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Colonization and beyond: Analyzing agri-food exports of Bay of Bengal countries by the level of processing

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ABSTRACT

This work assesses the participation of BIMSTEC member countries in coffee, maize, and edible oils value chains and considers whether BIMSTEC countries are trading above or below their potential at various stages of processing level. We use the Poisson Pseudo-Maximum Likelihood Model (PPML) estimation technique, which not only provides consistent estimates in the presence of heteroscedasticity but also provides a natural way to deal with zero trade values, and multilateral resistance problem. Our findings show that BIMSTEC's exports are concentrated in unprocessed maize, coffee, and processed edible oils. In addition, under-trading is most common with higher levels of processing in all the BIMSTEC countries and thus has a substantial potential to trade Poisson Pseudo-Maximum Likelihood Model (PPML)more both in volume and in terms of product variety. Our findings also highlight the importance of expanding intra-BIMSTEC trade as a first step toward international competitiveness.

Keywords: Poisson Pseudo-Maximum Likelihood Model (PPML), multilateral resistance, under-trading, trade potential, processing levels.

JEL Classification: F1, F14, F19,

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ACRONYMS

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
BBIN	Bangladesh, Bhutan, India, and Nepal
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BRICS	Brazil, Russia, India, China, and South Africa
CIS	Commonwealth of Independent States
EU	European Union
HS	Harmonized Systems
ITC	International Trade Centre
OECD	Organisation for Economic Co-operation and Development
RCA	Revealed Comparative Advantage
SAFTA	South Asian Free Trade Area
TAO	Tarif Analysis Online
TFA	Trade Facilitation Agreement
UAE	United Arab Emirates
USA	United States of America
UK	United Kingdom
WTO	World Trade Organization

1. Introduction

Economic integration, technological advancements, and evolving consumer preferences have reshaped the trading systems worldwide including agri-food trade (UN's WESP, 2021). The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) has emerged as a regional alliance of strategic importance. Comprising seven diverse nations in South and Southeast Asia—India, Bangladesh, Sri Lanka, Myanmar, Thailand, Nepal, and Bhutan. BIMSTEC represents a significant bloc with growing economic potential and a strategic geographical location that bridges South and Southeast Asia and provides a viable alternative to South Asian Association for Regional Cooperation (SAARC). Though BIMSTEC aims to increase trade including agri-food products to much higher levels than its historical low values lying much below potential. In 2020, intra-BIMSTEC trade accounted for a mere 6.15% of the total trade among its member countries. In contrast, intra-ASEAN trade made up around 23% of the total trade within the Association of Southeast Asian Nations (ASEAN). These figures highlight the significant room for growth in intra-regional trade among BIMSTEC member countries. Importantly the low share of intra BIMSTEC trade is not due to greater integration with supra-BIMSTEC partners (Kamar and Roy, 2023).

Traditionally, in economic analysis, agriculture was treated as a sector producing homogeneous commodities with little value addition and even lower value escalation. When we try to understand and look at the global value chains empirically, in that case, trade has expanded more than theory can predict, even after accounting for zero trade, the border premium puzzle, and other paradoxes. In international trade with "homogeneous" agricultural products, the comparative advantage was defined at the aggregate product level and not at the level of segments of the value chain. With technological improvements, institutional changes, and countries' trading credentials, agri-food trade has fundamentally changed with a strong element of product differentiation. Therefore, to assess the agricultural trade and explore policy options, we must look at the granularity and the different processing levels to understand how the transformation of the food system in agriculture and agri-food trade is evolving.

This paper explores the trade performance of BIMSTEC countries for three key commodities: coffee, maize, and edible oil. The commodities make it possible to assess trade performance by levels of processing, which is important for the margins over which trade expansion occurs as well as value shares of the countries in these products. These commodities also hold distinct economic significance, not only for their contribution to agricultural output but also for their impact on food security, economic development, and livelihoods within the BIMSTEC region. The global significance of these commodities cannot be overstated. Coffee is not merely a popular beverage; it constitutes a crucial cash crop for BIMSTEC members particularly for India and Sri Lanka. Similarly, maize plays a pivotal role in both food security and animal feed industries, while edible oil products are essential components of diets and industrial processes. Understanding the trade dynamics of these commodities within the BIMSTEC context is essential for shaping effective trade policies, enhancing food security, and promoting economic development in the region.

Our study studies the evolution of BIMSTEC's total exports of coffee, maize, and edible oil from 2002 to 2021. This analysis provides the trajectories of these exports and provides insights into how the BIMSTEC region has engaged within the region as well as with global markets in these commodities. We delve deeper to analyze trade within each commodity at the level of processing (categorized into three types i.e., unprocessed, semi-processed, and processed). This granular approach sheds light on the value chains underpinning these commodities, revealing where value addition occurs within the BIMSTEC region. This, in turn, enables us to assess the potential for further integration into global value chains and positioning in them thereby preluding their potential for further development in these commodities. We bracket the

position of BIMSTEC countries with world's leading exporters of coffee, maize, and edible oil products. This perspective offers insights into the competitiveness of these nations.

Further, to understand competitiveness, we also use a key metric in our analysis viz. BIMSTEC's revealed comparative advantage for each commodity by processing level. This metric serves as a measure where the products have lower opportunity costs and specializing in them can be welfare improving.. We also examine the evolution of BIMSTEC's major export destinations. Understanding the geographic distribution of BIMSTEC exports enables us to identify potential growth markets and diversify trade relationships, underpinning the region's efforts to expand its global footprint. Through these analyses we explore the products and partner margins for trade expansion or contraction. Finally using theoretically robust gravity model estimation we evaluate the trade performance. By assessing the wedge between actual and predicted trade in different relationships based on fundamentals we are able to profile cases of under-trading if any. Our inquiry extends to unlocking the trade potential of BIMSTEC countries within the coffee, maize, and edible oil products by processing level. We discuss the determinants of under-trading, identifying barriers and constraints that impede the realization of the region's full trade potential in these commodities.

2. Data

We perform the analysis using export, import, and tariff data as per the Harmonized System at a six-digit classification level. The export and import data sourced from the International Trade Centre (ITC), while tariff data is from the Tariff Analysis Online (TAO) of the World Trade Centre (WTO). We also use trade cost and logistics performance data from the World Bank and implementation of trade facilitation measures data from the WTO. This data covers the 20 years period from 2002 to 2021 except for logistics performance and trade facilitation, which is available for few time periods. For this study, we looked at coffee, maize, and edible oils covering 65 products at the six-digit level and grouped them into three processing stages. These stages of processing are:

- Unprocessed
- Semi-processed
- Processed

These stages of processing are based on the World Bank's World Integrated Trade Solutions (WITS) classification, which are classified as raw materials (unprocessed), semi-manufactures (semi-processed), and finished products (processed).[1] For the trade performance and competitiveness of coffee, maize, and vegetable oils at the processing level, we adopted two periods, i.e., the First Period (2007-2011) and the Second Period (2017-2021), which include the most recent years and compare the trade performance and competitiveness over an entire decade. Further, there is a limitation with the maize trade data at a six-digit level as it is not classified whether it is being traded for feed or food purposes.

[1] https://wits.worldbank.org/referencedata.html

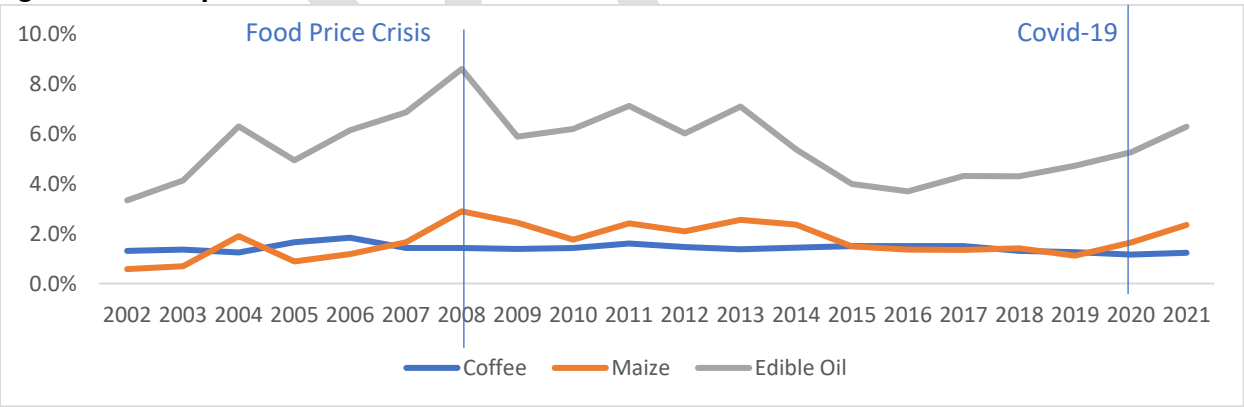
2.1. Overview of trade in Coffee, Maize, and Edible Oil

2.1.1. Trade flows

The study aims to analyze the trade performance of BIMSTEC countries in the coffee, maize, and edible oil. The research examines the evolution of BIMSTEC's total exports of these three commodities, as well as trade in each commodity at the level of processing. The study also evaluates the position of BIMSTEC countries among the world's leading exporters of these commodities and calculates BIMSTEC's revealed comparative advantage for each commodity by processing level. Additionally, the study also looks at the evolution of BIMSTEC's major export destinations. Finally, the study assesses the trade potential and discusses the determinants of under trading for each commodity at the processing level. Throughout this study, the average trade performance for 2007–2011 and 2017–2021 are considered, [2].

Figure 1.1 shows the share of coffee, maize, and edible oil exports in BIMSTEC's total agricultural exports by value between 2002 to 2021. Currently, these three commodities constitute around 10 percent of the total agricultural exports by BIMSTEC member countries. The share of maize in the BIMSTEC's total agricultural exports increased significantly from 0.6 percent in 2002 to 2.3 percent in 2021, thereby registering a growth of around 283 percent, while the share of global maize exports in total global agricultural exports grew by only 24.1 percent in the corresponding year. The share of edible oil has also increased significantly from 3.3 percent in 2002 to 6.3 percent in 2021, thereby registered a growth of around 91 percent. While the share was relatively stable over time for coffee, at around 1.2 percent during the same period.

Figure 1: Share of BIMSTEC members' exports of coffee, maize, and edible oil in total agricultural exports



Source: ITC Trade Map

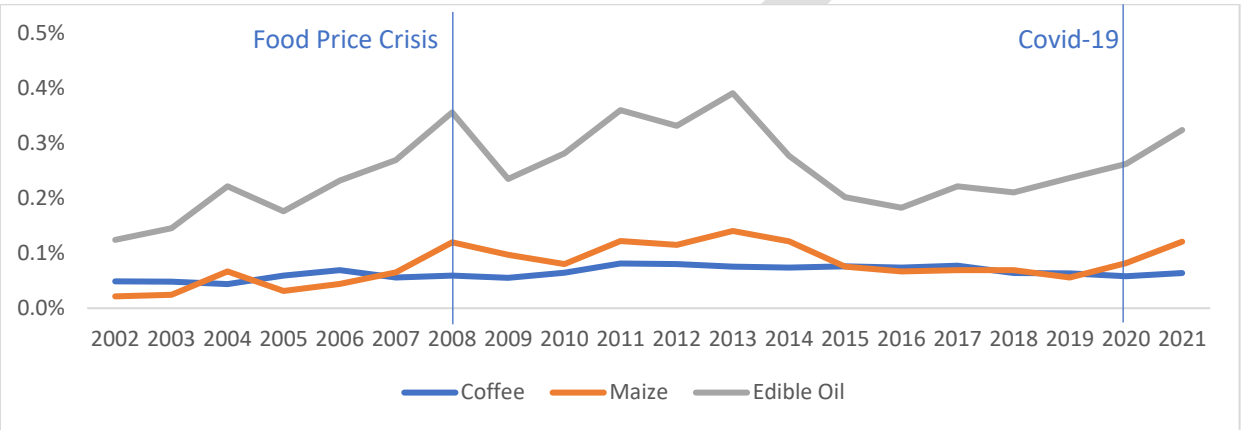
Figure 1.2 illustrates the share of BIMSTEC in the world's total exports of coffee, maize, and edible oil. It is evident that BIMSTEC members have not emerged as major exporters of these commodities and account for less than 1.0 percent of the world's exports. The share of BIMSTEC's global edible oil exports increased throughout the food price crisis, reaching an all-time high of 0.4 percent in 2008. However, in 2009, BIMSTEC's edible oil exports dropped to 0.2 percent but recovered again to 0.4 percent in 2013. The share of global exports accounted for by BIMSTEC's exports of coffee remained consistent throughout the study

[2] We adopt these two periods to include the most recent years and compare BIMSTEC's performance over an entire decade.

period. While the share of maize in global exports has also shown modest increase from 0.02 percent in 2002 to 0.1 percent in 2021.

In 2008, i.e., during the food price crisis, the global maize exports of Bangladesh, India, and Thailand increased sharply from 2007 by more than 582 per cent, 185 percent, and 51 percent, respectively. However, in 2009, i.e., after the food price crises, it fell substantially for India and Bangladesh by approximately 42 per cent and 37 percent, respectively. However, it remained intact for Thailand, which even increased marginally by almost 6 percent.

Figure 2: Share of BIMSTEC members' exports in world exports of coffee, maize, and edible oil



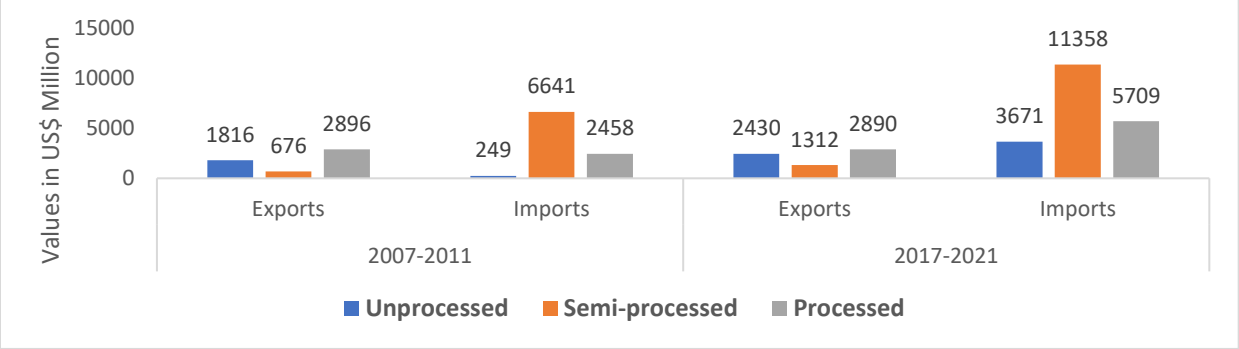
Source: ITC Trade Map

2.1.2. Trade by level of processing[3]

Figure 1.3 illustrates the average value of exports and imports of coffee, maize, and edible oil by level of processing for the 2007–2011 and 2017–2021 time periods. In the first and second period, processed commodities dominated BIMSTEC's exports of the three commodities. During the first period, the average value of processed exports of coffee, maize, and edible oil exceeded 53.7 percent of BIMSTEC's total exports of the three commodities which equates to around $5.4 billion. While, during the second period, the average value of processed exports was $6.6 billion, representing about 43.5 percent of the total value of exports, a 23 percent increase in terms of value from the first period. Between the two periods, the value of semi-processed commodities increased from $0.7 billion to $1.3 billion, with a proportional increase from 12.6 to 19.8 percent. The share of processed items decreased from 53.7 to 43.5 percent over the two time periods.

[3] For an explanation of the levels of processing of coffee, maize, edible oil and marine products, see Table 8.

