, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 17 | 23 |
| 392321 | Sacks and bags, incl. cones, of polymers of ethylene | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 |
| 392690 | Articles of plastics and articles of other materials of heading 3901 to 3914, n.e.s (excl. goods of 9619) | 26 | 1 | 1 | 0 | 0 | 0 | 1 | 10 | 2 | 2 |
| 482030 | Binders (other than book covers), folders and file covers, of paper or paperboard | 38 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391910 | Self-adhesive plates, sheets, film, foil, tape, strip and other flat shapes, of plastics, in rolls <= 20 cm wide | 0 | 0 | 0 | 0 | 4 | 6 | 1 | 14 | 6 | 10 |
| 851822 | Multiple loudspeakers, mounted in the same enclosure | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 12 | 25 |
| 621149 | Women's or girls' tracksuits and other garments, n.e.s. of textile materials (excl. of cotton or man-made fibres, knitted or crocheted and goods of 9619) | 12 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 721720 | Wire of iron or non-alloy steel, in coils, plated or coated with zinc (excl. bars and rods) | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610910 | T-shirts, singlets and other vests of cotton, knitted or crocheted | 12 | 21 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 |
| 480990 | Transfer papers, incl. coated or impregnated paper for duplicator stencils or offset plates, whether or not printed, in rolls of a width > 36 cm or in square or rectangular sheets with one side > 36 cm and the other side > 15 cm in the unfolded state (excl. self-copy paper) | 0 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 481690 | Copying or transfer papers, in rolls of a width of <= 36 cm or in rectangular or square sheets with no side measuring > 36 cm in the unfolded state, or cut into shapes other than rectangles or squares, | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | 0 |

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| | whether or not in boxes, together with offset plates of paper (excl. self-copy paper) | | | | | | | | | | |
| 392490 | Household articles and toilet articles, of plastics (excl. tableware, kitchenware, baths, shower-baths, washbasins, bidets, lavatory pans, seats and covers, flushing cisterns and similar sanitary ware) | 9 | 2 | 9 | 9 | 7 | 0 | 0 | 0 | 0 | 0 |
| 380859 | Goods of heading 3808 containing one or more of the following substances: alachlor (ISO); aldicarb (ISO); aldrin (ISO); azinphos-methyl (ISO); binapacryl (ISO); camphechlor (ISO) (toxaphene); captafol (ISO); carbofuran (ISO); chlordane (ISO); chlordimeform (ISO); chlorobenzilate (ISO); dieldrin (ISO, INN); 4,6-dinitro-o-cresol (DNOC (ISO)) or its salts; dinoseb (ISO), its salts or its esters; endosulfan (ISO); ethylene dibromide (ISO) (1,2-dibromoethane); ethylene dichloride (ISO) (1,2-dichloroethane); fluo | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 |
| 482040 | Manifold business forms and interleaved carbon sets, of paper or paperboard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 |
| 620441 | Women's or girls' dresses of wool or fine animal hair (excl. knitted or crocheted and petticoats) | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 843120 | Parts of fork-lift trucks and other works trucks fitted with lifting or handling equipment, n.e.s. | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 |
| 731290 | Plaited bands, slings and the like, of iron or steel (excl. electrically insulated products) | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 |
| 611710 | Shawls, scarves, mufflers, mantillas, veils and the like, knitted or crocheted | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 |
| 300660 | Chemical contraceptive preparations based on hormones, prostaglandins, thromboxanes, leukotrienes, derivatives and structural analogues thereof or on spermicides | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 841370 | Centrifugal pumps, power-driven (excl. those of subheading 8413.11 and 8413.19, fuel, lubricating or cooling medium pumps for internal combustion piston engine and concrete pumps) | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 640299 | Footwear with outer soles and uppers of rubber or plastics (excl. covering the ankle or with upper straps or thongs assembled to the sole by means of plugs, waterproof footwear of heading 6401, sports footwear, orthopaedic footwear and toy footwear) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 30 |
| 611190 | Babies' garments and clothing accessories of textile materials, knitted or crocheted (excl. of cotton or synthetic fibres, and hats) | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 |
| 420292 | Travelling-bags, insulated food or beverage bags, toilet bags, rucksacks, shopping-bags, map-cases, tool bags, sports bags, jewellery boxes, cutlery cases, binocular cases, camera cases, musical | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |

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| | instrument cases, gun cases, holsters and similar containers, with outer surface of plastic sheeting or textile materials (excl. trunks, briefcases, school satchels and similar containers, handbags and articles carried in the pocket or handbag) | | | | | | | | | | |
| 853931 | Discharge lamps, fluorescent, hot cathode | 25 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 2 |
| 841330 | Fuel, lubricating or cooling medium pumps for internal combustion piston engine | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 1 |
| 482390 | Paper, paperboard, cellulose wadding and webs of cellulose fibres, in strips or rolls of a width <= 36 cm, in rectangular or square sheets, of which no side > 36 cm in the unfolded state, or cut to shape other than rectangular or square, and articles of paper pulp, paper, cellulose wadding or webs of cellulose fibres, n.e.s. | 9 | 0 | 0 | 0 | 4 | 0 | 0 | 17 | 0 | 0 |
| 841460 | Hoods incorporating a fan, whether or not fitted with filters, having a maximum horizontal side <= 120 cm | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 |
| 841950 | Heat-exchange units (excl. those used with boilers) | 0 | 0 | 4 | 1 | 7 | 16 | 0 | 0 | 0 | 0 |
| 852190 | Video recording or reproducing apparatus, whether or not incorporating a video tuner (excl. magnetic tape-type and video camera recorders) | 22 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 845011 | Fully-automatic household or laundry-type washing machines, of a dry linen capacity <= 6 kg | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 26 | 0 | 0 |
| 330790 | Depilatories and other perfumery, toilet or cosmetic preparations, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 |
| 841490 | Parts of: air or vacuum pumps, air or other gas compressors, fans and ventilating or recycling hoods incorporating a fan, and gas-tight biological safety cabinets, n.e.s. | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 26 |
| 701337 | Drinking glasses (excl. glasses of glass ceramics or of lead crystal and stemware) | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940159 | Seats of cane, osier or similar materials (excl. of bamboo or rattan) | 11 | 10 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| 180500 | Cocoa powder, not containing added sugar or other sweetening matter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 |
| 940370 | Furniture of plastics (excl. medical, dental, surgical or veterinary, and seats) | 8 | 15 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 620930 | Babies' garments and clothing accessories of synthetic fibres (excl. knitted or crocheted and hats, napkins and napkin liners [see 9619]) | 0 | 0 | 0 | 0 | 10 | 14 | 0 | 0 | 0 | 0 |
| 843790 | Parts of machinery used in the milling industry or for the working of cereals or dried leguminous vegetables or machines for cleaning, sorting or grading seed, grain or dried leguminous vegetables, n.e.s. | 0 | 0 | 0 | 0 | 8 | 6 | 4 | 3 | 3 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 700800 | Multiple-walled insulating units of glass | 3 | 0 | 0 | 3 | 0 | 3 | 9 | 0 | 5 | 0 |
| 620462 | Women's or girls' trousers, bib and brace overalls, breeches and shorts of cotton (excl. knitted or crocheted, panties and swimwear) | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 |
| 330210 | Mixtures of odoriferous substances and mixtures, incl. alcoholic solutions, with a basis of one or more of these substances, of a kind used in the food and drink industries; other preparations based on odoriferous substances, of a kind used for the manufacture of beverages | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 9 |