Figure 3: BIMSTEC's exports and imports of coffee, maize, and edible oil, by level of processing



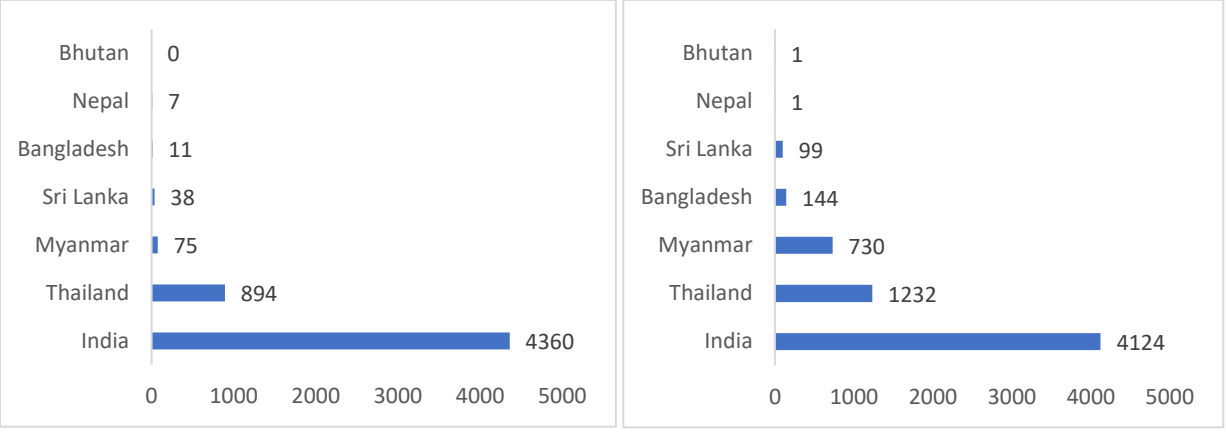
Source: ITC Trade Map

ITC Trade Map data shows that between 2002 and 2021, intra-BIMSTEC exports increased by an average of 23.38 percent for coffee, 23.18 percent for maize, and 6.83 percent for edible oil. However, disparities in trade policy among the regional economic communities of BIMSTEC, particularly in tariffs and non-tariff measures, impede the development of value chains within BIMSTEC and reduce the potential for further growth.

Figure 1.4 shows the BIMSTEC exporters of coffee, maize, and edible oil for both the 2007-2011 and 2017-2021 periods. BIMSTEC exports of these products increased by nearly 18 percent from $5.4 billion in 2007-2011 to US$ 6.3 billion in 2017-2021. India was the leading exporter during the first period, however, its export of these commodities declined marginally by 5 percent. Thailand and Myanmar's export increased by 38 percent and 869 percent respectively during the same period. The whopping growth of Myanmar's exports was due to edible oil (particularly sesamum and ground nut seed) and eased of economic sanction by United States of America and EU during 2010 and 2011. Also. India was the leading exporter during the second period, followed by Thailand, Myanmar, and Bangladesh. India's share of BIMSTEC exports decreased from 81 percent on average to 65 percent during the two periods, while Thailand's share of BIMSTEC's total exports increased from 17 percent to 19 percent during the same period. Currently, India, Thailand, and Myanmar together account for over 96 percent of the total BIMSTEC members' exports of coffee, maize, and edible oil.

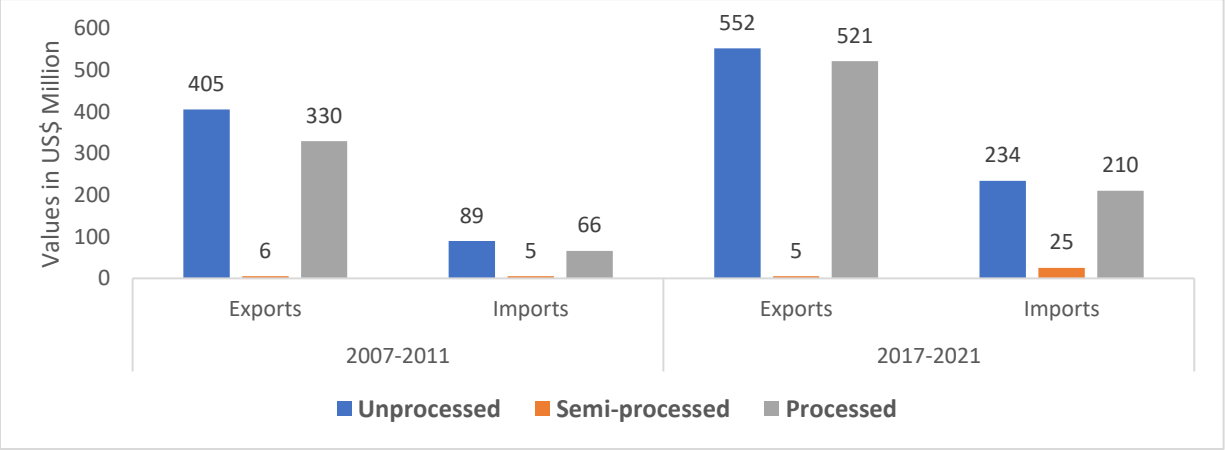
Figure 4: BIMSTEC exports of Coffee, maize, and edible oil (US$ millions)

2007-2011 **2017–2021**



Source: ITC Trade Map

Figure 5: BIMSTEC Coffee exports and imports, by level of processing



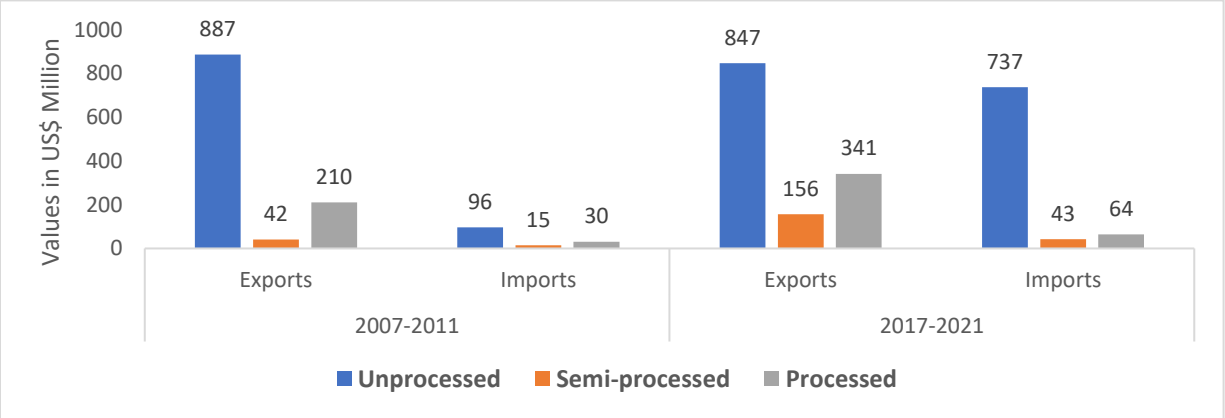
Source: ITC Trade Map

Among the BIMSTEC members India holds a dominant position in coffee production and exports followed by Thailand and Sri Lanka. Coffee holds a prominent position among the plantation crops cultivated in India, serving as the primary cash crop within the tropical region. India is ranked as the seventh largest coffee producer globally following Brazil, Vietnam, Colombia, Indonesia, Ethiopia, and Uganda. Coffee is most widely traded tropical agricultural commodity across the globe. Coffee production (over 90%) takes place in the developing countries while more than 75 per cent of it is consumed in developed countries (Pradeepa et al, 2019).

Vietnam has become the world's second-largest coffee exporter, witnessing substantial growth from 92 thousand tonnes in 1990 to 1.7 million tonnes in 2019. This impressive rise is attributed to proactive government policies, strategic investments, and comprehensive actions throughout the coffee value chain (Kamwilu E. et al, 2022). Meanwhile, Nepal faces challenges in realizing its potential as a regional powerhouse for organic specialty coffee. Hindrances include one harvest per year, primitive farming techniques, and insufficient government support. In contrast to Vietnam and Brazil, Nepal's coffee farming lacks mechanization, resulting in lower yields. The absence of grading at the farm level further impacts the quality of the final coffee product. Although Nepal has shown growth, with coffee exports increasing from 3.6 tonnes in 2000 to 82.68 tonnes in 2019, the country has yet to fully leverage its potential in the organic specialty coffee market (Kumar H.M, 2019).

Figure 1.5 illustrates coffee exports and imports by processing level. The majority of BIMSTEC's coffee exports consist of unprocessed coffee. Between the two time periods (2007-2011 and 2017-2021), exports of unprocessed coffee increased by 28.8 percent, from $ 405 million to $ 552 million. During the same period, exports of semi-processed coffee decreased from US$ 6 million to US$ 5 million mainly due to the Thailand and Nepal’s decline in exports by 55 percent and 84 percent respectively. However,exports of processed coffee increased from $ 330 million to US$ 521 million, a 57.9 percent increase. Processing coffee into finished goods, such as coffee concentrates, requires a degree of technical complexity that many BIMSTEC member states are unable to offer competitively. However, BIMSTEC's import of unprocessed coffee climbed from US$ 89 million to US$ 234 million, possibly because of increased intra-BIMSTEC trade, although imports of semi-processed and processed coffee more than tripled.

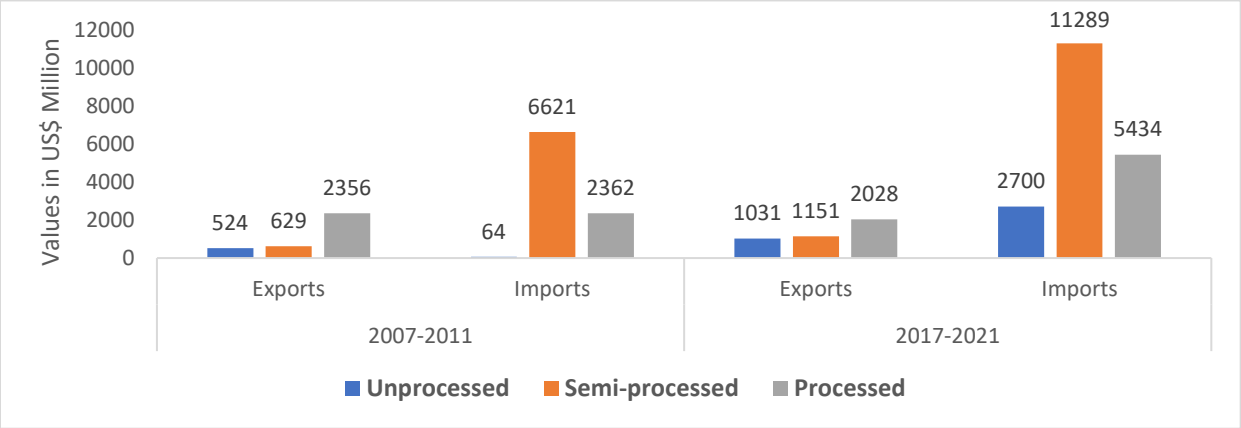
Figure 6: BIMSTEC Maize exports and imports, by level of processing



Source: ITC Trade Map

Maize exports and imports by processing level are shown in Figure 1.6. The majority of BIMSTEC's maize exports consist of unprocessed maize. Between the two time periods (2007-2011 and 2017-2021), exports of unprocessed maize decreased by 4.5 percent, from US$ 887 million to US$ 847 million. Simultaneously, exports of semi-processed maize increased from US$ 42 million to US$ 156 million, a growth of more than 271 percent. Exports of processed maize increased from US$ 210 million to US$ 341 million, a gain of 62.4 percent. Imports of unprocessed maize increased by more than 667 percent during the two time periods, from US$ 96 million to US$ 737 million.

Figure 7: BIMSTEC Edible Oil exports and imports, by level of processing



Source: ITC Trade Map

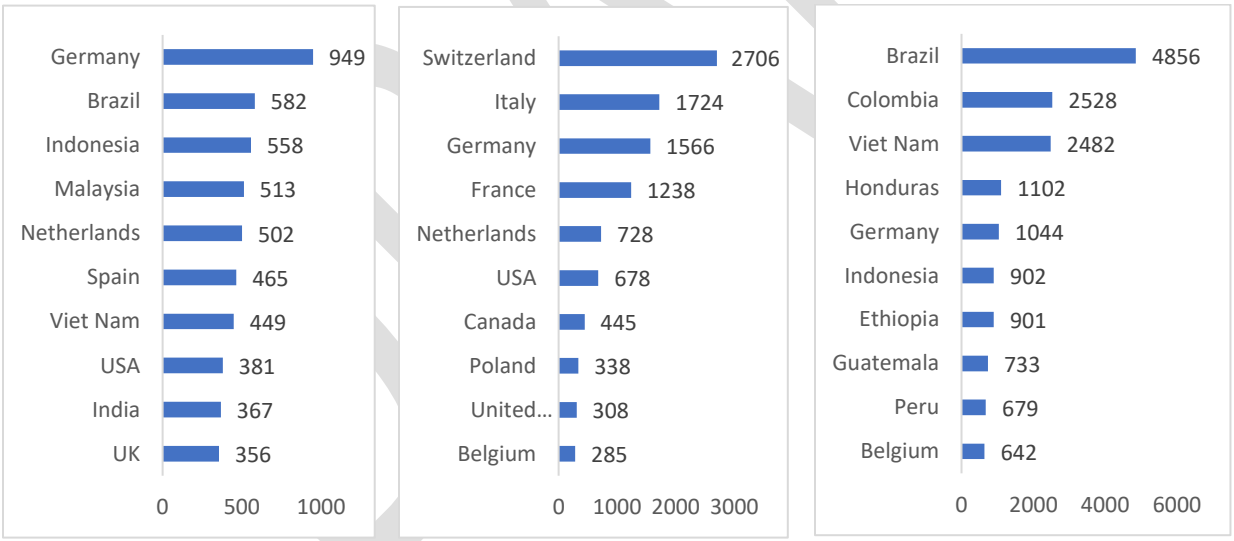
Figure 1.7 depicts edible oil exports and imports by level of processing. The majority of BIMSTEC exports consist of processed edible oils. However, exports of processed edible oil declined by 14 percent over the two time periods, from $2400 million to US$ 2000 million. Simultaneously, exports of semi-processed edible oil increased from $629 million to $1151 million, thereby registering a growth of more than 83 percent, and exports of unprocessed edible oil increased from $524 million to $1031 million, an increase of approximately 97 percent. Between the two time periods, imports of unprocessed edible oil increased significantly from US$ 64 million to US$ 2,700 million, an increase of more than 4118 percent, with India accounting for the largest share.

2.1.3. Leading exporters of Coffee, Maize, and Edible Oil

The top 10 exporting countries of semi-processed coffee are considerably different from those of unprocessed coffee (Figure 1.9). Notably, no BIMSTEC member states are among the top 10 exporters of either semi-processed or unprocessed coffee. Switzerland is the top exporter of semi-processed coffee, while Brazil is the leading exporter of unprocessed coffee, with several other European countries also ranking among the top 10. The presence of two Southeast Asian countries on this list as large exporters likely reflects the growing coffee industry in the ASEAN region, as well as the processing of coffee for re-export and domestic production. Exports of processed coffee are dominated by European countries, Southeast Asian countries, Brazil, the United States, and India.

Coffee processing and consumption is primarily concentrated in Europe, Canada, and the United States. These countries also dominate the roasting, branding, and marketing of coffee, capturing most of the value (Aboushady et al. 2022). BIMSTEC countries are not among the top 10 exporters of either semi-processed of unprocessed coffee. India is the only BIMSTEC country that appears on the list of top exporters of processed coffee, while Indonesia, Malaysia, and Vietnam are also other Asian nations that export processed coffee.

Figure 8: Top 10 exporters of coffee (US$ millions), 2017–2021

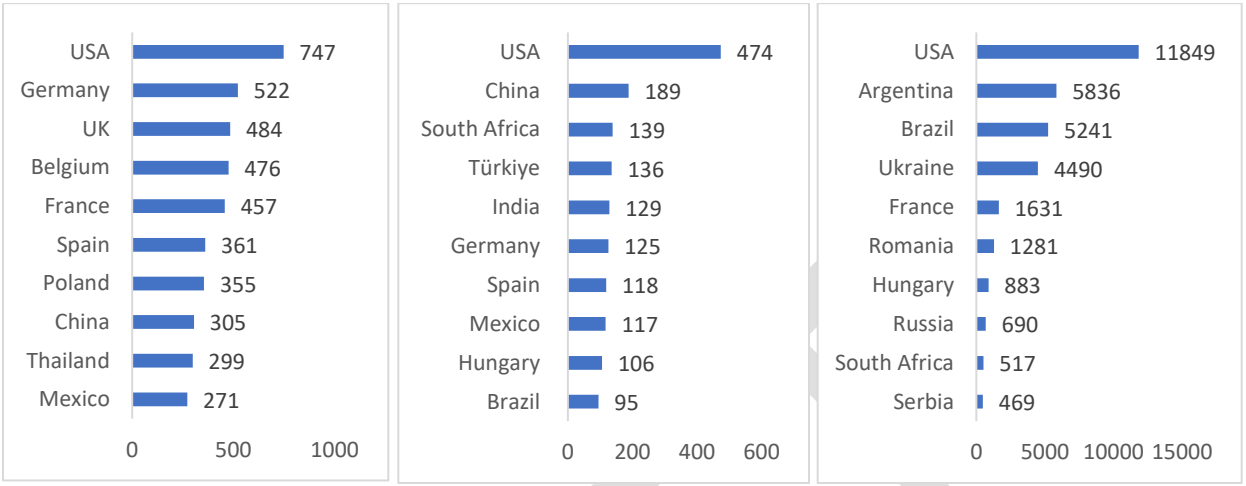


Source: ITC Trade Map

The top 10 exporters of maize are dominated by the United States across all the three processing levels (Figure 1.10). However, no BIMSTEC member country is among the top 10 exporters of unprocessed maize. India is the only BIMSTEC member country that is among the top 10 exporters of semi-processed maize, while Thailand is among the top 10 exporters of processed maize along with several European countries.