| 701090 | Carboys, bottles, flasks, jars, pots, phials and other containers, of glass, of a kind used for the commercial conveyance or packing of goods, and preserving jars, of glass (excl. ampoules, glass inners for containers, with vacuum insulation, perfume atomizers, flasks, bottles etc. for atomizers) | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 620461 | Women's or girls' trousers, bib and brace overalls, breeches and shorts of wool or fine animal hair (excl. knitted or crocheted, panties and swimwear) | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610463 | Women's or girls' trousers, bib and brace overalls, breeches and shorts of synthetic fibres, knitted or crocheted (excl. panties and swimwear) | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 |
| 842481 | Agricultural or horticultural mechanical appliances, whether or not hand-operated, for projecting, dispersing or spraying liquids or powders | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 620690 | Women's or girls' blouses, shirts and shirt-blouses of textile materials (excl. of silk, silk waste, wool, fine animal hair, cotton or man-made fibres, knitted or crocheted and vests) | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 841590 | Parts of air conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity, n.e.s. | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 |
| 550410 | Staple fibres of viscose rayon, not carded, combed or otherwise processed for spinning | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| 940383 | Furniture of rattan (excl. seats and medical, surgical, dental or veterinary furniture) | 0 | 0 | 0 | 0 | 10 | 7 | 2 | 0 | 0 | 0 |
| 330510 | Shampoos | 18 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 440290 | Wood charcoal, whether or not agglomerated (excl. of bamboo or shell or nut, charcoal used as a medicament, charcoal mixed with incense, activated charcoal and charcoal in the form of crayons) | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| 610822 | Women's or girls' briefs and panties of man-made fibres, knitted or crocheted | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 701399 | Glassware of a kind used for toilet, office, indoor decoration or similar purposes (excl. glassware of lead crystal or of a kind used for table or kitchen purposes, articles of heading 7018, mirrors, leaded lights and the like, lighting fittings and parts thereof, atomizers for perfume and the like) | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 950420 | Billiards of all kinds and accessories | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 200820 | Pineapples, prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit (excl. preserved with sugar but not laid in syrup, jams, fruit jellies, marmalades, fruit purée and pastes, obtained by cooking) | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 401290 | Solid or cushion tyres, interchangeable tyre treads and tyre flaps, of rubber | 5 | 5 | 1 | 1 | 1 | 2 | 1 | 0 | 0 | 0 |
| 442090 | Wood marquetry and inlaid wood; caskets and cases for jewellery or cutlery, and similar articles, of wood; wooden articles of furniture (excl. statuettes and other ornaments; furniture, lighting fixtures and parts thereof) | 11 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 630900 | Worn clothing and clothing accessories, blankets and travelling rugs, household linen and articles for interior furnishing, of all types of textile materials, incl. all types of footwear and headgear, showing signs of appreciable wear and presented in bulk or in bales, sacks or similar packings (excl. carpets, other floor coverings and tapestries) | 0 | 0 | 1 | 0 | 1 | 4 | 10 | 0 | 0 | 0 |
| 382312 | Oleic acid, industrial | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 847030 | Calculating machines, non-electronic | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 853080 | Electrical signalling, safety or traffic control equipment (excl. that for railways or tramways and mechanical or electromechanical equipment of heading 8608) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 |
| 170490 | Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 |
| 621210 | Brassieres of all types of textile materials, whether or not elasticated, incl. knitted or crocheted | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 830629 | Statuettes and other ornaments, of base metal, not plated with precious metal (excl. works of art, collectors' pieces and antiques) | 0 | 0 | 2 | 10 | 0 | 0 | 1 | 0 | 0 | 0 |
| 847141 | Data-processing machines, automatic, comprising in the same housing at least a central processing unit, and one input unit and one output unit, whether or not combined (excl. portable weighing <= 10 kg and excl. those presented in the form of systems and peripheral units) | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 |
| 731511 | Roller chain of iron or steel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 |

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| 700992 | Glass mirrors, framed (excl. rear-view mirrors for vehicles, optical mirrors, optically processed, and mirrors of an age of > 100 years) | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 850410 | Ballasts for discharge lamps or tubes | 0 | 0 | 0 | 2 | 1 | 7 | 0 | 0 | 0 | 2 |
| 851770 | Parts of telephone sets, telephones for cellular networks or for other wireless networks and of other apparatus for the transmission or reception of voice, images or other data, n.e.s. | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 441879 | Flooring panels, assembled, of wood other than bamboo (excl. multilayer panels and panels for mosaic floors) | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 620822 | Women's or girls' nightdresses and pyjamas of man-made fibres (excl. knitted or crocheted, vests and négligés) | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 190532 | Waffles and wafers | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 401693 | Gaskets, washers and other seals, of vulcanised rubber (excl. hard rubber and those of cellular rubber) | 2 | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 2 | 2 |
| 999999 | Commodities not elsewhere specified | 0 | 0 | 1 | 2 | 2 | 1 | 2 | 1 | 0 | 2 |
| 460212 | Basketwork, wickerwork and other articles, made directly to shape from rattan plaiting materials or made up from goods of rattan plaiting materials of heading 4601, and articles of loofah (excl. wallcoverings of heading 4814; twine, cord and rope; footware and headgear and parts thereof; vehicles and vehicle superstructures; goods of chapter 94, e.g. furniture, lighting fixtures) | 0 | 0 | 0 | 1 | 5 | 2 | 2 | 0 | 0 | 0 |
| 030289 | Fresh or chilled fish, n.e.s. | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940421 | Mattresses of cellular rubber or plastics, whether or not covered | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| 841320 | Hand pumps for liquids (excl. those of subheading 8413.11 and 8413.19) | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 6 | 0 |
| 940320 | Metal furniture (excl. for offices, seats and medical, surgical, dental or veterinary furniture) | 0 | 2 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 901580 | Instruments and appliances used in geodesy, topography, hydrography, oceanography, hydrology, meteorology or geophysics (excl. compasses, rangefinders, theodolites, tachymeters "tacheometers", levels and photogrammetrical surveying instruments and appliances) | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 |
| 870191 | Tractors, of an engine power <= 18 kW (excl. those of heading 8709, pedestrian-controlled tractors, road tractors for semi-trailers and track-laying tractors) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 |
| 620444 | Women's or girls' dresses of artificial fibres (excl. knitted or crocheted and petticoats) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |

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| 850132 | DC motors and DC generators of an output > 750 W but <= 75 kW (excl. photovoltaic generators) | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| 848490 | Sets or assortments of gaskets and similar joints, dissimilar in composition, put up in pouches, envelopes or similar packings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 5 |
| 845020 | Laundry-type washing machines, of a dry linen capacity > 10 kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| 853720 | Boards, cabinets and similar combinations of apparatus for electric control or the distribution of electricity, for a voltage > 1.000 V | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 |
| 690490 | Ceramic flooring blocks, support or filler tiles and the like (excl. those of siliceous fossil meals or similar siliceous earths, refractory bricks of heading 6902, and flags and pavings, hearth and wall tiles of heading 6907 and 6908, and building bricks) | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 901890 | Instruments and appliances used in medical, surgical or veterinary sciences, n.e.s. | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| 841510 | Air conditioning machines designed to be fixed to a window, wall, ceiling or floor, self-contained or "split-system" | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 2 | 0 |