Figure 9: Top 10 exporters of maize (US$ millions), 2017–2021

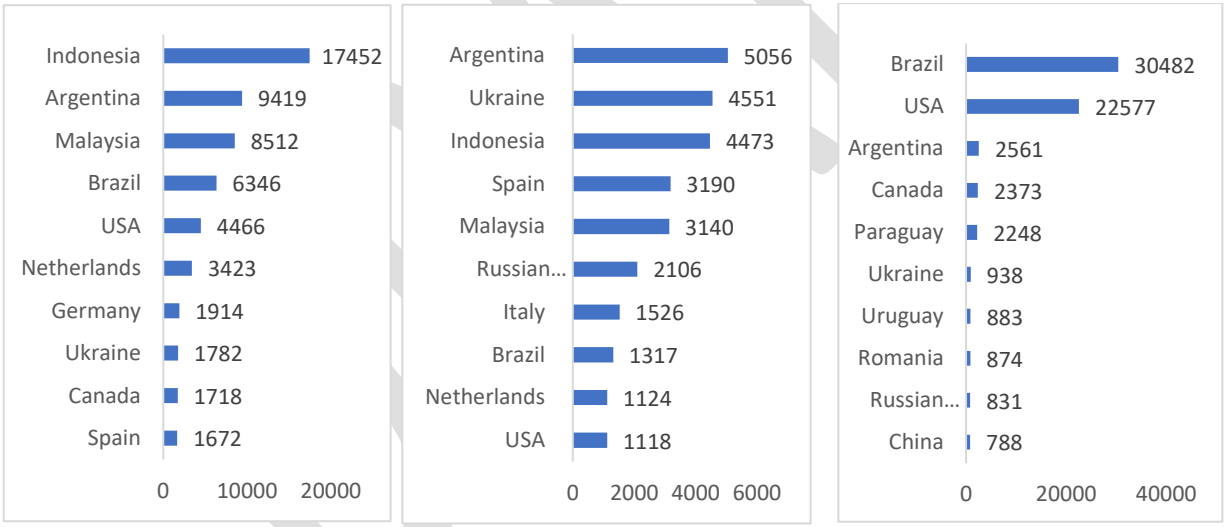
Processed **Semi-processed** **Unprocessed**



Source: ITC Trade Map

Figure 10: Top 10 exporters of edible oil (US$ millions), 2017–2021

Processed **Semi-processed** **Unprocessed**



Source: ITC Trade Map

The top 10 countries that export edible oil at the processing level are shown in Figure 1.11. Notably, no member states of BIMSTEC are among the top 10 exporters at any stage of processing. Brazil and the United States are the leading exporters of unprocessed edible oil, while Argentina and Ukraine dominate in the semi-processed category. Indonesia and Malaysia are the top exporters of processed edible oils, primarily due to their palm oil exports. Argentina holds a second position in the processed edible exports, primarily due to its soybean oil exports.

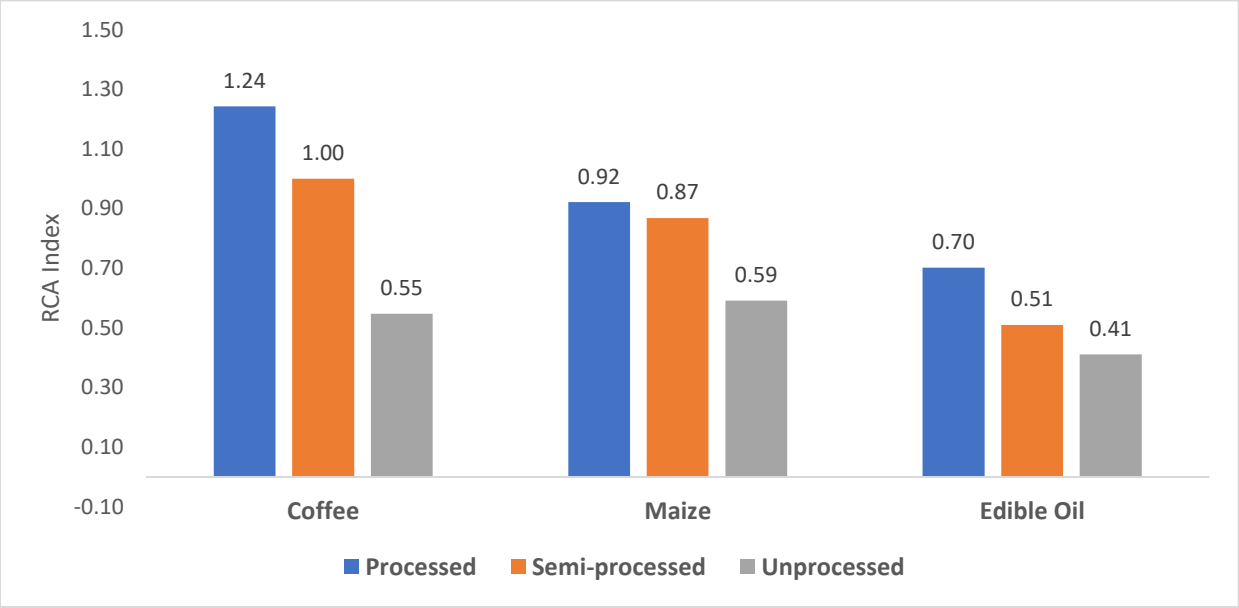
2.2. Revealed Comparative Advantage

The Revealed Comparative Advantage (RCA) is a measure of the country's relative ability to produce a specific good compared to its trading partners. According to Ricardian trade theory, differences in relative productivity determine the pattern of trade, then the (observable) pattern of trade can be used to infer (unobservable) differences in relative productivity. However, in practice, developing the appropriate way to measure RCA has been difficult. Scott French (2017) identifies two crucial features that are theoretically correct. First, RCA measures based on bilateral trade flows are generally preferable to the most widely used indexes, which are based on trade flows that are aggregated across importers. This is because, in the presence of trade barriers, market conditions – such as the prices offered by competing producers – vary by destination. The former measures can separate bilateral and market-specific effects of trade distortions from those of comparative advantage, whereas the latter conflate these effects. Second, because comparative advantage is fundamentally a relative measure, an appropriate RCA measure must be a function of trade flows relative to an appropriate point of reference. In terms of Global Value Chains (GVCs) which is dynamic in nature, and where countries quickly gain or lose comparative advantage in specific stages of production. Therefore, RCA being a static measure, might not adapt well to these rapid changes, providing a less accurate reflection of a country's current position in GVCs.

Figure 1.13 shows the average revealed comparative advantage (RCA) index[4] for BIMSTEC exports of the three commodities by level of processing (an index greater than 1 indicates a comparative advantage). Processed and semi-processed coffee has the highest RCA index. This is not surprising, given the dominant role of India in the trade of processed coffee from the region. The RCA index for the maize and edible oil shows that BIMSTEC does not have comparative advantage at any processing level.

[4] The revealed comparative advantage (RCA) index compares the share of one product in a country's total agricultural exports to the share of the same product in world exports. We use the RCA index defined by Balassa (1965), in which the RCA of country "r" for product "k" is measured by the product's share in the country's exports in relation to its share in world trade. Let be the trade flow of product "k" from country "r" to country "s". With a dot meaning a summation, is total exports of country r and total world exports. Thus, the RCA of country "r" for product "k", is measured by the share of the product in the country's exports compared to its share in world trade as: with and as the values of country r's exports of product k and world exports of product k.

Figure 11: Revealed Comparative Advantage, by level of processing

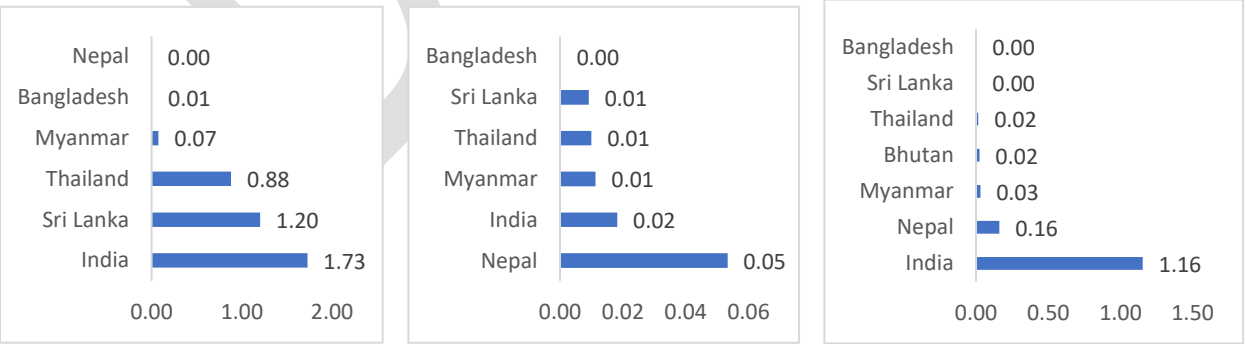


Source: Author's own calculation based on ITC Trade Map database
Note: Figures are the average over 2002–2021. An RCA greater than 1 indicates a revealed comparative advantage (RCA).

At the country level, countries with the RCA scores greater than 1, for exports of processed coffee are primarily South Asian countries, with India ranked first, followed by Sri Lanka (Figure 1.13.1), reflecting its leading role in the production, consumption, and export of coffee. While, in semi-processed coffee, no BIMSTEC members have RCA scores greater than 1. Finally, in unprocessed coffee, India tops the rank and is the only among the BIMSTEC members.

Figure 12: Revealed Comparative Advantage of BIMSTEC countries for coffee, by level of processing

(a) Processed **(b) Semi-processed** **(c) Unprocessed**

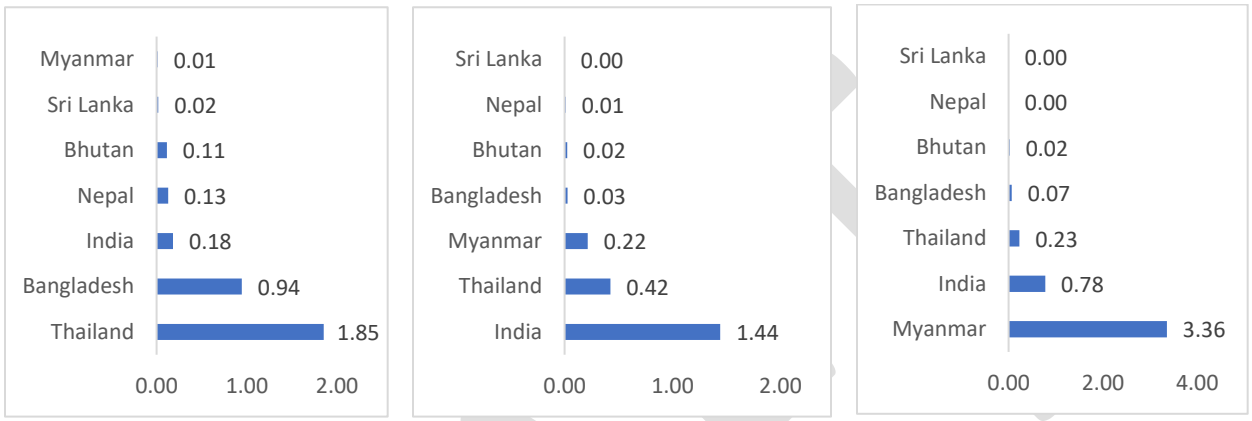


Source: Author's own calculation based on ITC Trade Map database
Note: Figures are the average over 2002–2021. An RCA greater than 1 indicates a revealed comparative advantage.

In the case of maize (Figure 1.13.2), Thailand has the highest RCA index in processed products while in semi-processed products India has the highest RCA. Myanmar tops the rank among the BIMSTEC members in unprocessed maize. In case of semi processed maize India has the highest RCA scores while in unprocessed products Myanmar tops the rank among the BIMSTEC members.

Figure 13: Revealed Comparative Advantage of BIMSTEC countries for maize, by level of processing

(a) Processed **(b) Semi-processed** **(c) Unprocessed**



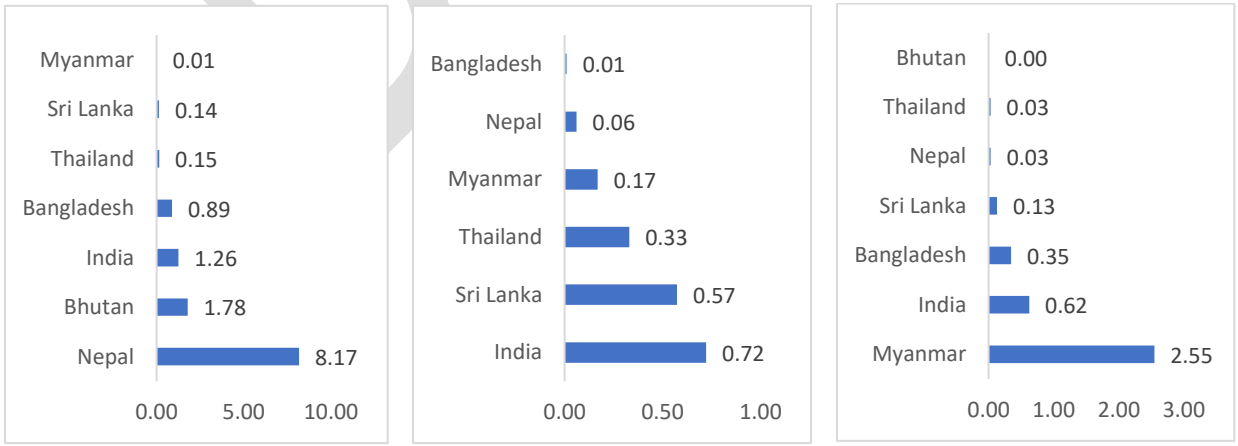
Source: Author's own calculation based on ITC Trade Map database

Note: Figures are the average over 2002–2021. An RCA greater than 1 indicates a revealed comparative advantage (RCA).

The RCA index for edible oil exports, depicted in Figure 1.13.3, shows that Nepal has the greatest RCA for processed vegetable oils followed by Bhutan and India. Note that except India Nepal and Bhutan are not the producer of these oils. Due, to the SAFTA agreement and India's high import tariff, they were able to export large quantity to India. The RCA scores of all the BIMSTEC members are lower than 1 in semi-processed vegetable oil. While in case of unprocessed vegetable oil, Myanmar tops the rank among the BIMSTEC members.

Figure 14: Revealed Comparative Advantage of BIMSTEC countries for edible oil, by level of processing

(a) Processed **(b) Semi-processed** **(c) Unprocessed**



Source: Author's own calculation based on ITC Trade Map database

Note: Figures are the average over 2002–2021. An RCA greater than 1 indicates a revealed comparative advantage.

2.3. Major Trade Partners

2.3.1. Trade by destination and level of processing

Figure 1.15 illustrates the distribution of the top 10 export destinations for unprocessed, semi-processed, and processed coffee of BIMSTEC member states. These markets collectively comprise over 71 percent of unprocessed coffee exports, 72 percent of semi-processed coffee exports, and 60 percent of processed coffee exports during the second period. Italy is the primary export destination for unprocessed coffee, accounting for an average of 31.2 percent during the first period and 25.7 percent during the second period. Other significant European importers include Germany, Belgium, Spain, and Greece which make up around 30.0 percent of unprocessed coffee exports during the second period and 28.0 percent during the first period. Jordan is also among the top importers of unprocessed coffee of BIMSTEC, with a share of 3.5 percent during the first period and 5.2 percent in the second period. Kuwait is an emerging export destination among Western Asian markets, with its share in unprocessed coffee imports increased from 2.6 to 5.2 percent between the two periods.