| 442010 | Statuettes and other ornaments, of wood (excluding wood marquetry and inlaid wood) | 4 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 |
| 940120 | Seats for motor vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| 841931 | Dryers for agricultural products | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 250100 | Salts, incl. table salt and denatured salt, and pure sodium chloride, whether or not in aqueous solution or containing added anti-caking or free-flowing agents; sea water | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| 841989 | Machinery, plant or laboratory equipment, whether or not electrically heated, for the treatment of materials by a process involving a change of temperature such as heating, cooking, roasting, sterilising, pasteurising, steaming, evaporating, vaporising, condensing or cooling, n.e.s. (excl. machinery used for domestic purposes and furnaces, ovens and other equipment of heading 8514) | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| 852910 | Aerials and aerial reflectors of all kinds; parts suitable for use therewith, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 |
| 630790 | Made-up articles of textile materials, incl. dress patterns, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| 051191 | Products of fish or crustaceans, molluscs or other aquatic invertebrates; dead fish, crustaceans, molluscs or other aquatic invertebrates, unfit for human consumption | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 842219 | Dishwashing machines (excl. those of the household type) | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 841210 | Reaction engines other than turbojets | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |

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| 441400 | Wooden frames for paintings, photographs, mirrors or similar objects | 0 | 0 | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 851829 | Loudspeakers, without enclosure | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | 0 |
| 853530 | Isolating switches and make-and-break switches, for a voltage > 1.000 V | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| 520511 | Single cotton yarn, of uncombed fibres, containing >= 85% cotton by weight and with a linear density of >= 714,29 decitex "<= MN 14" (excl. sewing thread and yarn put up for retail sale) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| 853690 | Electrical apparatus for switching electrical circuits, or for making connections to or in electrical circuits, for a voltage <= 1.000 V (excl. fuses, automatic circuit breakers and other apparatus for protecting electrical circuits, relays and other switches, lamp holders, plugs and sockets) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 620590 | Men's or boys' shirts of textile materials (excl. of cotton or man-made fibres, knitted or crocheted, nightshirts, singlets and other vests) | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 850300 | Parts suitable for use solely or principally with electric motors and generators, electric generating sets and rotary converters, n.e.s. | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 620610 | Women's or girls' blouses, shirts and shirt-blouses of silk or silk waste (excl. knitted or crocheted and vests) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 620469 | Women's or girls' trousers, bib and brace overalls, breeches and shorts of textile materials (excl. of wool, fine animal hair, cotton or synthetic fibres, knitted or crocheted, panties and swimwear) | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 722300 | Wire of stainless steel, in coils (excl. bars and rods) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 1 |
| 621143 | Women's or girls' tracksuits and other garments, n.e.s. of man-made fibres (excl. knitted or crocheted) | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940490 | Articles of bedding and similar furnishing, fitted with springs or stuffed or internally filled with any material or of cellular rubber or plastics (excl. mattress supports, mattresses, sleeping bags, pneumatic or water mattresses, blankets, covers, quilts, bedspreads, eiderdowns and duvets "comforters") | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 491199 | Printed matter, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| 841391 | Parts of pumps for liquids, n.e.s. | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 620219 | Women's or girls' overcoats, raincoats, car coats, capes, cloaks and similar articles, of textile materials (excluding of wool or fine animal hair, cotton or man-made fibres, knitted or crocheted) | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 284700 | Hydrogen peroxide, whether or not solidified with urea | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| 871160 | Motorcycles, incl. mopeds, and cycles fitted with an auxiliary motor, with electric motor for propulsion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 392620 | Articles of apparel and clothing accessories produced by the stitching or sticking together of plastic sheeting, incl. gloves, mittens and mitts (excl. goods of 9619) | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| 903180 | Instruments, appliances and machines for measuring or checking, not elsewhere specified in chapter 90 (excl. optical) | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| 844399 | Parts and accessories of printers, copying machines and facsimile machines, n.e.s. (excl. of printing machinery used for printing by means of plates, cylinders and other printing components of heading 8442) | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 820590 | Anvils; portable forges; hand- or pedal-operated grinding wheels with frameworks; sets of articles of two or more subheadings of heading 8205 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| 392610 | Office or school supplies, of plastics, n.e.s. | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 420211 | Trunks, suitcases, vanity cases, executive-cases, briefcases, school satchels and similar containers, with outer surface of leather, composition leather or patent leather | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 |
| 853890 | Parts suitable for use solely or principally with the apparatus of heading 8535, 8536 or 8537, n.e.s. (excl. boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 848340 | Gears and gearing for machinery (excl. toothed wheels, chain sprockets and other transmission elements presented separately); ball or roller screws; gear boxes and other speed changers, incl. torque converters | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 180632 | Chocolate and other preparations containing cocoa, in blocks, slabs or bars of <= 2 kg (excl. filled) | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 853229 | Fixed electrical capacitors (excl. tantalum, aluminium electrolytic, ceramic, paper, plastic and power capacitors) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 846692 | Parts and accessories for machine tools for working wood, cork, bone, hard rubber, hard plastics or similar hard materials, n.e.s. | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 050800 | Coral and similar materials, shells of molluscs, crustaceans or echinoderms, cuttle-bone, powder and waste thereof, unworked or simply prepared but not otherwise worked or cut to shape | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| 392030 | Plates, sheets, foil, film and strip, of non-cellular polymers of styrene, not reinforced, laminated, supported or similarly combined with other materials, without backing, unworked or merely surface-worked or | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |

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| | merely cut into squares or rectangles (excl. self-adhesive products, and floor, wall and ceiling coverings of heading 3918) | | | | | | | | | | |