The USA is the leading destination for BIMSTEC's semi-processed coffee exports, accounting for an average of 17 percent during both periods. The UAE follows closely behind with a 12 percent share. During the first period, Myanmar was the top importer of BIMSTEC's semi-processed coffee, holding a share of over 20 percent. However, it is worth noting that in the second period, Myanmar did not appear in the top 10 export destinations for BIMSTEC's semi-processed coffee, indicating a decline in intra-regional trade between the two time periods. Sri Lanka was the only BIMSTEC member state to appear in the top 10 destinations for semi-processed coffee exports, with a 3.9 percent share.

The market for BIMSTEC's processed coffee has a different and more diversified structure that includes Southeast Asian countries, European Union, Russia, and the United States. During the second period, the largest importer was the United States, accounting for 11.8 percent of imports. Additionally, several Southeast Asian countries, including Myanmar, Lao PDR, Cambodia, Malaysia, and Indonesia, also imported processed coffee products from BIMSTEC, with shares of 6.5 percent, 5.3 percent, 4.8 percent, 3.4 percent, and 3.2 percent, respectively. Poland also ranked among the top 10 importers with a 4.9 percent share. Myanmar is the only BIMSTEC member state to appear in the top 10 destinations for processed coffee exports, holding the second position in both time periods.

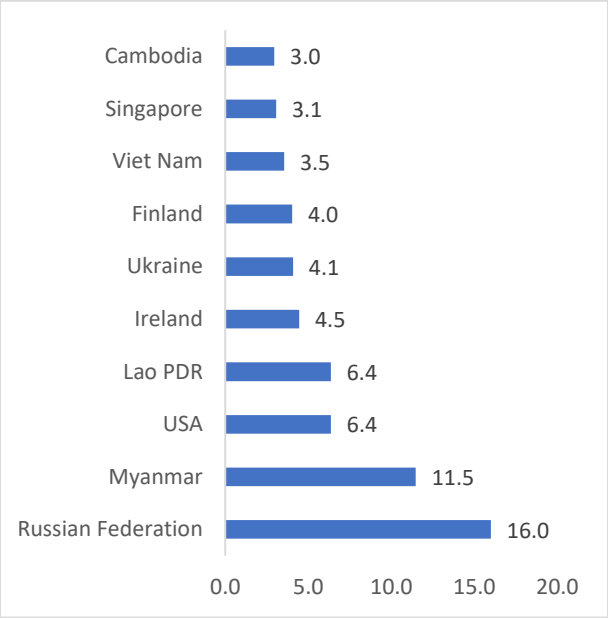
The BIMSTEC's export destinations for unprocessed maize (Figure 1.16) is highly concentrated, with Thailand being the top importer of unprocessed maize products. Thailand's average share increased from 2.0 percent in the first period to 19.5 percent in the second period. China also saw an increase in its share, moving up from seventh place to third place with a share of 2.1 percent in the first period to 14.6 percent in the second period. Additionally, Bangladesh's share increased from 10.4 to 16.6 percent between the two periods. Together, the top 10 importers of BIMSTEC's unprocessed maize exports account for 93.4% of total unprocessed maize exports.

In contrast, the export destinations of BIMSTEC for semi-processed maize are more diversified, with the top 10 importers accounting for 71.9 percent of exports, which is 21.5 percent less as compared to unprocessed maize. Malaysia is the leading importer of semi-processed maize, with a share of 18.1 percent, followed by Indonesia and Japan at 17.4 percent and 7.9 percent, respectively. However, there is a shift in the top 10 importers between the two periods, with Bangladesh and Sri Lanka not being among the top 10 importers of BIMSTEC's semi-processed maize in the second period, indicating a decline in intra-regional trade.

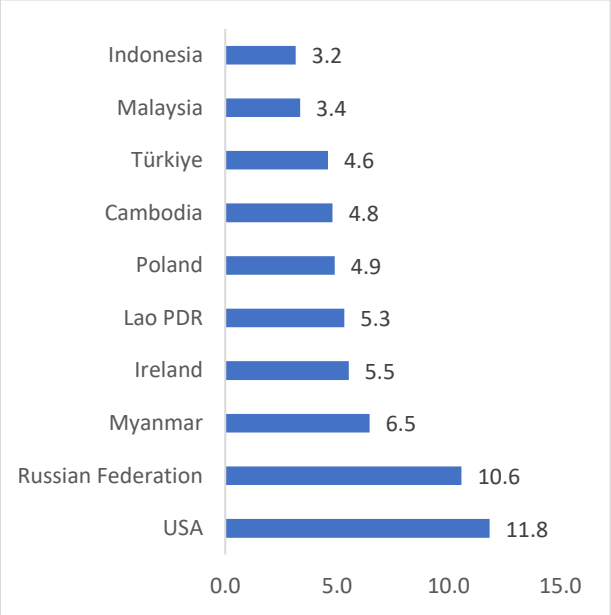
Figure 15: Export Destination of BIMSTEC Coffee (%), by level of processing

Processed

(a) 2007-2011

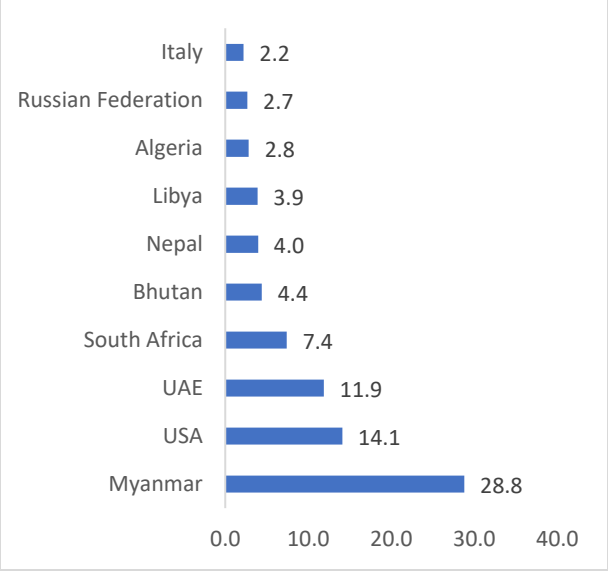


(b) 2017-2021

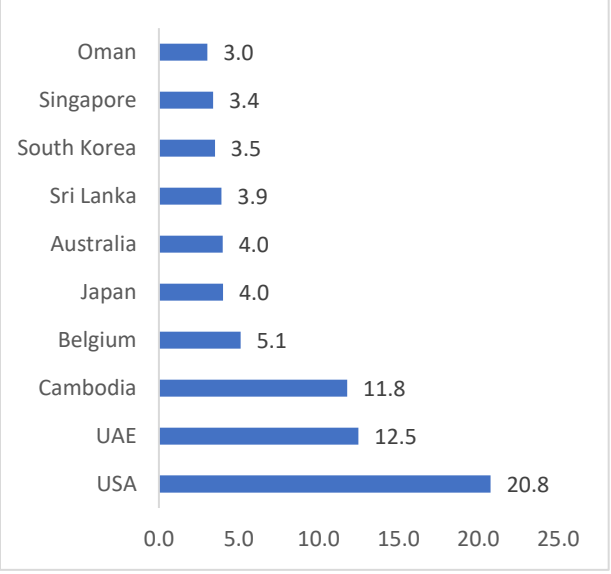


Semi-processed

(c) 2007-2011

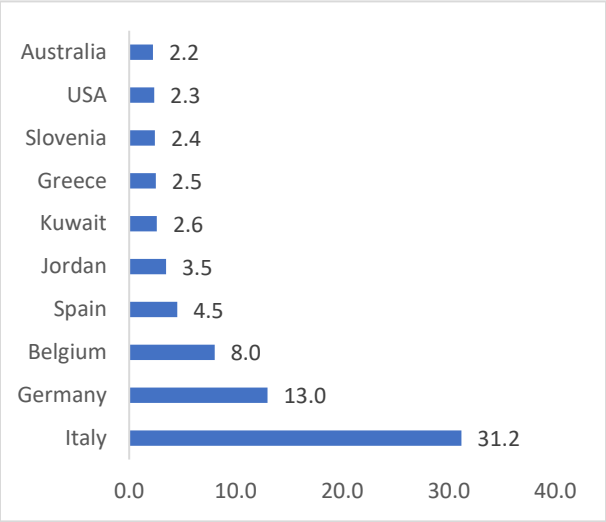


(d) 2017-2021

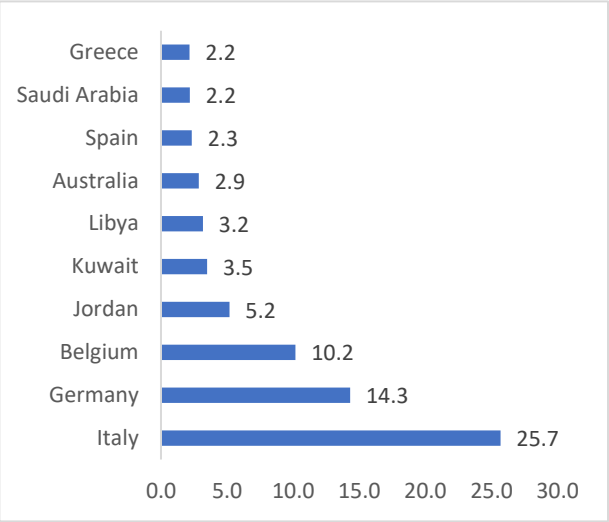


Unprocessed

(e) 2007-2011



(f) 2017-2021



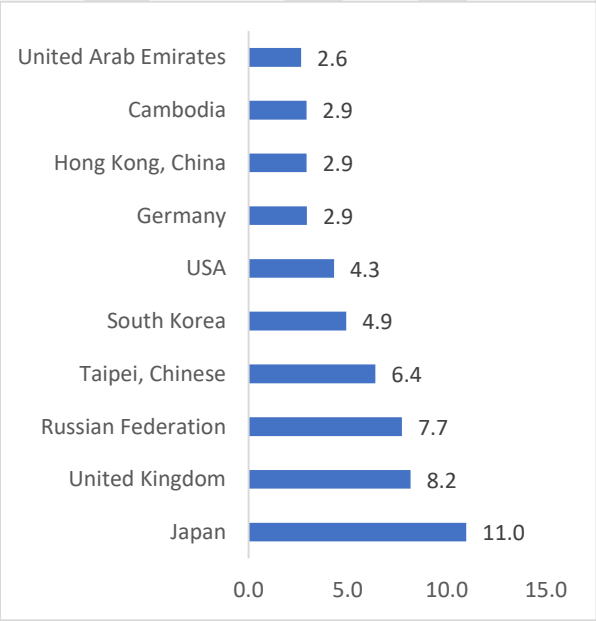
Source: ITC Trade Map database

The export destinations for processed maize exports also differ, with minimal presence of OECD countries and no presence of EU countries, except the United Kingdom. Japan is the leading importer of processed maize from BIMSTEC during both periods, with a share of 11.0 percent in the first period and 14.7 percent in the second period. South Korea also saw an increase in its share, moving up from fifth place to second place with a share of 4.9 percent in the first period to 8.9 percent in the second period. The United States also saw an increase in its share, from 4.3 percent to 6.6 percent between the two periods.

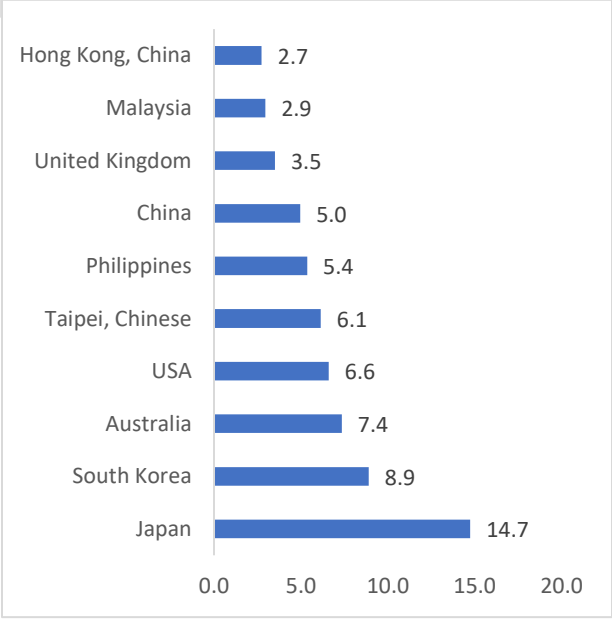
Figure 16: Export Destination of BIMSTEC Maize (%), by level of processing

Processed

(a) 2007-2011

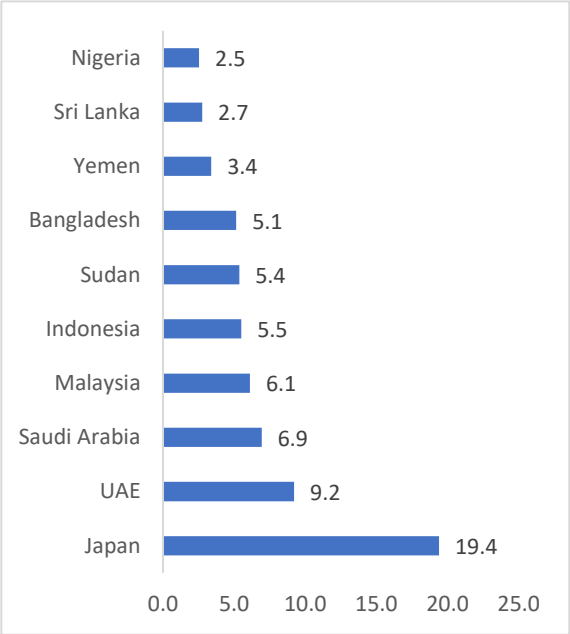


(b) 2017-2021

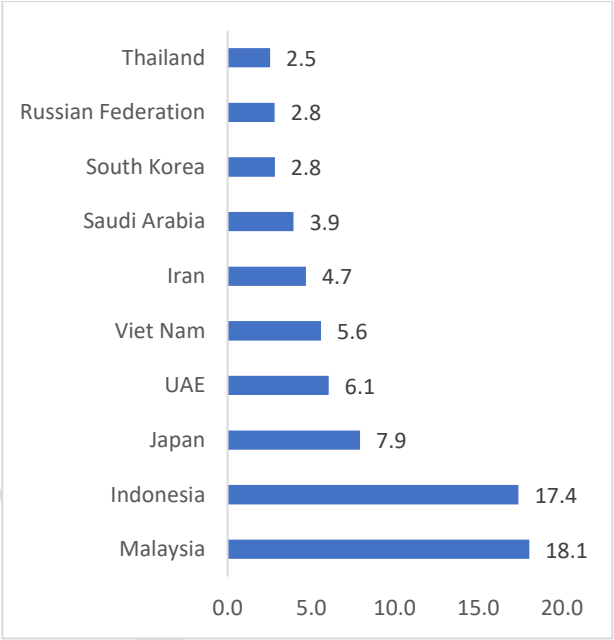


Semi-processed

(c) 2007-2011

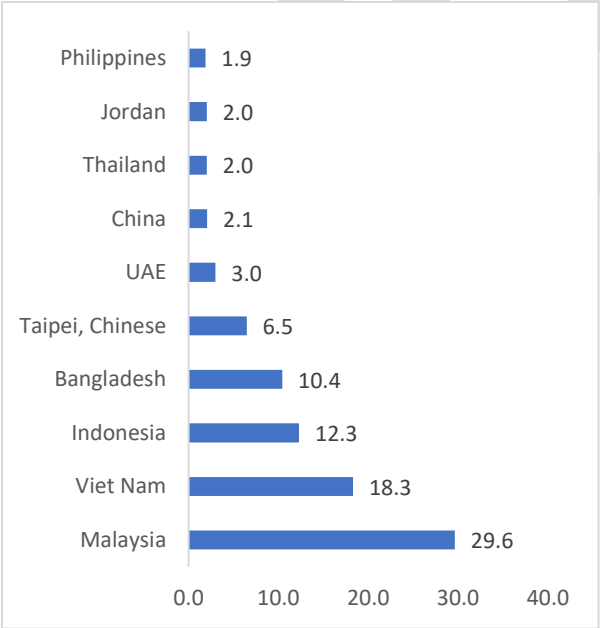


(d) 2017-2021

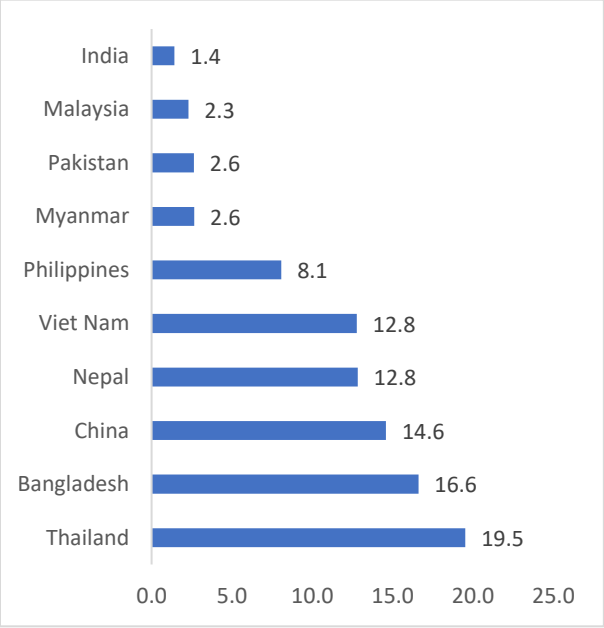


Unprocessed

(e) 2007-2011



(f) 2017-2021



Source: ITC Trade Map database

From the Figure 1.17 it is evident that during the first period (2017-2011), leading importers of BIMSTEC's processed edible oil are Vietnam, Japan, China, and South Korea, but during the second period (2017-2021), India became the major importer of processed edible oil from BIMSTEC with a share of 21.0 percent

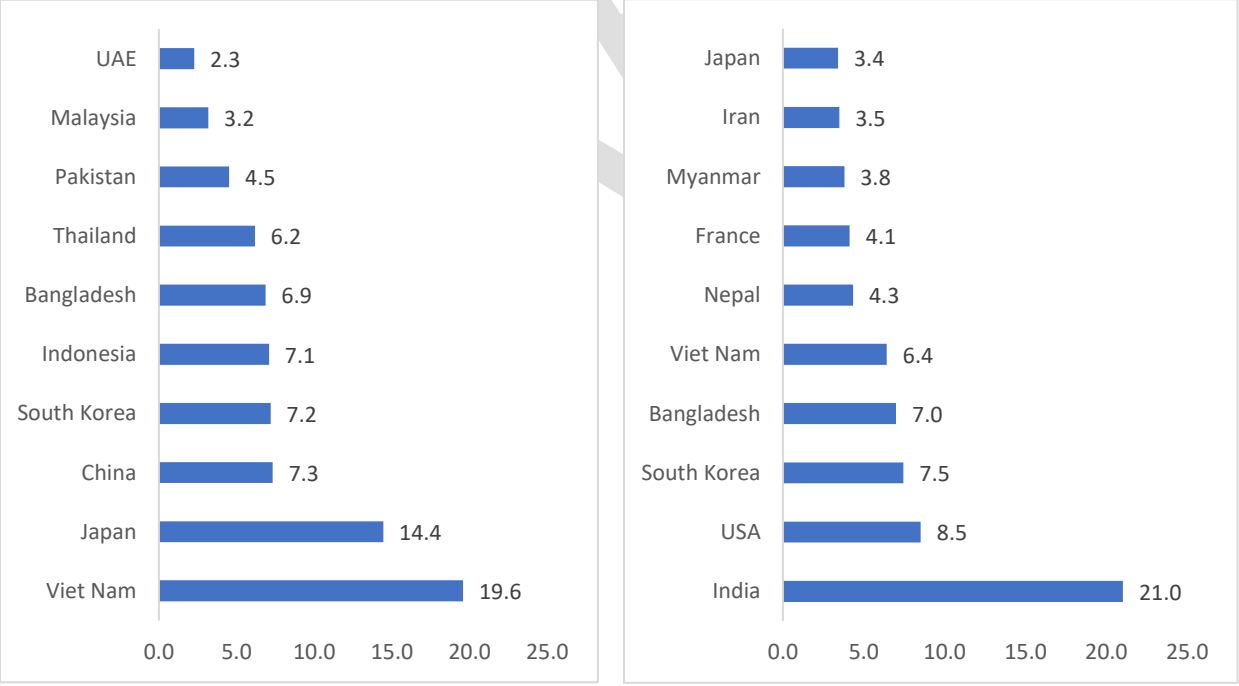
where Nepal, Bangladesh, and Sri Lanka together contributed a substantial part around 99 percent of the India's processed edible imports from the BIMSTEC. This is mainly due to the tariff wedge opportunities created by SAFTA agreement where these countries enjoy zero import duty benefits. First these countries import unprocessed edible oil from the producing countries and then refine it to address the rules of origin criteria set in the SAFTA agreement for being eligible for exporting to India. This was possible because India places significant tariffs on edible oil-producing countries, including Indonesia and Malaysia for palm oil, Argentina and Brazil for soybean oil, and Ukraine, Argentina, and Russia for sunflower and safflower oil.

For semi-processed edible oil, the first period was marked by the leading role of Indonesia, which imported more than 26 percent of BIMSTEC's total semi-processed edible oil exports followed by Malaysia (20.4 percent) and Vietnam (10.1 percent). Indonesia and Malaysia hold first two positions are mainly due to shelled groundnut imports from India. During the second period, Indonesia remained the top export destination of BIMSTEC's semi-processed edible oil, accounting for almost 20.8 percent of the total market. India's share increased, up from 6.6 to 18.9 percent is mainly due to crude palm oil and soybean oil import from Thailand, while Malaysia's share dropped from 20.4 to 11.2 percent during the two periods. Finally, markets for BIMSTEC's processed edible oil exports are concentrated in India, the United States, South Korea, Bangladesh, and Vietnam. Together these five countries share more than 50 percent of the total processed edible oil exports of BIMSTEC.

Figure 17: Export Destination of BIMSTEC Edible Oil (%), by level of processing

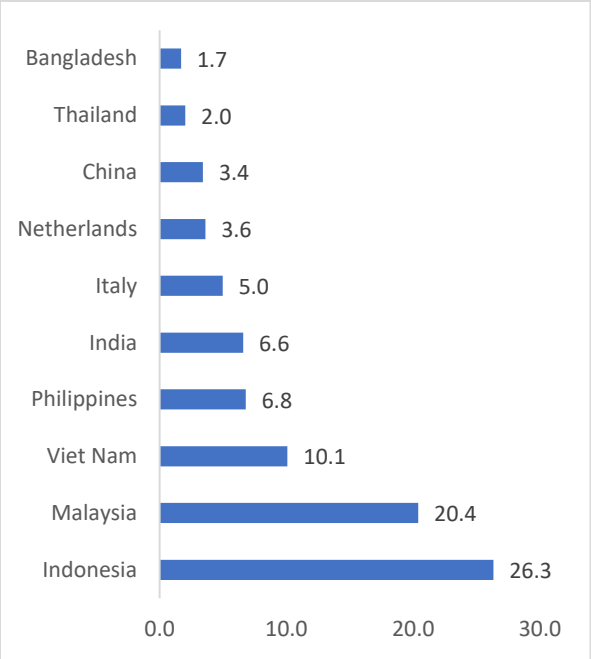
Processed

(a) 2007-2011 **(b) 2017-2021**

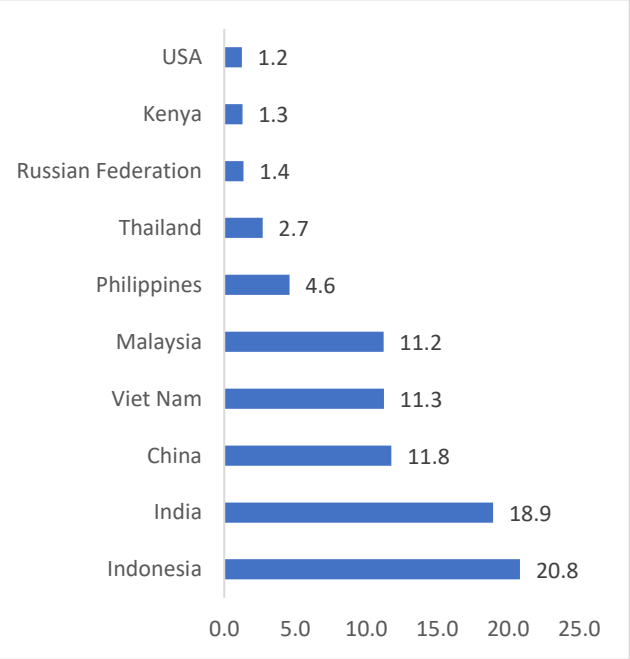


Semi-processed

(c) 2007-2011

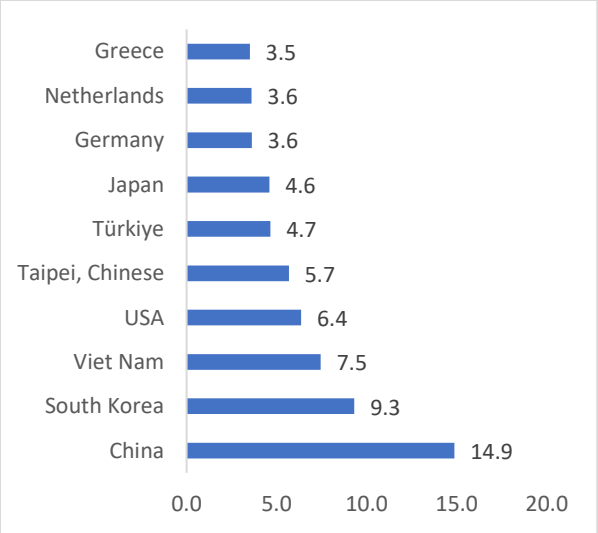


(d) 2017-2021

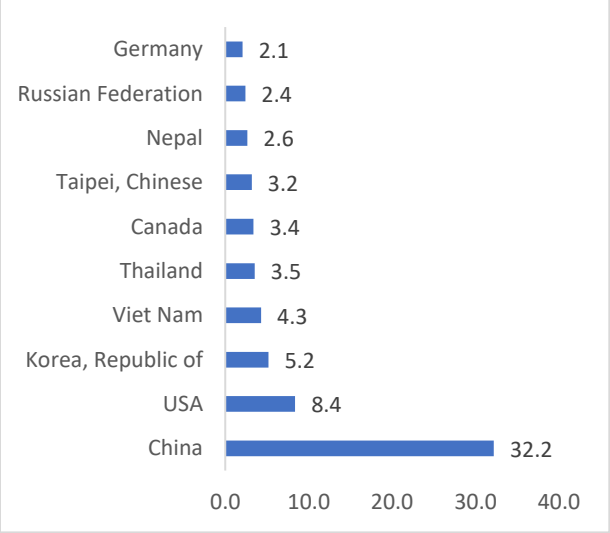


Unprocessed

(e) 2007-2011



(f) 2017-2021



Source: ITC Trade Map database

After discussing the major trends in export composition and destinations of coffee, maize, and edible oil, it is crucial to evaluate if BIMSTEC countries are trading below or above their potential level. This evaluation will help us determine their actual trade performance compared to what is possible for them to export.

3. Do BIMSTEC Countries Fully Exploit Their Potential?

To answer this question, the trade literature uses models to estimate the predicted trade (based on countries' economic fundamentals) for comparison with the actual trade between countries. If predicted trade is more than actual trade, then the country is said to be under-trading and there is untapped trade potential. Here we compare actual trade in coffee, maize and edible oil with what it should be (given its determinants) to evaluate trade performance.

BIMSTEC's trade in coffee, maize and edible oils cumulatively share the average of 10 percent. According to ITC Trade Map data, the BIMSTEC's share in total agricultural of coffee exports has averaged 1.3 percent, maize exports have averaged 2.3 percent, and edible oils, 6.3 percent. Despite the significance of these three commodities in terms of their processing level, some important questions about BIMSTEC's international trade remain. These interrelated themes relate to:

Level of trade relative to potential. This is the issue of under-trading as mentioned above. Trade potential is estimated based on determinants of trade, including factors such as a country's incomes, infrastructure, institutions, remoteness, and most importantly, international, global, and domestic policies, referred to collectively as the "fundamentals." Trading below potential calls for policy actions to close the gap between actual and potential trade to maximize the gains from exports of these commodities. Trading above potential, however, may not mean that trade performance is adequate. Trade potential is itself determined based on fundamentals like infrastructure, institutions, other trade facilitators and inhibitors. If these fundamentals are weak, then the assessed potential trade can be low, and the actual trade could well exceed the trade potential. In such a case, the level of exports in absolute terms should also be considered.

Share of value accruing to exporter. When processing, packaging, and branding are done largely by the importer, then a comparatively small share of the final value goes to the exporter. Pairing actual trade with the estimated potential across products by level of processing gives an idea of how much value accrues to the exporter relative to the potential. In coffee, there are region-specific quality premiums that accrue at the level of final product sales after processing (Gautier 2006). As the discussion above shows, the level of processing in traded products also reflects the persistence of colonial links. Hence, there is reason to look at both trade potential and performance of BIMSTEC member countries trade with ex-colonizers in Europe separately from other traders.

4. Methodology

The technical methodology employed for assessing trade performance relative to trade potential, and inclusion of multilateral trade frictions and accounting for zero trade within the model to ensure accurate measurement of potential. Economists have developed robust models that determine predicted or expected trade based on a country's fundamentals. The workhorse model of international trade, called the gravity model, is used to measure trade potential. We employ this model to estimate the trade potential of BIMSTEC member countries with different trading partners for coffee, maize and edible oil. This analytical

framework for international trade, proposed by Tinbergen (1962) and inspired by Newton's law of gravity, states that the volume of trade between two countries is proportional to their economic mass and a measure of their relative trade frictions. The present structure of the gravity model is built on this basic construct, with some theoretical reconstructions to lend better predictive abilities to the model described below.

We assess the trade potential that is expected or potential trade, at each level of processing such as unprocessed, semi-processed, and processed.[5] On the importer side, we look at country groups including European countries, North American countries and countries in other regions. As the estimate of trade potential is based on a model, having the correct model is of paramount importance. A reliable estimate of trade potential provides an essential benchmark for measuring a country's actual trade performance.

4.1. Measuring trade barriers in a multilateral way

Bilateral trade depends not only on bilateral trade barriers but also on average trade barriers across all trade partners, termed multilateral resistance. The identification and explanation of multilateral resistance helps estimate one nation's costs of overseas trade when estimating a gravity model. Multilateral resistance matters for both countries in a trading pair (exporter and importer) and can vary over time. For example, multilateral resistance explains the substantial trade between Australia and New Zealand — not only are these two countries close to each other but they are also far away from the rest of the world. A properly specified model that accounts for time varying multilateral resistance gives a truer prediction of trade. Olivero and Yotov (2012) recommend the use of exporter x time and importer x time dummy variables to account for time varying multilateral resistance. Baldwin and Taglioni (2006) label failure to account for such resistance, in the context of the gravity model, as the "Gold Medal, Silver Medal and Bronze Medal Mistake." Many researchers use "remoteness indexes," constructed as functions of bilateral distance, and GDPs to control for multilateral resistance terms (Wei 1996; Baier and Bergstrand 2009). However, Head and Mayer (2014) have criticized the use of these indexes as they bear little resemblance to the theoretical counterpart of the multilateral resistance term.

4.2. Properly accounting for zero trade

The standard (logarithmic) gravity model ignores the prevalence of zeros in the bilateral trade flows. Trading relationships are replete with zeros, which a good model should be able to explain. Helpman, Melitz, and Rubinstein (2008) argue that the zeros in trade flows may be due to fixed costs of exporting, which cause firms to self-select into exporting. They highlight the importance of accounting for zero trade values due to selection bias in the gravity model. Only the more productive firms export since exporting is costly. When no firm that is productive finds it profitable to export, there is no trade. A properly specified gravity model should account for these differences based on firm characteristics.

4.3. Use of nonlinear models

[5] the first step in assessing the trade performance of an exporter for a particular product is to estimate the trade potential; estimated trade potential provides a benchmark or scale for measuring performance. When a country exports less of the product than its predicted potential, this is termed under-trading. If the reverse, then it is over-trading.