| 330190 | Extracted oleoresins; concentrates of essential oils in fats, fixed oils, waxes and the like, obtained by enfleurage or maceration; terpenic by-products of the deterpenation of essential oils; aromatic aqueous distillates and aqueous solutions of essential oils | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 190230 | Pasta, cooked or otherwise prepared (excl. stuffed) | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 630319 | Curtains, incl. drapes, and interior blinds, curtain or bed valances, knitted or crocheted (excl. of synthetic fibres, awnings and sunblinds) | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 761490 | Stranded wires, cables, ropes and similar articles, of aluminium (other than with steel core and electrically insulated products) | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 690722 | Ceramic flags and paving, hearth or wall tiles, of a water absorption coefficient by weight > 0,5 % but <= 10 % (excl. refractory, mosaic cubes and finishing ceramics) | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 852871 | Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, not designed to incorporate a video display or screen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 847710 | Injection-moulding machines for working rubber or plastics | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 843810 | Bakery machinery and machinery for the industrial preparation or manufacture of macaroni, spaghetti or similar products (excl. ovens, macaroni drying machines and dough rollers) | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 732690 | Articles of iron or steel, n.e.s. (excl. cast articles or articles of iron or steel wire) | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 392329 | Sacks and bags, incl. cones, of plastics (excl. those of polymers of ethylene) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 401162 | Pneumatic tyres, new, of rubber, having a "herring-bone" or similar tread, of a kind used on construction or industrial handling vehicles and machines and having a rim size <= 61 cm | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 380862 | Goods of heading 3808, containing alpha-cypermethrin "ISO", bendiocarb "ISO", bifenthrin "ISO", chlorfenapyr "ISO", cyfluthrin "ISO", deltamethrin "INN, ISO", etofenprox "INN", fenitrothion "ISO", lambda-cyhalothrin "ISO", malathion "ISO", pirimiphos-methyl "ISO" or propoxur "ISO", in packings of a net weight content > 300 g but <= 7,5 kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 820570 | Vices, clamps and the like (excl. accessories for and parts of machine tools or water-jet cutting machines) | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 442110 | Clothes hangers of wood | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 846592 | Planing, milling or moulding -by cutting- machines, for working wood, cork, bone, hard rubber, hard plastics or similar hard materials (excl. machines for working in the hand and machines of subheadings 8465.10 and 8465.20) | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 481810 | Toilet paper in rolls of a width of <= 36 cm | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 611420 | Special garments for professional, sporting or other purposes, n.e.s., of cotton, knitted or crocheted | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540774 | Woven fabrics of yarn containing >= 85% synthetic filament by weight, incl. monofilament of >= 67 decitex and a maximum diameter of <= 1 mm, printed (excl. those of polyester, nylon or other polyamide filaments or monofilaments, and of mixtures of textured and non-textured polyester filaments) | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 852852 | Monitors capable of directly connecting to and designed for use with an automatic data processing machine of heading 8471 (excl. CRT, with TV receiver) | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 870840 | Gear boxes and parts thereof, for tractors, motor vehicles for the transport of ten or more persons, motor cars and other motor vehicles principally designed for the transport of persons, motor vehicles for the transport of goods and special purpose motor vehicles, n.e.s. | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 820559 | Hand tools, incl. glaziers' diamonds, of base metal, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 853590 | Electrical apparatus for switching or protecting electrical circuits, or for making connections to or in electrical circuits, for a voltage > 1.000 V (excl. fuses, automatic circuit breakers, isolating switches, make-and-break switches, lightning arresters, voltage limiters, surge suppressors and control desks, cabinets, panels etc. of heading 8537) | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 850780 | Electric accumulators (excl. spent, and lead-acid, nickel-cadmium, nickel-metal hydride and lithium-ion accumulators) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 842199 | Parts of machinery and apparatus for filtering or purifying liquids or gases, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 847330 | Parts and accessories of automatic data-processing machines or for other machines of heading 8471, n.e.s. | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 847130 | Data-processing machines, automatic, portable, weighing <= 10 kg, consisting of at least a central processing unit, a keyboard and a display (excl. peripheral units) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 871120 | Motorcycles, incl. mopeds, with reciprocating internal combustion piston engine of a cylinder capacity > 50 cm³ but <= 250 cm³ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 940151 | Seats of bamboo or rattan | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 920110 | Upright pianos | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 030614 | Frozen crabs, even smoked, whether in shell or not, incl. crabs in shell, cooked by steaming or by boiling in water | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 970110 | Paintings, e.g. oil paintings, watercolours and pastels, and drawings executed entirely by hand (excluding technical drawings and the like of heading 4906, and hand-painted or hand-decorated manufactured articles) | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 490300 | Children's picture, drawing or colouring books | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 846890 | Parts of machinery and apparatus for soldering, brazing, welding or surface tempering, non-electric, n.e.s. | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610829 | Women's or girls' briefs and panties of textile materials, knitted or crocheted (excl. cotton or man-made fibres) | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940520 | Electric table, desk, bedside or floor-standing lamps | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 441299 | Laminated wood with both outer plies of coniferous wood (excl. of bamboo, with an outer ply of tropical wood, plywood consisting solely of sheets of wood <= 6 mm thick, laminated veneered lumber, blockboard, laminboard, battenboard, sheets of compressed wood, cellular wood panels, inlaid wood and sheets identifiable as furniture components) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 732619 | Articles of iron or steel, forged or stamped, but not further worked, n.e.s. (excl. grinding balls and similar articles for mills) | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 853929 | Filament lamps, electric (excl. tungsten halogen lamps, lamps of a power <= 200 W and for a voltage > 100 V and ultraiolet or infra-red lamps) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 853990 | Parts of electric filament or discharge lamps, sealed beam lamp units, ultraviolet or infra-red lamps, arc lamps and LED light sources, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 680229 | Monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface (excl. marble, travertine, alabaster, granite and slate, those with a completely or partly planed, sand-dressed, coarsely or finely ground or polished surface, tiles, cubes and similar articles of subheading 6802 10 00, setts, curbstones and flagstones) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 848120 | Valves for oleohydraulic or pneumatic transmission | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 760612 | Plates, sheets and strip, of aluminium alloys, of a thickness of > 0,2 mm, square or rectangular (excl. expanded plates, sheets and strip) | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 902810 | Gas meters, incl. calibrating meters therefor | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 731819 | Threaded articles, of iron or steel, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 741110 | Tubes and pipes of refined copper | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 610349 | Men's or boys' trousers, bib and brace overalls, breeches and shorts of textile materials, knitted or crocheted (excl. of wool, fine animal hair, cotton or synthetic fibres, swimwear and underpants) | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 870894 | Steering wheels, steering columns and steering boxes, and parts thereof, for tractors, motor vehicles for the transport of ten or more persons, motor cars and other motor vehicles principally designed for the transport of persons, motor vehicles for the transport of goods and special purpose motor vehicles, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 853810 | Boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 940179 | Seats, with metal frames (excl. upholstered, swivel seats with variable height adjustments and medical, dental or surgical furniture) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 761699 | Articles of aluminium, n.e.s. | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 854470 | Optical fibre cables made up of individually sheathed fibres, whether or not containing electric conductors or fitted with connectors | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 847480 | Machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering materials and other mineral products in powder or paste form; machines for forming foundry moulds of sand (excl. those for the casting or pressing of glass and machines for additive manufacturing) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 300590 | Wadding, gauze, bandages and the like, e.g. dressings, adhesive plasters, poultices, impregnated or covered with pharmaceutical substances or put up for retail sale for medical, surgical, dental or veterinary purposes (excl. adhesive dressings and other articles having an adhesive layer) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 841480 | Air pumps, air or other gas compressors and ventilating or recycling hoods incorporating a fan, whether or not fitted with filters, having a maximum horizontal side > 120 cm (excl. vacuum pumps, hand- or foot-operated air pumps, compressors for refrigerating equipment and air compressors mounted on a wheeled chassis for towing) | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 821220 | Safety razor blades of base metal, incl. razor blade blanks in strips | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 690810 | Glazed ceramic tiles, mosaic cubes and similar articles, whether or not square or rectangular, the largest surface area of which is capable of being enclosed in a square of side of < 7 cm, whether or not on a backing | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 871410 | Parts and accessories of motorcycles, incl. mopeds, n.e.s. | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 960110 | Worked ivory and articles of ivory, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 930190 | Military weapons, incl. sub-machine guns (excl. artillery weapons, rocket launchers, flame-throwers, grenade launchers, torpedo tubes and similar projectors, revolvers and pistols of eading 9302 and cutting and thrusting weapons of heading 9307) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 741810 | Table, kitchen or other household articles and parts thereof, and pot scourers and scouring or polishing pads, gloves and the like, of copper (excl. cans, boxes and similar containers of heading 7419, articles of the nature of a work implement, articles of cutlery, spoons, ladles, etc., ornamental articles and sanitary ware) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 920999 | Parts and accessories for musical instruments "e.g. mechanisms for musical boxes, cards, discs and rolls for mechanical instruments" n.e.s.; metronomes, tuning forks and pitch pipes of all kinds (excl. musical instrument strings and arts and accessories for pianos and for string musical instruments without keyboards) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 030199 | Live fish (excl. ornamental fish, trout [Salmo trutta, Oncorhynchus mykiss, Oncorhynchus clarki, Oncorhynchus aguabonita, Oncorhynchus gilae, Oncorhynchus apache and Oncorhynchus chrysogaster], eels [Anguilla spp.], carp [Cyprinus spp., Carassius spp., Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus, Catla catla, Labeo spp., Osteochilus hasselti, Leptobarbus hoeveni, Megalobrama spp.], Atlantic and Pacific bluefin tuna [Thunnus thynnus, Thunnus orientalis] and south | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 960190 | Worked bone, tortoiseshell, horn, antlers, coral, mother-of-pearl and other animal carving material, and articles of these materials, n.e.s. (excl. ivory) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 621030 | Garments of the type described in heading 6202, rubberised or impregnated, coated, covered or laminated with plastics or other substances | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610899 | Women's or girls' négligés, bathrobes, dressing gowns, housejackets and similar articles of textile materials, knitted or crocheted (excl. of cotton or man-made fibres, vests, slips, petticoats, briefs and panties, nightdresses, pyjamas, brassiéres, girdles, corsets and similar articles) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 420310 | Articles of apparel, of leather or composition leather (excl. clothing accessories, footware and headgear and parts thereof, and goods of chapter 95, e.g. shin guards, fencing masks) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 611510 | Graduated compression hosiery [e.g., stockings for varicose veins], of textile materials, knitted or crocheted (excl. hosiery for babies) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 370199 | Photographic plates and film in the flat for monochrome photography, sensitised, unexposed, of any material other than paper, paperboard or textiles (excl. X-ray film and photographic plates, film in the flat with any side > 255 mm, and instant print film) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 440929 | Wood, incl. strips and friezes for parquet flooring, not assembled, continuously shaped "tongued, grooved, rebated, chamfered, V-jointed beaded, moulded, rounded or the like" along any of its edges, ends or faces, whether or not planed, sanded or end-jointed (excl. coniferous and tropical wood and bamboo) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 140110 | Bamboos | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 846630 | Dividing heads and other special attachments for machine tools, n.e.s. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 640320 | Footwear with outer soles of leather, and uppers which consist of leather straps across the instep and around the big toe | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 420329 | Gloves, mittens and mitts, of leather or composition leather (excl. special sports gloves) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 950619 | Ski equipment for winter sports (other than skis and ski-fastenings [ski-bindings]) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 903031 | Multimeters for voltage, current, resistance or electrical power, without recording device | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 903090 | Parts and accessories for instruments and apparatus for measuring or checking electrical quantities or for detecting ionising radiations, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 450490 | Agglomerated cork, with or without a binding substance, and articles of agglomerated cork (excl. footware and parts thereof; insoles, whether or not removable; headgear and parts thereof; plugs and dividers for shotgun cartridges; toys, games and sports equipment and parts thereof; blocks, plates, sheets or strips; tiles of any shape; solid cylinders, incl. discs) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 690100 | Bricks, blocks, tiles and other ceramic goods of siliceous fossil meals, e.g. kieselguhr, tripolite or diatomite, or of similar siliceous earths | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 846789 | Tools for working in the hand, hydraulic or with self-contained non-electric motor (excl. chainsaws and pneumatic tools) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 330690 | Preparations for oral or dental hygiene, incl. denture fixative pastes and powders (excl. dentifrices and yarn used to clean between the teeth "dental floss") | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 340600 | Candles, tapers and the like | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 460199 | Plaiting materials, plaits and similar products of non-vegetable plaiting materials, flat-woven or bound together in parallel (excl. wallcoverings of heading 4814; parts of footware or headgear) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940429 | Mattresses, fitted with springs or stuffed or internally filled with any material (excl. cellular rubber or plastics, pneumatic or water mattresses and pillows) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 401700 | Hard rubber, e.g. ebonite, in all forms, incl. waste and scrap; articles of hard rubber, n.e.s. | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 610590 | Men's or boys' shirts of textile materials, knitted or crocheted (excl. of cotton or man-made fibres, nightshirts, T-shirts, singlets and other vests) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 940180 | Seats, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 820411 | Hand-operated spanners and wrenches, incl. torque meter wrenches, of