Given the inability of linear gravity models to efficiently account for zeros, the emphasis has moved to nonlinear estimators of the gravity models. Silva and Tenreyro (2006) propose an easy to implement strategy due to inconsistency of the linear gravity model. The inconsistency arises because the validity of the linearized model depends on the strong assumption that the error terms (unobserved factors) are statistically independent of the variables used in the estimation (homoscedasticity assumption). They propose a method (Poisson pseudo maximum likelihood estimation, or PPML) that not only provides consistent estimates in the presence of violation of this assumption but also provide a natural way to deal with zero trade values. Hence, we employ the most recent developments in the panel data gravity model to gauge trading relative to the potential, considering time varying multilateral resistance (Olivero and Yotov 2012), zero trade (Helpman, Melitz, and Rubinstein 2008), and heteroscedasticity leading to inconsistent estimates (Silva and Tenreyro 2006).

The following PPML equation (1) is used to estimate the bilateral trade flows for cocoa, coffee, and tea, estimated separately for unprocessed, semi-processed and processed items. The gravity model that we estimate takes the following form

$$\boldsymbol{X_{ijt} = exp\,(\beta_0 + \pi_{it} + \pi_{jt} + \alpha_h D_{iS} + \theta_g Z_{ij}) U_{ijt} \ldots\ldots} \qquad \textbf{(1)}$$

Where $\boldsymbol{X_{ijt}}$ denotes exports from country *i* to country *j* measured in current dollars at time t. $\boldsymbol{\pi_{it}}$ and $\boldsymbol{\pi_{jt}}$ are the time varying exporter and importer dummies to account for unobservable multilateral resistance and potentially any other observed and unobserved country-specific and time-varying characteristics: changes in national policies, quality of institutions and infrastructure, and accession of countries into arrangements such as the European Union (EU) and the WTO. $\boldsymbol{Z_{ij}}$ represents the country pair factors likely to affect trade. $\boldsymbol{D_{iS}}$ represents the category S to which country i's trading partner belongs (Europe, North America, Latin America, ASEAN, Africa, BRICS, CIS, Middle East, Oceania, South Asia and Others). It thus represents the membership group of j. Different $\boldsymbol{\alpha_h}$ comprise the relevant coefficients to be estimated to assess under-trading (estimated < 0) and over trading (estimated value > 0).

5. Results

5.1. Coffee Trade

Table 1. identifies under- and over-exporting of BIMSTEC countries in coffee products. Considering exports of processed coffee, Sri Lanka is under-exporting to Europe and other rich countries. Thailand, a comparatively high-income BIMSTEC member country, also exports processed coffee below its potential. In coffee, there is generally less under-trading of the unprocessed product and even some evidence of trading above the predicted potential.

Table 1. Coffee trade performance of BIMSTEC countries

Processed Coffee		
	Under-trading	**Over-trading**
Africa	Sri Lanka, Thailand	
ASEAN	Bangladesh, Nepal	
BRICS	Nepal	
CIS	Sri Lanka	
EU	Bangladesh, Sri Lanka, Myanmar, Nepal	
Latin America	Sri Lanka, Thailand	
Middle East	Bangladesh, Sri Lanka, Myanmar	
North America	Sri Lanka, Nepal	
Oceania	Sri Lanka, Nepal	
South Asia	Myanmar, Nepal	India
Others	Sri Lanka, Myanmar	
Semi-processed Coffee		
Africa	Sri Lanka, Thailand	
ASEAN	Sri Lanka, Nepal	
BRICS	Bangladesh, Nepal	
CIS	Sri Lanka, Thailand	
EU	Nepal	
Latin America	Thailand	
Middle East	Nepal	
North America	Myanmar, Nepal	
Oceania	Myanmar, Nepal	
South Asia	Bhutan, Nepal	
Others	India, Sri Lanka, Myanmar, Nepal	
Unprocessed Coffee		
Africa		India
ASEAN	Nepal	India, Myanmar, Thailand
BRICS	Sri Lanka	India, Myanmar
CIS	Sri Lanka, Nepal, Thailand	India
EU	Bangladesh, India, Nepal	India, Myanmar, Thailand
Latin America	Sri Lanka, Thailand	India
Middle East		India
North America		India, Myanmar, Thailand
Oceania		India
South Asia		India
Others	Sri Lanka	India

Source: Authors' elaboration using regression results from estimates of the gravity model.

Note: This table shows the BIMSTEC countries that are under- and over-exporting to Europe, Africa, ASEAN, and Others. For example, Bangladesh is under-trading processed coffee with the Europe, ASEAN and Middle East, while India is over-trading processed coffee with South Asia region.

5.2. Maize Trade

Table 2. Maize trade performance of BIMSTEC countries

Processed Maize		
	Under-trading	**Over-trading**
Africa	Bangladesh, Sri Lanka	
ASEAN	Sri Lanka, Myanmar, Nepal	Thailand
BRICS	Bangladesh, Sri Lanka, Nepal	
CIS	India, Thailand	
EU	Sri Lanka, Nepal	
Latin America	Bangladesh, India, Sri Lanka	
Middle East	Sri Lanka, Nepal	
North America	Bhutan, Sri Lanka, Myanmar, Nepal	
Oceania	Bangladesh, Sri Lanka, Myanmar, Nepal	
South Asia	Bangladesh, Bhutan, Sri Lanka, Nepal	
Others	Bangladesh, India, Sri Lanka, Nepal	
Semi-processed Maize		
Africa	Sri Lanka, Nepal	
ASEAN	Bangladesh, Sri Lanka, Nepal	
BRICS	Bhutan, Nepal	
CIS		
EU	Bangladesh, Sri Lanka, Myanmar, Nepal	
Latin America	Sri Lanka	
Middle East	Bangladesh, Sri Lanka	
North America	Bangladesh, Bhutan, Sri Lanka, Nepal	
Oceania	Sri Lanka, Nepal	
South Asia	Bangladesh, Sri Lanka, Nepal	
Others	Sri Lanka	
Unprocessed Maize		
Africa	Bangladesh, Sri Lanka,	
ASEAN	Sri Lanka, Nepal	
BRICS	Bangladesh, Sri Lanka, Nepal	
CIS	India, Myanmar, Thailand	
EU	India, Sri Lanka, Myanmar, Nepal, Thailand	
Latin America	India, Sri Lanka, Myanmar	
Middle East	Bangladesh, Sri Lanka, Myanmar, Thailand	
North America	Sri Lanka, Myanmar, Nepal, Thailand	
Oceania	India, Sri Lanka, Myanmar, Nepal, Thailand	
South Asia	Bangladesh, Bhutan, Sri Lanka, Nepal	
Others	Myanmar	

Source: Authors' elaboration using regression results from estimates of the gravity model.

5.3. Edible Oil Trade

Table 3. Edible Oil trade performance of BIMSTEC countries

Processed Edible Oil		
	Under-trading	**Over-trading**
Africa	Bangladesh, Sri Lanka, Myanmar, Nepal	
ASEAN	Bhutan, Myanmar, Thailand	
BRICS	India, Sri Lanka, Nepal	
CIS	Bangladesh, India, Sri Lanka, Nepal, Thailand	
EU	Bangladesh, Sri Lanka, Myanmar, Nepal	
Latin America	Bangladesh, Sri Lanka, Myanmar, Nepal	
Middle East	Sri Lanka, Myanmar, Nepal	
North America	Bangladesh, Sri Lanka, Myanmar, Nepal, Thailand	
Oceania	Bangladesh, Sri Lanka, Myanmar	
South Asia	Bangladesh, Sri Lanka, Myanmar, Nepal	
Others	Bangladesh, Sri Lanka, Thailand	
Semi-processed Edible Oil		
Africa	Bangladesh	
ASEAN	Bhutan, India, Myanmar, Nepal	
BRICS	Thailand	
CIS	Bangladesh, Myanmar, Thailand	
EU	Bangladesh, Nepal	
Latin America	Bangladesh, Nepal	
Middle East	Bangladesh	
North America	Bangladesh, Nepal, Thailand	
Oceania	Bangladesh	
South Asia	Bangladesh, Myanmar	
Others	Bangladesh, Thailand	
Unprocessed Edible Oil		
Africa	Sri Lanka, Thailand	
ASEAN	Bangladesh, Bhutan, Sri Lanka, Nepal, Thailand	
BRICS	Sri Lanka, Thailand	
CIS	Bangladesh, Sri Lanka, Nepal, Thailand	
EU	Bhutan, Sri Lanka, Nepal	
Latin America	Sri Lanka, Nepal	
Middle East	Thailand	
North America	Bangladesh, Sri Lanka, Nepal, Thailand	
Oceania	Nepal, Thailand	
South Asia	Nepal	
Others	Bangladesh, Sri Lanka, Myanmar, Thailand	

Source: Authors' elaboration using regression results from estimates of the gravity model.

6. Determinants of under-trading

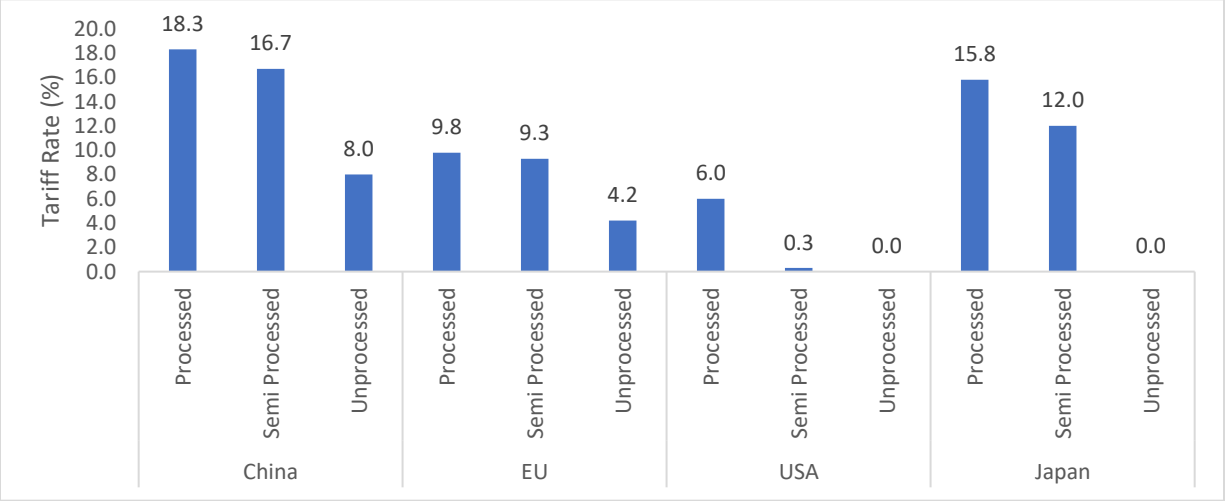
6.1. External factors

6.1.1. Tariff escalation

One of the main factors contributing to BIMSTEC's lack of export processing and diversification is the use of escalating tariffs, which means tariffs become higher as a product goes through more processing. Despite decreasing over time, these tariffs are still relatively high for the products like coffee, maize, edible oil, and marine products.

Figure 1.18 compares the tariffs imposed by the EU, the United States, China, and Japan on coffee imported from BIMSTEC member states. According to WTO data, unprocessed coffee exports to Japan and the United States have a tariff-free entry, but semi-processed coffee is subject to a 12 percent tariff in Japan and 0.3 percent in the United States. The United States and Japan, the major export markets for BIMSTEC, imposes 6.0 and 15.8 percent tariff on processed coffee imports, respectively. China has high and escalating tariffs on coffee imports, at 8.0, 16.7, and 18.3 percent for unprocessed, semi-processed, and processed coffee, respectively. The EU also has high and escalating tariffs on coffee imports, at 4.2, 9.3, and 9.8 percent for unprocessed, semi-processed, and processed coffee, respectively.

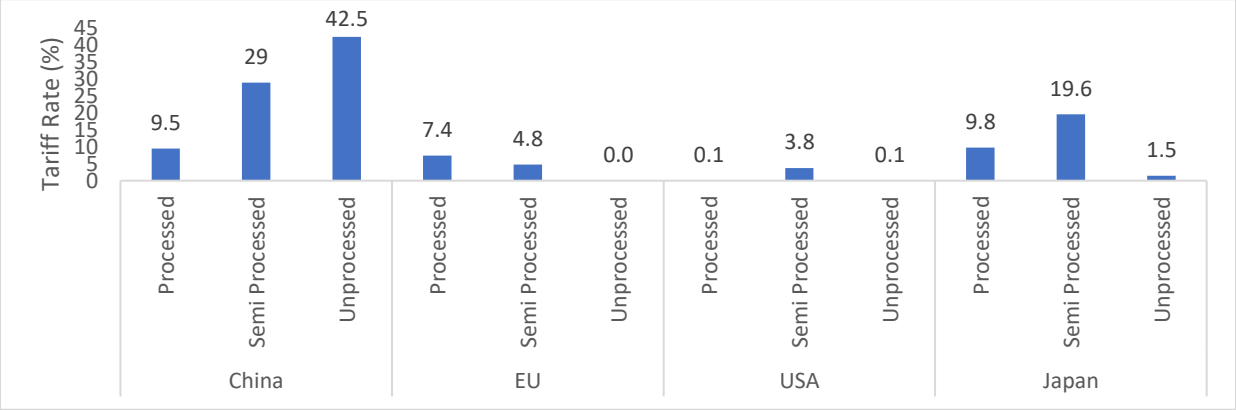
Figure 18: Tariff faced by BIMSTEC countries on coffee, by level of processing (2017–2021)



Source: Author's elaboration using TAO-WTO dataset

Tariffs on unprocessed maize exports to China are the highest at 42.5 percent. China does not impose escalating tariffs on imports from BIMSTC countries. However, major importing countries like the United States and Japan have low tariffs on unprocessed maize imports but maintain most-favored nation tariffs on semi-processed and processed imports. For instance, the EU imposes a 4.8 percent tariff on semi-processed maize and a 7.4 percent tariff on processed maize. India has a privileged partnership agreement with Japan that allows for tariff-free imports of both processed and unprocessed maize.

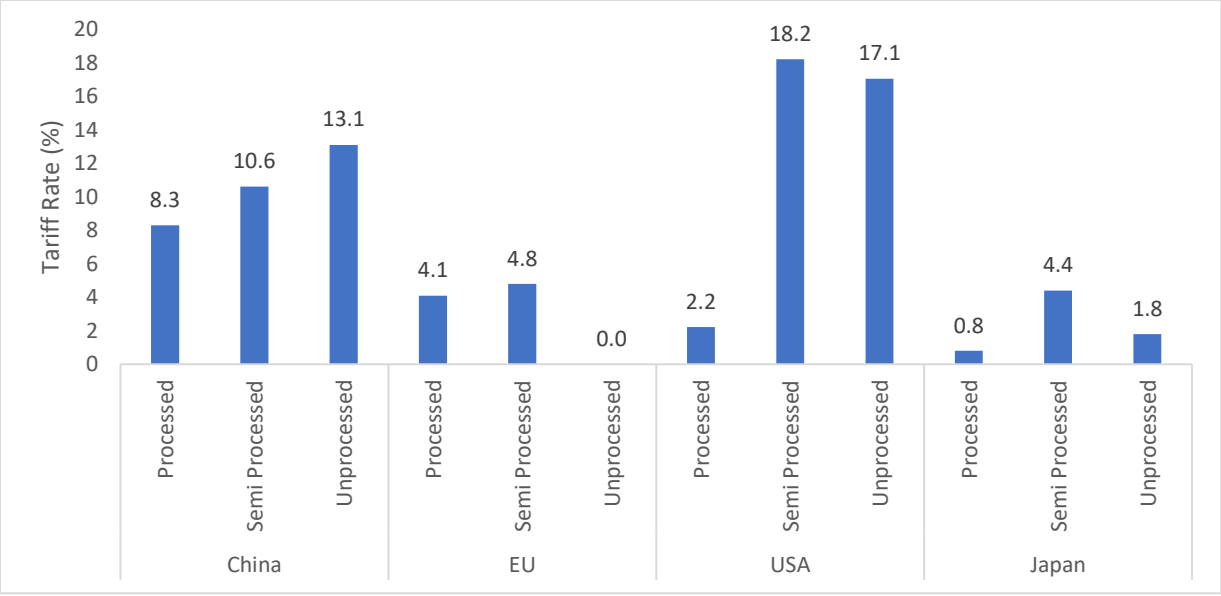
Figure 19: Tariff faced by BIMSTEC countries on maize, by level of processing (2017–2021)



Source: Author's elaboration using TAO-WTO dataset

In the United States, import tariffs for edible oil are notably high, with a rate of 18.2% for semi-processed oil and 17.1% for unprocessed oil (Figure 1.20). In contrast, China, the leading importer of unprocessed edible oil from BIMSTEC, has a high import tariff rate of 13.1 percent. China also has high tariffs for semi-processed edible oil (10.6 percent) and substantially lower tariffs for processed edible oil (8.3 percent). The EU and Japan have relatively low tariffs for semi-processed edible oil, at 4.8 percent and 4.4 percent respectively. Processed edible oil has even lower tariffs in the EU and United States, at 4.4 percent and 2.2 percent respectively.

Figure 20: Tariff faced by BIMSTEC countries on edible oil, by level of processing (2017–2021)



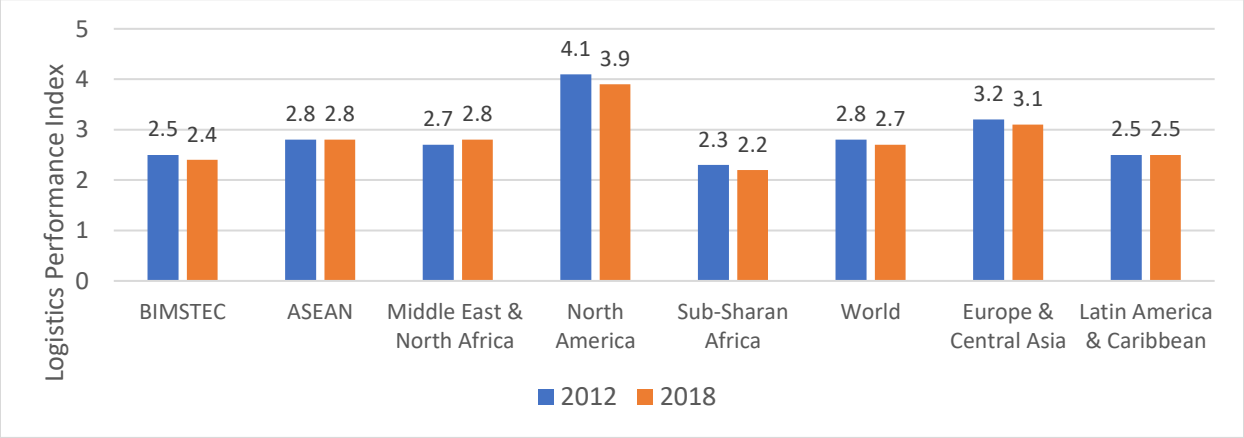
Source: Author's elaboration using TAO-WTO dataset

6.2. Domestic factors

6.2.1. Underdeveloped infrastructure

The logistic performance index for 2018 paints a concerning picture of the BIMSTEC region's trade and transport-related infrastructure. Despite having made significant strides in recent years, the region still lags other parts of the world. Notably, the BIMSTEC region ranks second-to-last, just ahead of Sub-Saharan Africa, with regards to the quality of its ports, railroads, roads, and information technology. This comparison becomes even more striking when juxtaposed against the trade and transport infrastructure of neighboring ASEAN countries. These countries have managed to secure a commendable position, trailing only North America and Europe and Central Asia - the highest-ranked regions globally. The ADB report suggests that while customs procedures are well-covered in policy documents, transport connectivity often is not. Separate discussions on cross-country transport operations need to be integrated for a cohesive trade strategy (Sanchita Basu-Das, 2023).[6]

Figure 21: Quality of trade and transport-related infrastructure



Source: Logistics performance index, https://lpi.worldbank.org/.
Note: Logistics professionals' perception of a country's quality of trade- and transport-related infrastructure (e.g., ports, railroads, roads, information technology), on a scale ranging from 1 (low) to 5 (high). Scores are averaged across all respondents.

The BIMSTEC region's lackluster performance in terms of infrastructure can have serious implications for its economic growth and development. The region is grappling with a host of infrastructure constraints, including limited access to modern ports, inadequate transportation networks, and insufficient energy and communication networks. These constraints can elevate the cost of doing business and impede the region's ability to leverage its vast market potential. However, BIMSTEC may ameliorate some of these constrains through investments relating to Trilateral Highway and Multi model connectivity. This highway is still under construction and expected to be completed by 2023. Once it is completed, will lead to better transport connections and greater trade between the three countries.

Besides the Trilateral Highway, a motor vehicle agreement was signed by Bangladesh, Bhutan, India, and Nepal (BBIN) in 2015 to make it easier for passenger and cargo vehicles to cross borders. The agreement will allow member states to operate their vehicles in each other's territories for the transportation of cargo

[6] https://blogs.adb.org/blog/trade-resilience-four-strategies-strengthening-supply-chains-asia-and-pacific

and passengers, including personal vehicles and third-country transport. However, the agreement has yet to be ratified by Bhutan, while Bangladesh, India, and Nepal have already ratified it. The agreement will come into effect only when all four member nations would ratify it. The agreement will help to reduce transportation costs by eliminating multiple transshipment points and reducing delays and waiting times at border crossings.

6.2.2. Limited trade facilitation measures

The BIMSTEC region still lacks effective trade facilitation measures, such as streamlined customs procedures and infrastructure, that would help to reduce trade costs and increase the efficiency of cross-border trade. This may hinder the growth of regional trade, particularly for small and medium-sized agriculture enterprises that lack the resources to navigate complex trade procedures. It also reallocates trade from formal to being informal.

In this connection, WTO's Trade Facilitation Agreement (TFA) which came into force in 2017 presents a promising opportunity for BIMSTEC member countries to enhance their trade facilitation efforts. While the TFA focuses primarily on customs facilitation, its implementation provides a platform for comprehensive improvements across various trade-related domains. In this regard, BIMSTEC member states could capitalize on the TFA to undertake holistic measures aimed at streamlining trade and ensuring seamless cross-border transactions. By leveraging the TFA's provisions and committing to enhancing trade facilitation, BIMSTEC nations stand to reap immense benefits in terms of increased economic growth, regional integration, and improved livelihoods for their population.

The TFA of the WTO has set the standard for contemporary trade facilitation practices worldwide. The Organization for Economic Co-operation and Development (OECD) has projected that the complete enforcement of this agreement would result in a 10%-18% decrease in trade cost for the BIMSTEC region. Except for Bhutan, all BIMSTEC members have agreed to the terms of WTO's TFA and are currently at different stages of implementation. Bhutan is neither a member of WTO nor a signatory to the WTO's Trade Facilitation Agreement.

Table 4: Implementation Levels of WTO's Trade Facilitation Agreement, (March 2023)

BIMSTEC Members	*Overall Implementation Level (%)*	*Category A (%)*	*Category B (%)*	*Category C (%)*
Bangladesh	44.5	34.5	10.1	0
India	100	72.3	27.7	0
Myanmar	8.8	5.5	3.4	0
Nepal	11.8	2.1	9.7	0
Sri Lanka	31.5	29	1.7	0.8
Thailand	98.7	91.6	7.1	0

Source: World Trade Organization

Note:

Category A: provisions that signatories will implement by the time the agreement comes into force—within 1 year in the case of a least developed country.

Category B: provisions that signatories will implement after a transitional period after the agreement comes into force.
Category C: provisions that signatories will implement on a date after a transitional period after the agreement comes into force and requires assistance and support for capacity building.

7. Conclusion

In this chapter, we have analyzed BIMSTEC member countries' participation in global value chains for coffee, maize, and edible oil. We have examined BIMSTEC trade in the three products by level of processing and export destination and have estimated over-trading and under-trading by BIMSTEC member countries compared with their potential. We also discussed possible causes of under-trading and low participation in downstream processing.

Our findings suggest that a significant proportion of BIMSTEC exports of coffee, maize, and edible oil involve little or no processing. Exports of the three commodities are concentrated in unprocessed coffee and maize and processed edible oil. Our gravity estimations suggest that many BIMSTEC countries are under-trading coffee, maize and edible across the three levels of processing and that there is strong potential not only to trade more in volume but also to trade "better" in terms of more sophisticated products.

8. References

Aboushady, Nora; Roy, Devesh; and Zaki, Chahir. 2022. The three great stimulants: An analysis of the cocoa, coffee, and tea value chains in Africa. In Africa Agriculture Trade Monitor 2022, eds. Antoine Bouët, Sunday P. Odjo, Chahir Zaki. Chapter 4, Pp. 88-139. Kigali, Rwanda; and Washington, DC: AKADEMIYA2063; and International Food Policy Research Institute (IFPRI). https://doi.org/10.54067/9781737916437_04

Bhardwaj, M., Mahapatra, S K., Dutta, T., & Bhangu, J. 2023. Growth and Potential of Intra-Industry Trade of India in Agriculture among the BIMSTEC Nations. https://scite.ai/reports/10.1177/00194662231159854

Helpman, E., M. Melitz, and Y. Rubinstein. 2008. "Estimating Trade Flows: Trading Partners and Trading Volumes." Quarterly Journal of Economics 123 (2): 441-487.

Gautier, L. 2006. Tea: Aromas and Flavors Around the World. San Francisco: Chronicle Books

Kamar, Abul; and Roy, Devesh. 2023. Unlocking agricultural trade potential in the BIMSTEC region: Policy challenges and implications. Policy Note March 2023. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.136626

Marwah, R., Sen, S., & Yasmin, L. 2022. Political Economy of Trade in BIMSTEC: A Contemporary Perspective. https://scite.ai/reports/10.1177/09763996221096328

Olivero, M.P., and Y.V. Yotov. 2012. "Dynamic Gravity: Endogenous Country Size and Asset Accumulation. Canadian Journal of Economics/Revue canadienne d'économique 45 (1): 64–92

Pradeepa Babu, B.N., Nagaraj Gokavi, Rudragouda, C.S., and Y.B. Venkata Reddy. 2019. Value Chain Upgrading Strategies for Integration of Indian Small Coffee Growers in Global Coffee Value Chain. Economic Affairs, Vol. 64, No. 4, pp. 717-723, December 2019. 10.30954/0424-2513.4.2019.6.

Sanchita Basu Das. 2023. Trade Resilience: Four Strategies for Strengthening Supply Chains in Asia and the Pacific. Asian Development Bank (ADB). https://blogs.adb.org/blog/trade-resilience-four-strategies-strengthening-supply-chains-asia-and-pacific

Santos Silva, J.M.C., and S. Tenreyro. 2006. "The Log of Gravity." The Review of Economics and Statistics 88 (4): 641–658.

Tinbergen, J. 1962. Shaping the World Economy: Suggestions for International Economic Policy. New York: Twentieth Century Fund.

United Nations. 2021. World Economic Situation and Prospects, Chapter II, New York. https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2021_CH2.pdf

Annexure

Table 5: PPML gravity model estimates for level of trading, 2002–2021: Coffee

VARIABLES	Processed Coffee	SE	VARIABLES	Semi-processed Coffee	SE	VARIABLES	Unprocessed Coffee	SE
BGD_ASN	-17.756***	(3.657)	BGD_BRC	-3.264*	(1.916)	BGD_EUK	-4.076***	(1.114)
BGD_EUK	-22.036***	(3.886)	BTN_SAS	-4.530***	(0.801)	IND_AFR	7.587***	(0.885)
BGD_MDE	-22.179***	(4.199)	IND_OTH	-2.138*	(1.280)	IND_ASN	6.676***	(0.879)
IND_SAS	0.971**	(0.493)	LKA_AFR	-11.075***	(1.714)	IND_BRC	6.446***	(0.878)
LKA_AFR	-5.484***	(1.671)	LKA_ASN	-3.278**	(1.320)	IND_CIS	5.730***	(0.942)
LKA_CIS	-8.655***	(1.736)	LKA_CIS	-2.441**	(1.234)	IND_EUK	10.234***	(0.877)
LKA_LAM	-3.971***	(1.153)	LKA_OTH	-6.168***	(1.722)	IND_LAM	4.148***	(1.085)
LKA_MDE	-3.688***	(1.335)	MMR_NAM	-22.479***	(3.286)	IND_MDE	8.602***	(0.880)
LKA_OCN	-2.648**	(1.177)	MMR_OCN	-6.984***	(1.968)	IND_NAM	6.672***	(0.877)
LKA_OTH	-2.439**	(1.179)	MMR_OTH	-32.617***	(4.334)	IND_OCN	7.003***	(0.879)
MMR_EUK	-6.528***	(1.364)	NPL_ASN	-3.223**	(1.389)	IND_OTH	6.280***	(0.873)
MMR_MDE	-5.052***	(1.352)	NPL_BRC	-3.836***	(1.255)	IND_SAS	3.176***	(0.894)
MMR_OTH	-6.569***	(1.742)	NPL_EUK	-7.391***	(1.492)	LKA_BRC	-3.467***	(1.271)
MMR_SAS	-1.352**	(0.660)	NPL_MDE	-11.189***	(1.589)	LKA_CIS	-6.907***	(1.298)
NPL_ASN	-20.485***	(4.097)	NPL_NAM	-4.578***	(1.326)	LKA_LAM	-6.995***	(1.298)
NPL_BRC	-18.991***	(3.379)	NPL_OCN	-5.424***	(1.453)	LKA_OTH	-4.391***	(1.116)
NPL_EUK	-20.680***	(3.841)	NPL_OTH	-3.239**	(1.599)	MMR_ASN	3.529***	(0.892)
NPL_NAM	-18.541***	(3.579)	NPL_SAS	-7.442***	(1.321)	MMR_BRC	3.021***	(0.964)
NPL_OCN	-20.954***	(4.198)	THA_AFR	-4.516***	(1.108)	MMR_EUK	2.473**	(0.961)
NPL_SAS	-15.319***	(2.992)	THA_CIS	-7.870***	(1.783)	MMR_NAM	2.389**	(0.969)
THA_AFR	-1.873*	(1.060)	THA_LAM	-15.072***	(1.911)	NPL_ASN	2.584***	(0.884)
THA_LAM	-1.919**	(0.805)	**Constant**	**-4.829*** **	**(0.792)**	NPL_CIS	-4.286***	(1.298)
Constant	**-0.730**	**(0.627)**	**Observations**	**2,185**		NPL_EUK	2.996***	(0.885)
Observations	**2,844**		**R-squared**	**0.403**		THA_ASN	4.381***	(0.918)
R-squared	**0.344**					THA_CIS	-9.169***	(1.225)
						THA_EUK	4.761***	(0.946)
						THA_LAM	-4.667***	(1.298)
						THA_NAM	5.759***	(0.931)
						Constant	**-5.231*** **	**(0.857)**
						Observations	**1,880**	
						R-squared	**0.411**	