base metal, non-adjustable | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 340130 | Organic surface-active products and preparations for washing the skin, in the form of liquid or cream and put up for retail sale, whether or not containing soap | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 590610 | Adhesive tape of rubberised textile fabrics, of a width of <= 20 cm (excl. that impregnated or coated with pharmaceutical substances or put up for retail sale for medical, surgical, dental or veterinary purposes) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 392069 | Plates, sheets, film, foil and strip, of non-cellular polyesters, not reinforced, laminated, supported or similarly combined with other materials, not worked or only surface-worked, or only cut to rectangular, incl. square, shapes (excl. polycarbonates, polythylene terephthalate and other unsaturated polyesters, self-adhesive products, and floor, wall and ceiling coverings in heading 3918) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 844110 | Cutting machines for making up paper pulp, paper or paperboard (excl. bookbinding machinery of heading 8440) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 903300 | Parts and accessories for machines, appliances, instruments or other apparatus in chapter 90, specified neither in this chapter nor elsewhere | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 851511 | Soldering irons and guns, electric | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 670490 | Wigs, false beards, eyebrows and eyelashes, switches and the like, of animal hair or textile materials (excl. synthetic textile materials) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 650500 | Hats and other headgear, knitted or crocheted, or made up from lace, felt or other textile fabric, in the piece (but not in strips), whether or | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | not lined or trimmed; hairnets of any material, whether or not lined or trimmed (excl. headgear for animals, and toy and carnival headgear) | | | | | | | | | | |
| 392640 | Statuettes and other ornamental articles, of plastics | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 490199 | Printed books, brochures and similar printed matter (excl. those in single sheets; dictionaries, encyclopaedias, periodicals and publications which are essentially devoted to advertising) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 840810 | Compression-ignition internal combustion piston engine "diesel or semi-diesel engine", for marine propulsion | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 960910 | Pencils and crayons, with leads encased in a sheath | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 930200 | Revolvers and pistols (excl. those of heading 9303 or 9304 and sub-machine guns for military purposes) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 691200 | Tableware, kitchenware, other household articles and toilet articles, of ceramics other than porcelain or china (excl. baths, bidets, sinks and similar sanitary fixtures, statuettes and other ornamental articles, pots, jars, carboys and similar receptacles for the conveyance or packing of goods, and coffee grinders and spice mills with receptacles made of ceramics and working parts of metal) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 940310 | Metal furniture for offices (excl. seats) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 852580 | Television cameras, digital cameras and video camera recorders | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 847170 | Storage units for automatic data-processing machines | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 870830 | Brakes and servo-brakes and their parts, for tractors, motor vehicles for the transport of ten or more persons, motor cars and other motor vehicles principally designed for the transport of persons, motor vehicles for the transport of goods and special purpose motor vehicles, n.e.s. | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 570500 | Carpets and other textile floor coverings, whether or not made up (excl. knotted, woven or tufted "needle punched", and of felt) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 842129 | Machinery and apparatus for filtering or purifying liquids (excl. such machinery and apparatus for water and other beverages, oil or petrol-filters for internal combustion engines and artificial kidneys) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 840991 | Parts suitable for use solely or principally with spark-ignition internal combustion piston engine, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 391990 | Self-adhesive plates, sheets, film, foil, tape, strip and other flat shapes, of plastics, whether or not in rolls > 20 cm wide (excl. floor, wall and ceiling coverings of heading 3918) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 732393 | Table, kitchen or other household articles, and parts thereof, of stainless steel (excl. cans, boxes and similar containers of heading 7310; waste baskets; shovels, corkscrews and other articles of the nature of a work implement; articles of cutlery, spoons, ladles, forks etc. of heading 8211 to 8215; ornamental articles; sanitary ware) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 420212 | Trunks, suitcases, vanity cases, executive-cases, briefcases, school satchels and similar containers, with outer surface of plastics or textile materials | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 701328 | Drinking glasses, stemware (excl. of glass ceramics or of lead crystal) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 481920 | Folding cartons, boxes and cases, of non-corrugated paper or paperboard | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 851718 | Telephone sets (excl. line telephone sets with cordless handsets and telephones for cellular networks or for other wireless networks) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 841451 | Table, floor, wall, window, ceiling or roof fans, with a self-contained electric motor of an output <= 125 W | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 850211 | Generating sets with compression-ignition internal combustion piston engine "diesel or semi-diesel engine" of an output <= 75 kVA | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| Code | Product label | Sudan's export to Indonesia | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| | All products | 3667 | 743 | 344 | 1666 | 48433 | 242017 | 110843 | 67536 | 16185 | 36432 |
| 270900 | Petroleum oils and oils obtained from bituminous minerals, crude | 0 | 0 | 0 | 0 | 31881 | 194988 | 0 | 39688 | 0 | 0 |
| 120242 | Groundnuts, shelled, whether or not broken (excl. seed for sowing, roasted or otherwise cooked) | 1809 | 207 | 0 | 1292 | 14967 | 45055 | 84968 | 27100 | 15852 | 34109 |
| 871000 | Tanks and other armoured fighting vehicles, motorised, whether or not fitted with weapons, and parts of such vehicles, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 16715 | 0 | 0 | 0 |
| 120241 | Groundnuts, in shell (excl. seed for sowing, roasted or otherwise cooked) | 1637 | 68 | 27 | 322 | 1244 | 1689 | 3125 | 0 | 0 | 0 |
| 842710 | Self-propelled trucks fitted with lifting or handling equipment, powered by an electric motor | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1048 |
| 520100 | Cotton, neither carded nor combed | 70 | 105 | 0 | 32 | 154 | 0 | 0 | 501 | 0 | 0 |
| 930110 | Artillery weapons "e.g. guns, howitzers and mortars" | 0 | 0 | 0 | 0 | 0 | 0 | 859 | 0 | 0 | 0 |
| 930390 | Firearms and similar devices which operate by the firing of an explosive charge (excl. sporting, hunting or target-shooting rifles, revolvers and pistols of heading 9302 and military weapons) | 0 | 0 | 0 | 0 | 0 | 0 | 731 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 930629 | Parts of cartridges for smooth-barrelled shotguns; lead shot for air rifles and pistols | 0 | 0 | 0 | 0 | 0 | 0 | 664 | 0 | 0 | 0 |
| 870390 | Motor cars and other vehicles principally designed for the transport of | 0 | 0 | 0 | 0 | 0 | 0 | 610 | 0 | 0 | 0 |
| 870990 | Parts of self-propelled works trucks, not fitted with lifting or handling equipment, of the type used in factories, warehouses, dock areas or airports for short distance transport of goods, incl. tractors for railways station platforms, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 473 | 0 | 0 | 0 |
| 080410 | Fresh or dried dates | 0 | 0 | 0 | 0 | 0 | 75 | 250 | 54 | 56 | 19 |
| 850131 | DC motors of an output > 37,5 W but <= 750 W and DC generators of an output <= 750 W (excl. photovoltaic generators) | 0 | 0 | 0 | 0 | 0 | 0 | 312 | 0 | 0 | 79 |
| 853080 | Electrical signalling, safety or traffic control equipment (excl. that for railways or tramways and mechanical or electromechanical equipment of heading 8608) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 390 |
| 930190 | Military weapons, incl. sub-machine guns (excl. artillery weapons, rocket launchers, flame-throwers, grenade launchers, torpedo tubes and similar projectors, revolvers and pistols of heading 9302 and cutting and thrusting weapons of heading 9307) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 364 |
| 080290 | Nuts, fresh or dried, whether or not shelled or peeled (excluding coconuts, Brazil nuts, cashew nuts, almonds, hazelnuts, filberts, walnuts, chestnuts, pistachios, macadamia nuts, kola nuts and areca nuts) | 0 | 0 | 0 | 0 | 0 | 36 | 90 | 40 | 152 | 0 |
| 860900 | Containers, incl. containers for the transport of fluids, specially designed and equipped for carriage by one or more modes of transport | 0 | 0 | 0 | 0 | 0 | 0 | 315 | 0 | 0 | 0 |
| 300410 | Medicaments containing penicillins or derivatives thereof with a penicillanic acid structure, or streptomycins or derivatives thereof, put up in measured doses "incl. those for transdermal administration" or in forms or packings for retail sale | 0 | 0 | 0 | 0 | 0 | 0 | 238 | 0 | 0 | 0 |
| 071331 | Dried, shelled beans of species "Vigna mungo [L.] Hepper or Vigna radiata [L.] Wilczek", whether or not skinned or split | 0 | 0 | 0 | 0 | 129 | 0 | 0 | 101 | 0 | 0 |
| 870422 | Motor vehicles for the transport of goods, with only compression-ignition internal combustion piston engine "diesel or semi-diesel", of a gross vehicle weight > 5 t but <= 20 t (excl. dumpers for off-highway use of subheading 8704.10 and special purpose motor vehicles of heading 8705) | 0 | 150 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 |
| 780191 | Unwrought lead, containing by weight antimony as the principal other element | 0 | 0 | 181 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 870410 | Dumpers for off-highway use | 0 | 0 | 0 | 0 | 0 | 0 | 165 | 0 | 0 | 0 |

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| 930690 | Bombs, grenades, torpedos, mines, missiles, and other ammunition and projectiles, and parts thereof, n.e.s. (excl. cartridges) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 158 |
| 871640 | Trailers and semi-trailers, not designed for running on rails (excl. trailers and semi-trailers for the transport of goods and those of the caravan type for housing or camping) | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 0 | 0 | 0 |
| 830140 | Locks of base metal (excl. padlocks and locks for motor vehicles or furniture) | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 0 | 0 | 0 |
| 940290 | Operating tables, examination tables, and other medical, dental, surgical or veterinary furniture (excl. dentists' or similar chairs, special tables for X-ray examination, and stretchers and litters, incl. trolley-stretchers) | 0 | 0 | 0 | 0 | 0 | 0 | 147 | 0 | 0 | 0 |
| 830400 | Filing cabinets, card-index cabinets, paper trays, paper rests, pen trays, office-stamp stands and similar office or desk equipment, of base metal (excl. office furniture of heading 9403 and waste paper bins) | 0 | 0 | 0 | 0 | 0 | 0 | 142 | 0 | 0 | 0 |
| 251749 | Granules, chippings and powder, whether or not heat-treated, of travertine, ecaussine, alabaster, basalt, granite, sandstone, porphyry, syenite, lava, gneiss, trachyte and other rocks of heading 2515 and 2516 (excl. marble) | 48 | 64 | 8 | 7 | 2 | 0 | 0 | 0 | 0 | 0 |
| 860400 | Railway or tramway maintenance or service vehicles, whether or not self-propelled, e.g., workshops, cranes, ballast tampers, trackliners, testing coaches and track inspection vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 118 | 0 | 0 | 0 |
| 440349 | Tropical wood in the rough, whether or not stripped of bark or sapwood, or roughly squared (excl. teak, dark red meranti, light red meranti, meranti bakau; rough-cut wood for walking sticks, umbrellas, tool shafts and the like; wood cut into boards or beams, etc.; wood treated with paint, stains, creosote or other preservatives) | 0 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 630900 | Worn clothing and clothing accessories, blankets and travelling rugs, household linen and articles for interior furnishing, of all types of textile materials, incl. all types of footwear and headgear, showing signs of appreciable wear and presented in bulk or in bales, sacks or similar packings (excl. carpets, other floor coverings and tapestries) | 1 | 0 | 0 | 0 | 1 | 91 | 10 | 1 | 0 | 0 |
| 871631 | Tanker trailers and tanker semi-trailers, not designed for running on rails | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 68 |
| 081090 | Fresh tamarinds, cashew apples, jackfruit, lychees, sapodillo plums, passion fruit, carambola, pitahaya and other edible fruit (excl. nuts, bananas, dates, figs, pineapples, avocados, guavas, mangoes, mangosteens, papaws "papayas", citrus fruit, grapes, melons, apples, | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | pears quinces, apricots, cherries, peaches, plums, sloes, strawberries, raspberries, mulberries, blackberries, loganberries, cranberries, fruits f the genus Vaccinium, kiwifruit, durians, persimmons, black-, white- and redcurrants and gooseb | | | | | | | | | | |
| 870324 | Motor cars and other motor vehicles principally designed for the transport of 3.000 cm³ (excl. vehicles for travelling on snow and other specially designed vehicles of subheading 8703.10) | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 0 | 0 | 0 |
| 401290 | Solid or cushion tyres, interchangeable tyre treads and tyre flaps, of rubber | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 0 | 0 |
| 841829 | Household refrigerators, absorption-type | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 0 |
| 410221 | Raw skins of sheep or lambs, without wool on, pickled, whether or not split | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 870421 | Motor vehicles for the transport of goods, with only compression-ignition internal combustion piston engine "diesel or semi-diesel", of a gross vehicle weight <= 5 t (excl. dumpers for off-highway use of subheading 8704.10 and special purpose motor vehicles of heading 8705) | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 39 |
| 010620 | Live reptiles "e.g. snakes, turtles, alligators, caymans, iguanas, gavials and lizards" | 0 | 3 | 5 | 0 | 5 | 38 | 0 | 0 | 8 | 0 |
| 842541 | Built-in jacking systems of a type used in garages | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 0 |
| 846693 | Parts and accessories for machine tools for working material by removing material of headings 8456 to 8461, n.e.s. | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 842790 | Works trucks fitted with lifting or handling equipment, not self-propelled | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 25 |
| 630640 | Pneumatic mattresses of textile materials | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 |
| 850132 | DC motors and DC generators of an output > 750 W but <= 75 kW (excl. photovoltaic generators) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 290943 | Monobutyl ethers of ethylene glycol or of diethylene glycol | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 851762 | Machines for the reception, conversion and transmission or regeneration of voice, images or other data, incl. switching and routing apparatus (excl. telephone sets, telephones for cellular networks or for other wireless networks) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 130120 | Natural gum Arabic | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 5 | 0 | 20 |
| 650610 | Safety headgear, whether or not lined or trimmed | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 |
| 121120 | Ginseng roots, fresh, chilled, frozen or dried, whether or not cut, crushed or powdered | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| 392410 | Tableware and kitchenware, of plastics | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 |
| 843143 | Parts for boring or sinking machinery of subheading 8430.41 or 8430.49, n.e.s. | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 853990 | Parts of electric filament or discharge lamps, sealed beam lamp units, ultraviolet or infra-red lamps, arc lamps and LED light sources, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 |
| 870590 | Special purpose motor vehicles (other than those principally designed for the transport of persons or goods and excl. concrete-mixer lorries, fire fighting vehicles, mobile drilling derricks and crane lorries) | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 |
| 481950 | Packing containers, incl. record sleeves, of paper, paperboard, cellulose wadding or webs of cellulose fibres (excl. cartons, boxes and cases, of corrugated paper or paperboard, folding cartons, boxes and cases, of uncorrugated paper or paperboard, sacks and bags) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 841391 | Parts of pumps for liquids, n.e.s. | 0 | 0 | 0 | 2 | 20 | 0 | 0 | 0 | 0 | 0 |