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

Table 6: PPML gravity model estimates for level of trading, 2002–2021: Maize

VARIABLES	Processed Maize	SE	VARIABLES	Semi-processed Maize	SE	VARIABLES	Unprocessed Maize	SE
BGD_AFR	-5.166***	(1.637)	BGD_ASN	-5.132**	(2.408)	BGD_ASN	-3.674*	(2.098)
BGD_BRC	-3.071**	(1.557)	BGD_EUK	-9.413***	(2.311)	BGD_BRC	-6.443***	(2.327)
BGD_LAM	-11.764***	(2.684)	BGD_MDE	-4.873**	(2.133)	BGD_MDE	-5.715***	(2.028)
BGD_OCN	-2.924*	(1.503)	BGD_NAM	-7.820***	(2.399)	BGD_SAS	-5.029***	(1.789)
BGD_OTH	-5.191***	(1.560)	BGD_SAS	-4.558***	(1.624)	BTN_SAS	-4.584***	(1.174)
BGD_SAS	-1.896*	(1.073)	BTN_BRC	-26.500**	(12.158)	IND_CIS	-10.242***	(1.686)
BTN_NAM	-23.591***	(5.227)	BTN_NAM	-24.677***	(9.525)	IND_EUK	-2.197*	(1.149)
BTN_SAS	-7.103***	(1.064)	LKA_AFR	-6.596***	(1.952)	IND_LAM	-3.979**	(1.766)
IND_CIS	-6.408***	(1.183)	LKA_ASN	-10.036***	(3.013)	IND_OCN	-3.758**	(1.523)
IND_LAM	-4.996***	(1.304)	LKA_EUK	-8.197***	(1.674)	LKA_AFR	-4.930***	(1.458)
IND_OTH	-3.617***	(1.122)	LKA_LAM	-12.206***	(3.425)	LKA_ASN	-3.884***	(1.436)
IND_SAS	0.965*	(0.545)	LKA_MDE	-6.310***	(1.920)	LKA_BRC	-24.675***	(2.751)
LKA_AFR	-7.879***	(1.147)	LKA_NAM	-7.283***	(1.855)	LKA_EUK	-10.662***	(1.357)
LKA_ASN	-6.025***	(1.194)	LKA_OCN	-2.954*	(1.715)	LKA_LAM	-13.772***	(2.561)
LKA_BRC	-16.402***	(2.882)	LKA_OTH	-21.978***	(7.254)	LKA_MDE	-8.741***	(1.642)
LKA_EUK	-3.180***	(1.135)	LKA_SAS	-3.609***	(1.016)	LKA_NAM	-9.918***	(1.754)
LKA_LAM	-14.151***	(2.424)	MMR_EUK	-6.544**	(3.078)	LKA_OCN	-5.260***	(1.444)
LKA_MDE	-4.584***	(1.111)	NPL_AFR	-10.610***	(2.603)	LKA_SAS	-8.440***	(1.210)
LKA_NAM	-2.029**	(0.921)	NPL_ASN	-13.512***	(3.637)	MMR_EUK	-8.048***	(1.568)
LKA_OCN	-5.063***	(1.105)	NPL_BRC	-11.385***	(2.950)	MMR_LAM	-3.665**	(1.672)
LKA_OTH	-8.833***	(1.359)	NPL_EUK	-24.384***	(7.677)	MMR_MDE	-4.645***	(1.363)
LKA_SAS	-3.690***	(0.589)	NPL_NAM	-10.684***	(2.604)	MMR_NAM	-4.010***	(1.381)
MMR_ASN	-1.950**	(0.991)	NPL_OCN	-21.744***	(6.672)	MMR_OCN	-4.126***	(1.382)
MMR_NAM	-4.998***	(1.216)	NPL_SAS	-11.554***	(2.511)	MMR_OTH	-3.137**	(1.243)
MMR_OCN	-5.187***	(1.124)	**Constant**	**-3.067*** **	**(1.010)**	NPL_ASN	-8.835***	(1.437)
MMR_SAS	-4.018***	(1.075)	**Observations**	**2,682**		NPL_BRC	-25.327***	(3.066)
NPL_ASN	-12.556***	(2.122)	**R-squared**	**0.255**		NPL_EUK	-12.401***	(1.394)
NPL_BRC	-11.674***	(1.848)				NPL_NAM	-16.674***	(1.889)
NPL_EUK	-12.800***	(1.963)				NPL_OCN	-20.706***	(2.434)
NPL_MDE	-18.448***	(2.790)				NPL_SAS	-11.202***	(1.180)
NPL_NAM	-11.631***	(1.971)				THA_CIS	-11.895***	(1.202)
NPL_OCN	-9.844***	(1.869)				THA_EUK	-4.175***	(1.053)
NPL_OTH	-12.740***	(2.024)				THA_MDE	-3.153***	(1.095)
NPL_SAS	-10.393***	(1.666)				THA_NAM	-3.211***	(1.180)
THA_ASN	1.961*	(1.111)				THA_OCN	-6.745***	(1.426)
THA_CIS	-2.347***	(0.803)				**Constant**	**-0.440**	**(0.981)**
Constant	**-0.514**	**(0.653)**				**Observations**	**1,458**	
Observations	**2,459**					**R-squared**	**0.542**	
R-squared	**0.367**							

Robust standard errors in parentheses

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

Table 7: PPML gravity model estimates for level of trading, 2002–2021: Edible Oil

VARIABLES	Processed Edible Oil	SE	VARIABLES	Semi-processed Edible Oil	SE	VARIABLES	Unprocessed Edible Oil	SE
BGD_AFR	-5.118***	(1.357)	BGD_AFR	-22.548***	(4.615)	BGD_ASN	-9.130***	(2.735)
BGD_CIS	-3.976**	(1.557)	BGD_CIS	-25.610***	(4.480)	BGD_CIS	-7.864***	(2.483)
BGD_EUK	-8.863***	(2.442)	BGD_EUK	-29.852***	(5.152)	BGD_NAM	-5.076***	(1.778)
BGD_LAM	-11.444***	(2.779)	BGD_LAM	-16.932***	(3.249)	BGD_OTH	-7.677***	(2.258)
BGD_NAM	-5.044***	(1.349)	BGD_MDE	-17.639***	(3.322)	BTN_ASN	-5.762***	(1.535)
BGD_OCN	-3.676**	(1.578)	BGD_NAM	-20.312***	(3.367)	BTN_EUK	-35.204***	(8.164)
BGD_OTH	-7.600***	(2.100)	BGD_OCN	-25.267***	(4.948)	LKA_AFR	-4.304***	(1.464)
BGD_SAS	-2.244***	(0.812)	BGD_OTH	-22.113***	(3.677)	LKA_ASN	-3.543***	(1.193)
BTN_ASN	-5.011***	(1.694)	BGD_SAS	-15.539***	(2.607)	LKA_BRC	-8.110***	(1.548)
IND_BRC	-1.705**	(0.815)	BTN_ASN	-9.163***	(2.477)	LKA_CIS	-7.371***	(1.394)
IND_CIS	-1.987**	(0.892)	IND_ASN	-7.112***	(2.322)	LKA_EUK	-3.583***	(1.254)
LKA_AFR	-2.460***	(0.866)	MMR_ASN	-20.969***	(6.408)	LKA_LAM	-3.931***	(1.381)
LKA_BRC	-4.412***	(0.908)	MMR_CIS	-8.508***	(2.490)	LKA_NAM	-4.983***	(1.181)
LKA_CIS	-5.920***	(1.032)	MMR_SAS	-2.731**	(1.332)	LKA_OTH	-9.386***	(1.630)
LKA_EUK	-2.815***	(1.090)	NPL_ASN	-4.046***	(1.248)	MMR_OTH	-4.258***	(1.467)
LKA_LAM	-3.303***	(0.998)	NPL_EUK	-27.610***	(5.317)	NPL_ASN	-3.814***	(1.142)
LKA_MDE	-2.813***	(0.973)	NPL_LAM	-29.534***	(5.904)	NPL_CIS	-26.708***	(5.925)
LKA_NAM	-2.710***	(0.895)	NPL_NAM	-29.327***	(5.360)	NPL_EUK	-9.774***	(1.675)
LKA_OCN	-2.477**	(0.988)	THA_BRC	-11.900***	(1.687)	NPL_LAM	-14.532***	(2.492)
LKA_OTH	-4.064***	(0.931)	THA_CIS	-2.820**	(1.174)	NPL_NAM	-8.589***	(1.740)
LKA_SAS	-3.761***	(0.772)	THA_NAM	-10.259***	(1.514)	NPL_OCN	-16.791***	(3.050)
MMR_AFR	-9.523***	(1.453)	THA_OTH	-2.776**	(1.175)	NPL_SAS	-15.667***	(2.752)
MMR_ASN	-3.069***	(0.961)	**Constant**	**-0.760**	**(1.173)**	THA_AFR	-1.724*	(1.036)
MMR_EUK	-4.747***	(1.222)	**Observations**	**4,372**		THA_ASN	-2.615***	(0.830)
MMR_LAM	-5.309***	(0.904)	**R-squared**	**0.129**		THA_BRC	-8.921***	(1.424)
MMR_MDE	-6.306***	(1.044)				THA_CIS	-6.320***	(1.078)
MMR_NAM	-4.306***	(1.125)				THA_MDE	-2.083*	(1.124)
MMR_OCN	-4.517***	(0.992)				THA_NAM	-5.414***	(0.900)
MMR_SAS	-7.853***	(0.916)				THA_OCN	-5.912***	(0.878)
NPL_AFR	-7.164***	(2.049)				THA_OTH	-2.042*	(1.155)
NPL_BRC	-8.200***	(2.875)				**Constant**	**-0.439**	**(0.739)**
NPL_CIS	-13.703***	(3.299)				**Observations**	**6,532**	
NPL_EUK	-7.813***	(2.604)				**R-squared**	**0.102**	
NPL_LAM	-7.262***	(1.940)						
NPL_MDE	-10.384***	(2.642)						
NPL_NAM	-8.881***	(2.499)						
NPL_SAS	-4.118***	(1.445)						
THA_ASN	-2.397*	(1.370)						
THA_BRC	-7.562***	(1.254)						

VARIABLES	Processed Edible Oil	SE	VARIABLES	Semi-processed Edible Oil	SE	VARIABLES	Unprocessed Edible Oil	SE
THA_CIS	-3.056***	(0.890)						
THA_NAM	-2.593***	(0.762)						
THA_OTH	-4.591***	(0.860)						
Constant	**0.654**	**(0.621)**						
Observations	**10,094**							
R-squared	**0.078**							

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

Table 8: Product Classification by the stages of processing

S. No.	HS Code	Product	Stage	Description
1	90111	Coffee	Unprocessed	Coffee; not roasted or decaffeinated
2	90112	Coffee	Unprocessed	Coffee; decaffeinated, not roasted
3	90121	Coffee	Semi-processed	Coffee; roasted, not decaffeinated
4	90122	Coffee	Semi-processed	Coffee; roasted, decaffeinated
5	90190	Coffee	Semi-processed	Coffee; husks and skins, coffee substitutes containing coffee in any proportion
6	210111	Coffee	Processed	Extracts, essences, and concentrates of coffee; and preparations with a basis of these extracts, essences, or concentrates or with a basis of coffee
7	210112	Coffee	Processed	Preparations with a basis of extracts, essences, or concentrates or with a basis of coffee
8	210120	Coffee	Processed	Extracts, essences, and concentrates of tea or mate; and preparations with a basis of these extracts, essences, or concentrates or with a basis of tea or maté

S. No.	HS Code	Product	Stage	Description
9	210130	Coffee	Processed	Chicory, roasted and other roasted coffee substitutes; extracts, essences and concentrates thereof
10	100510	Maize	Unprocessed	Maize seed for sowing
11	100590	Maize	Unprocessed	Maize (excluding seed for sowing)
12	71040	Maize	Semi-processed	Sweetcorn, uncooked or cooked by steaming or by boiling in water, frozen
13	110220	Maize	Semi-processed	Maize (Corn) flour
14	110313	Maize	Semi-processed	Groats and meal of maize
15	110812	Maize	Semi-processed	Maize starch
16	151521	Maize	Semi-processed	Crude maize oil
17	230210	Maize	Processed	Bran, sharps and other residues of maize
18	151529	Maize	Processed	Maize Oil
19	190410	Maize	Processed	Prepared foods obtained by swelling or roasting cereals or cereal products "Corn flakes"
20	200580	Maize	Processed	Prepared or preserved "Sweetcorn"
21	120110	Edible Oil	Unprocessed	Soya bean seed, for sowing
22	120190	Edible Oil	Unprocessed	Soya beans, whether or not broken (excluding seed for sowing)
23	120210	Edible Oil	Unprocessed	Groundnuts in shell, not roasted or otherwise cooked
24	120230	Edible Oil	Unprocessed	Groundnut seed, for sowing
25	120241	Edible Oil	Unprocessed	Groundnuts, in shell (excluding seed for sowing, roasted or otherwise cooked)
26	120300	Edible Oil	Unprocessed	Copra
27	120400	Edible Oil	Unprocessed	Linseed, whether or not broken
28	120500	Edible Oil	Unprocessed	Rape or colza seeds, whether or not broken
29	120600	Edible Oil	Unprocessed	Sunflower seeds, whether or not broken
30	120710	Edible Oil	Unprocessed	Palm nuts and kernels
31	120740	Edible Oil	Unprocessed	Sesamum seeds, whether or not broken
32	120750	Edible Oil	Unprocessed	Mustard seeds, whether or not broken

S. No.	HS Code	Product	Stage	Description
33	120760	Edible Oil	Unprocessed	"Safflower ""Carthamus tinctorius"" seeds"
34	120220	Edible Oil	Semi-processed	Shelled groundnuts, whether or not broken (excluding roasted or otherwise cooked)
35	120242	Edible Oil	Semi-processed	Groundnuts, shelled, whether or not broken (excluding seed for sowing, roasted or otherwise **...**
36	150710	Edible Oil	Semi-processed	Crude soya-bean oil, whether or not degummed
37	150810	Edible Oil	Semi-processed	Crude groundnut oil
38	150910	Edible Oil	Semi-processed	Virgin olive oil and its fractions obtained from the fruit of the olive tree solely by mechanical **...**
39	151110	Edible Oil	Semi-processed	Crude palm oil
40	151211	Edible Oil	Semi-processed	Crude sunflower-seed or safflower oil
41	151311	Edible Oil	Semi-processed	Crude coconut oil
42	151321	Edible Oil	Semi-processed	Crude palm kernel and babassu oil
43	151410	Edible Oil	Semi-processed	Crude rape, colza or mustard oil
44	151511	Edible Oil	Semi-processed	Crude linseed oil
45	150790	Edible Oil	Processed	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and **...**
46	150890	Edible Oil	Processed	Groundnut oil and its fractions, whether or not refined (excluding chemically modified and **...**
47	150990	Edible Oil	Processed	Olive oil and fractions obtained from the fruit of the olive tree solely by mechanical or other **...**
48	151000	Edible Oil	Processed	Other oils and their fractions, obtained solely from olives, whether or not refined, but not **...**
49	151190	Edible Oil	Processed	Palm oil and its fractions, whether or not refined (excluding chemically modified and crude)
50	151219	Edible Oil	Processed	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically **...**

S. No.	HS Code	Product	Stage	Description
51	151319	Edible Oil	Processed	Coconut oil and its fractions, whether or not refined, but not chemically modified (excluding **...**
52	151329	Edible Oil	Processed	Palm kernel and babassu oil and their fractions, whether or not refined, but not chemically **...**
53	151490	Edible Oil	Processed	Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically **...**
54	151519	Edible Oil	Processed	Linseed oil and fractions thereof, whether or not refined, but not chemically modified (excluding **...**
55	151550	Edible Oil	Processed	Sesame oil and its fractions, whether or not refined, but not chemically modified
56	151590	Edible Oil	Processed	Fixed vegetable fats and oils and their fractions, whether or not refined, but not chemically **...**
57	230400	Edible Oil	Processed	Oilcake of Soyabean
58	230500	Edible Oil	Processed	Oilcake of Ground nut
59	230620	Edible Oil	Processed	Oilcake of Linseed
60	230630	Edible Oil	Processed	Oilcake of Sunflower seeds
61	230641	Edible Oil	Processed	Oilcake of Rape or Colza seeds
62	230649	Edible Oil	Processed	Oilcake of Other Rape or Colza seeds
63	230650	Edible Oil	Processed	Oilcake of coconut or copra
64	230660	Edible Oil	Processed	Oilcake of Palm nuts or kernel
65	230690	Edible Oil	Processed	Other Oilcake meal

Table 9: Importing Country Groups

Group Name	Countries Name
Africa	Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Dem. Rep., Congo, Rep., Cote d'Ivoire, Djibouti, Egypt, Arab Rep., Equatorial Guinea, Eritrea, Eswatini, Ethiopia(excludes Eritrea), Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, South Sudan, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe
ASEAN+2	Brunei, Cambodia, Indonesia, Japan, Korea, Rep., Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
BRICS excluding India	Brazil, China, Russian Federation, South Africa
CIS	Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyz Republic, Moldova, Tajikistan, Turkey, Uzbekistan
EU including UK	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Netherlands Antilles, Norway, Poland, Portugal, Romania, Saint Helena, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom
Latin America	Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela
Middle East	Bahrain, Iran, Islamic Rep., Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen
North America	Canada, Mexico, United States, United States Minor Outlying I
Oceania	Australia, Fiji, Kiribati, Marshall Islands, Micronesia, Fed. Sts., Nauru, New Zealand, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu
South Asia	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka
Others	Albania, American Samoa, Andorra, Aruba, Bermuda, Bosnia and Herzegovina, British Indian Ocean Ter., British Virgin Islands, Cayman Islands, Cocos (Keeling) Islands, Cook Islands, Curacao, East Timor, Faeroe Islands, French Polynesia, Greenland, Guam, Hong Kong- China, Iceland, Korea Dem. Rep., Macao, Mayotte, Mongolia, Montenegro, Montserrat, New Caledonia, Norfolk Island, North Macedonia, Northern Mariana Islands, Serbia, FR(Serbia/Montenegro), Turkmenistan

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