| 120230 | Groundnut seed, for sowing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 8 | 0 |
| 151550 | Sesame oil and its fractions, whether or not refined, but not chemically modified | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| 080299 | Nuts, fresh or dried, whether or not shelled or peeled (excl. coconuts, Brazil nuts, cashew nuts, almonds, hazelnuts, filberts, walnuts, chestnuts, pistachios, macadamia nuts, kola nuts, areca nuts and pine nuts) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 853890 | Parts suitable for use solely or principally with the apparatus of heading 8535, 8536 or 8537, n.e.s. (excl. boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus) | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 844833 | Spindles, spindle flyers, spinning rings and ring travellers, for machines of heading 8445 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| 120710 | Palm nuts and kernels | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 |
| 261790 | Ores and concentrates (excl. iron, manganese, copper, nickel, cobalt, aluminium, lead, zinc, tin, chromium, tungsten, uranium, thorium, molybdenum, titanium, niobium, tantalum, vanadium, zirconium, precious-metal or antimony ores and concentrates) | 0 | 0 | 1 | 3 | 3 | 3 | 1 | 1 | 0 | 0 |
| 902290 | X-ray generators other than X-ray tubes, high tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like, and general parts and accessories for apparatus of heading 9022, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 |
| 610990 | T-shirts, singlets and other vests of textile materials, knitted or crocheted (excl. cotton) | 0 | 0 | 0 | 0 | 0 | 9 | 3 | 0 | 0 | 0 |

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| 852352 | Cards incorporating one or more electronic integrated circuits "smart cards" | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| 640590 | Footwear with outer soles of rubber or plastics, with uppers other than rubber, plastics, leather or textile materials; footwear with outer soles of leather or composition leather, with uppers other than leather or textile materials; footwear with outer soles of wood, cork, paperboard, furskin, felt, straw, loofah, etc., with uppers other than leather, composition leather or textile materials, n.e.s. | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| 903289 | Regulating or controlling instruments and apparatus (excl. hydraulic or pneumatic, manostats, thermostats, and taps, cocks and valves of heading 8481) | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 848340 | Gears and gearing for machinery (excl. toothed wheels, chain sprockets and other transmission elements presented separately); ball or roller screws; gear boxes and other speed changers, incl. torque converters | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 621050 | Women's or girls' garments of textile fabrics, rubberised or impregnated, coated, covered or laminated with plastics or other substances (excl. of the type described in heading 6202, and babies' garments and clothing accessories) | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 0 |
| 410390 | Raw hides and skins, fresh, or salted, dried, limed, pickled or otherwise preserved, whether or not dehaired, incl. birdskins without feathers or down (excl. tanned, parchment-dressed or further prepared, hides and skins of bovine "incl. buffalo" animals, equine animals, sheep, lambs, reptiles and swine) | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 847170 | Storage units for automatic data-processing machines | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 870850 | Drive-axles with differential, whether or not provided with other transmission components, and non-driving axles, and parts thereof, for tractors, motor vehicles for the transport of ten or more persons, motor cars and other motor vehicles principally designed for the transport of persons, motor vehicles for the transport of goods and special purpose motor vehicles, n.e.s. | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 140490 | Vegetable products n.e.s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 010619 | Live mammals (excl. primates, whales, dolphins and porpoises, manatees and dugongs, seals, sea lions and walruses, camels and other camelids, rabbits and hares, horses, asses, mules, hinnies, bovines, pigs, sheep and goats) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| 392610 | Office or school supplies, of plastics, n.e.s. | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |

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| 852910 | Aerials and aerial reflectors of all kinds; parts suitable for use therewith, n.e.s. | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 851660 | Electric ovens, cookers, cooking plates and boiling rings, electric grillers and roasters, for domestic use (excl. space-heating stoves and microwave ovens) | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 090962 | Juniper berries and seeds of anise, badian, caraway or fennel, crushed or ground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 340211 | Anionic organic surface-active agents, whether or not put up for retail sale (excluding soap) | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 731822 | Washers of iron or steel (excl. spring washers and other lock washers) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 842490 | Parts of fire extinguishers, spray guns and similar appliances, steam or sand blasting machines and similar jet projecting machines and machinery and apparatus for projecting, dispersing or spraying liquids or powders, n.e.s. | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 880330 | Parts of aeroplanes or helicopters, n.e.s. (excluding those for gliders) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 130190 | Lac; natural gums, resins, gum-resins, balsams and other natural oleoresins (excl. gum Arabic) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 382000 | Anti-freezing preparations and prepared de-icing fluids (excl. prepared additives for mineral oils or other liquids used for the same purposes as mineral oils) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 844399 | Parts and accessories of printers, copying machines and facsimile machines, n.e.s. (excl. of printing machinery used for printing by means of plates, cylinders and other printing components of heading 8442) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 392690 | Articles of plastics and articles of other materials of heading 3901 to 3914, n.e.s (excl. goods of 9619) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 610719 | Men's or boys' underpants and briefs of other textile materials, knitted or crocheted (excl. of cotton or man-made fibres) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 330741 | "Agarbatti" and other odoriferous preparations which operate by burning | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 901780 | Instruments for measuring length, for use in the hand, n.e.s. | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 790700 | Articles of zinc, n.e.s. | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 481940 | Sacks and bags, incl. cones, of paper, paperboard, cellulose wadding or webs of cellulose fibres (excl. those having a base of a width of >= 40 cm, and record sleeves) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 901590 | Parts and accessories for instruments and appliances used in geodesy, topography, photogrammetrical surveying, hydrography, | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| | oceanography, hydrology, meteorology or geophysics, and for rangefinders, n.e.s. | | | | | | | | | | |
| 853224 | Fixed electrical capacitors, ceramic dielectric, multilayer (excl. power capacitors) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 848410 | Gaskets and similar joints of metal sheeting combined with other material or of two or more layers of metal | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 320416 | Synthetic organic reactive dyes; preparations based on synthetic organic reactive dyes of a kind used to dye fabrics or produce colorant preparations (excl. preparations of heading 3207, 3208, 3209, 3210, 3213 and 3215) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 854110 | Diodes (excl. photosensitive or light emitting diodes "LED") | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 848390 | Toothed wheels, chain sprockets and other transmission elements presented separately; parts of transmission shafts, ball screws, couplings and other articles of heading 8483, n.e.s. | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 843149 | Parts of machinery of heading 8426, 8429 and 8430, n.e.s. | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |