

Agricultural Trade Linkages of India with the BIMSTEC Region



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Chapter 1

Introduction

Key Developments in BIMSTEC

High Growth Region

The region's remarkable economic ascent, spanning from the 1990s through to the 2020s, has been underscored by impressive growth forecasts, notably outpacing global trends. While the world struggled with a 3.1% growth rate in 2016, BIMSTEC achieved a projected 6.9% growth rate (Mohan, 2016). This growth trajectory remained resilient through global recessions, with BIMSTEC's GDP soaring from \$3.1 trillion in 2016 to \$4.55 trillion by 2022. The region encompassing over 1.77 billion people and contributing 22.3% to the global population in 2022, has emerged as a robust economic powerhouse amidst a sluggish global economy growing at just over 3% over the past two decades. The region presents a sizeable economic geography with diverse per capita incomes, ranging from \$1,190 in Myanmar to \$7,801 in Thailand in 2023. India stands out as the dominant economy, contributing 75.1% of BIMSTEC's GDP and hosting 80.2% of its population in 2022, closely followed by significant contributions from Thailand and Bangladesh. The region's economic vigour is further highlighted by robust FDI inflows, surging from \$10.7 billion in 2001 to \$64.9 billion in 2022, reflecting a sustained upward trend. Supported by a resilient banking system, BIMSTEC maintained strong growth even during the 2008–2009 global recession, continuing its trajectory of prosperity across sectors including commerce, technology, energy, transport, and tourism (Marwah, Ramanayake & Yasmin, 2023). India and Bangladesh lead the regional caucus with growth rates of 7.2% and 7.1% respectively in 2022, highlighting their pivotal roles within the region's economic landscape. With a sturdy macroeconomic foundation bolstered by robust savings, investments, and external sector support, BIMSTEC stands as a high-growth region in the world.

Trade as a driver of growth in the region

Trade plays a pivotal role as the driver of growth in the BIMSTEC region, encompassing countries that have embraced autonomous liberalization and demonstrated improved trade performance, particularly in expanding economies with rising per capita income. Effective resource allocation for trade has significantly bolstered production capacities, particularly in nations endowed with abundant natural resources that foster domestic market growth and offer substantial employment opportunities across sectors. Drawing insights from successful regional groupings like ASEAN, the BIMSTEC region aims to emulate models integrating advanced technology and leveraging both imported and indigenous resources to enhance participation in GVCs. This strategy is crucial for promoting consistent and sustainable growth performance across member countries. Research highlights that trade openness, measured by trade volumes and reduced trade barriers, positively impact growth through technology transfers, economies of scale, and leveraging comparative

advantages (Yanikkaya, 2003). High growth rates observed in high-growth economies are closely linked to robust trade performance and liberalization efforts, contrasting with stagnant economies experiencing declining trade trends (Bhagwati, 2004). Trade facilitation within BIMSTEC is expected to stimulate intra-regional trade, similar to successful trade frameworks elsewhere (Banik, 2007). Despite challenges, BIMSTEC countries have maintained robust growth trajectories by leveraging trade and liberalization measures (Banerjee & Dey, 2016; Mohanty, 2021). With substantial economic potential driven by natural resources, economic dynamism, and large markets, the BIMSTEC region holds promise, evidenced by its increasing share in global trade and resilient performance during global economic downturns, including the recent pandemic (Mohanty & Gaur, 2022). Initiatives such as the BIMSTEC FTA and partnerships with countries like Japan are pivotal in reducing trade barriers, enhancing import-export dynamics, and integrating into global production networks, thereby fostering competitiveness and maximizing participation in global value chains (Bhattacharya, 2007; Palit, 2007).

Infrastructure and Other Policies to Promote Regional Trade

BIMSTEC, strategically positioned geopolitically, is primed to capitalise on global trade benefits, bolstered by proactive policies from key partners like India and Thailand. India's robust efforts to promote regional connectivity through initiatives like the BBIN Motor Vehicle Agreement (MVA) and the BIMSTEC MVA are pivotal, enhancing transport networks and facilitating multimodal connectivity across member states. By leveraging existing infrastructure and integrating with initiatives such as the Asian highways, the region can further fortify efficient transport systems crucial for expanding trade and investment opportunities, particularly in vital sectors like agriculture, energy, and infrastructure, thereby optimizing economic welfare across the region. To catalyse trade growth, adopting measures such as Mutual Recognition Agreements (MRA) and standardized practices is imperative, as these facilitate smoother trade and investment flows. Targeted support for sectors such as fisheries, dairy, and MSMEs will significantly boost their competitiveness and enhance their contribution to the regional economy. By prioritising these trade-promoting strategies, BIMSTEC can unlock its full economic potential and foster sustained growth through enhanced regional integration and cooperation.

The region's strategic significance is highlighted by its support for India's Look East policy, Thailand's Look West policy, and facilitation of South-South cooperation, enabling smaller nations to tap into the vast markets of India and Thailand. Moreover, initiatives like the BIMSTEC Coastal Shipping Agreement and bilateral agreements with Bangladesh are advancing waterway connectivity, complementing efforts to lower transport costs and boost trade flows among member countries. Despite infrastructure challenges, initiatives by the BIMSTEC Secretariat promote trade, investment, and best agricultural practices, incentivising intra-regional investment and establishing a common e-portal for BIMSTEC products. Energy cooperation holds immense promise, driven by abundant natural gas resources in Myanmar and Bangladesh, and significant hydropower potential in Bhutan and Nepal, highlighting opportunities for collaboration facilitated

by MRAs and regional standards supported by the South Asian Regional Standards Organization (SARSO). A coordinated approach to WTO issues affecting agriculture and fisheries is crucial for safeguarding the interests of small-scale producers and enhancing regional trade dynamics, thereby reinforcing BIMSTEC's role as a driver of regional economic growth.

Current Challenges faced by the BIMSTEC Region

The BIMSTEC region faces several challenges that hinder its potential for economic growth and regional integration. Most member countries depend on traditional methods of production in sectors such as agriculture, dairy, meat, fisheries, and mining, with the exceptions of Thailand and India. Infrastructure constraints and fiscal challenges further slow economic growth, and the establishment of seamless cross-border systems for cargo and people remains a significant obstacle. Trade within BIMSTEC is imbalanced, heavily reliant on primary exports like textiles and clothing, with India and Thailand accounting for 85% of intra-regional exports. The Intra BIMSTEC Trade Intensity Index (TII) in 2020 was notably low, reflecting insufficient trade intensity (Aggarwal & Chakraborty, 2017). Regional integration is complicated by disagreements on rules of origin, safeguard lists, and sensitive lists, necessitating cooperation among member nations. Despite the latent trade potential, FTA negotiations have stalled due to unresolved issues, high transaction costs, and non-tariff barriers. Connectivity issues persist, with BIMSTEC being one of the least connected regions globally, highlighting the need for a Single Window facility to streamline trade processes. Moreover, BIMSTEC lacks a strong sense of common regional identity, exacerbated by fears of Indian domination and historical legacies. Administrative shortcomings, such as infrequent summits and resource shortages at the secretariat, further impede progress. However, recent Indian initiatives have led to significant developments, including the establishment of the BIMSTEC Energy Centre and the BIMSTEC Business Council. Addressing these challenges through enhanced cooperation, streamlined processes, and stronger regional identity could unlock BIMSTEC's full potential for economic cooperation and growth.

Impact of LDC graduation in BIMSTEC on trade

The graduation of Least Developed Countries (LDCs) from their status presents a mixed set of challenges and opportunities. While studies by Drabo and Guillaumont (2018) indicate that graduated countries do not suffer significant negative economic impacts and continue their development trajectory, the context for future LDC graduates may be different. The withdrawal of trade preferences has not historically posed major problems, but upcoming graduates face a global trade environment influenced by policy wars and post-COVID-19 recovery, making them more dependent on developed markets (Elliot, 2019). These countries, which export labour-intensive goods such as apparel and footwear, will encounter higher tariffs under the standard Generalized System of Preferences (GSP) program. The agricultural sector, benefiting from a high preference margin, will particularly feel the impact of losing trade preferences, with potential adverse effects on textile and clothing exports as well (WTO, 2019). Country-specific impacts vary: Bangladesh could see a 0.38% GDP drop and a 6% decline in exports, significantly affecting its ready-made

garment sector (Rahman & Strutt, 2022; Bekkers & Cariola, 2024). Bhutan will face stricter rules of origin requirements and lose preferences in the Canadian and Bangladeshi markets, although the impact will be negligible for most products (Razzaque & UNESCAP, 2020; CDP, 2018). Nepal will experience a notable export decline to the European Union but minimal impact on exports to India due to existing bilateral agreements, with additional tariff increases in the US and Canada affecting specific sectors (Razzaque & Rahman, 2018). Myanmar is expected to see a 4% export decrease, particularly affecting trade with the European Union (Bekkers & Cariola, 2024). Future LDC graduates must adapt to higher tariffs and stringent rules of origin by diversifying exports and improving trade facilitation to mitigate the impact of losing trade preferences.

BIMSTEC FTA under Negotiations

The rationale for a BIMSTEC FTA lies in its potential to enhance economic ties among member countries by providing sufficient market access to goods, services, and investment. A modern BIMSTEC FTA can deepen cross-border production links, generate new value chains, and rationalise various non-tariff measures. Current trade cooperation in the region is limited, with few FTAs existing among BIMSTEC members, and agreements like APTA and SAFTA showing slow progress. Asian FTAs often focus primarily on goods, neglecting trade facilitation and behind-the-border barriers, which leads to prolonged negotiations and delays. Although BIMSTEC FTA negotiations began in 2004, progress has been slow, key elements such as trade in services and investment are not yet part of the draft document. Key disagreements, particularly between India and Thailand, have further stalled progress. However, an agreement on goods may be signed at the upcoming BIMSTEC Summit in 2024, with expectations for comprehensive coverage including non-tariff measures and trade facilitation. To be effective, the FTA should incentivise intra-regional trade, especially in agricultural products. Given the fact that many BIMSTEC members are LDCs, a two-track trade liberalization plan could address their concerns. Streamlining tariff and non-tariff barriers is essential, along with addressing trade routes, logistics, and cost considerations. Moving beyond a "business as usual" approach is crucial for the FTA to provide substantial benefits to BIMSTEC member countries.

Developments in the Regional Agrarian Sector

Regional Agriculture Under Stress

Implications of the Pandemic in the Region

The outbreak of the global coronavirus (COVID-19) pandemic posed a significant threat to health and had a ripple effect on various sectors, profoundly impacting human life. The virus spread rapidly, affecting economies and revealing inefficiencies in both the agriculture and industrial sectors, resulting in widespread food insecurity. Measures implemented to slow the transmission of COVID-19 caused severe economic shocks, leading to increased poverty, hunger, and

malnutrition, particularly in low- and middle-income countries. The agro-industry, vital for balancing import-export and managing international trade relations, faced severe issues due to trade restrictions, transport disruptions, and rising debts. Nationwide lockdowns exacerbated the situation by causing labour shortages, limited availability of fertilizers, and disruptions in the supply-demand balance. Agriculture production, crucial for reducing poverty and food insecurity, was significantly affected, with disruptions across the value chain from farmers to retailers. Local restrictions and travel bans limited access to farm inputs, leading to low agricultural production and high prices of inputs like seeds and fertilizers. Globally, the production of essential inputs like pesticides in China declined sharply, and there were severe shortages of migrant workers in Canada, the USA, and Europe, affecting the cultivation of non-staple crops. The pandemic led to a significant increase in global food prices, with notable rises in cereals and vegetable oils, although some commodity prices fell between February and May 2020. Consumer demand shifted from higher-value items to staple and ready-to-eat foods due to the closure of restaurants and food service providers. Additionally, supply chain disruptions increased transport and transaction costs, further complicating the trade landscape. The comprehensive impact of the COVID-19 pandemic highlighted the vulnerabilities in global food systems and underscored the need for resilient and adaptable agricultural practices.

Impact of Russia-Ukraine Crisis on Regional Food Trade

The Russian Federation and Ukraine are among the world's most important food producers, with their production of key crops like wheat, maize, and barley projected to rise significantly by 2030. This is attributed to their highly fertile "black soil" regions, which enable high food crop productivity. Ukraine, known as the "breadbasket of Europe", is a significant exporter of barley, rapeseed, and sunflower oil. However, the conflict in the Donbas region since 2014 has severely impacted agriculture and food security, leading to substantial cropland losses, especially in areas not controlled by the Ukrainian government and along the conflict zone. The multilateral sanctions imposed by the EU on Russia and Russia's retaliatory measures have further disrupted agri-food trade in Europe. Despite contributing only about 2% to the global GDP, Russia and Ukraine are major exporters of fertilizers, minerals, agricultural products, and energy. The war has caused significantly to agri-food trade disruptions and export restrictions, leading to drastic increases in global food prices in 2022. The prices of soybean, maize, and particularly wheat, saw substantial rises, exacerbated by increased energy prices and higher costs of agricultural inputs like fertilizers. These developments have significantly affected global food security, highlighting the critical roles of Russia and Ukraine in the global agriculture and food export markets. In a study (Mohanty and Gaur, 2022) examined the impact of the Russia-Ukraine war on regional economies, including India. The study was analysed from an Indian perspective. The research empirically examined the plight of exporting and importing countries in the agricultural sector. It was observed that while the prices of some agricultural products rose significantly, others were relatively less affected. Specifically, India faced adverse effects on the imports of fats and oil from Southeast Asian

countries, following a global shortage and the monopoly held by certain exporting countries in the region.

Trends in Agricultural Prices

Agricultural commodity prices have been following a long-term declining trend since the 1960s, driven by significant productivity improvements in agriculture and related industries that have lowered marginal production costs. The Green Revolution in the 1960s and the advent of new technologies in the 1990s led to substantial yield increases in major producing countries, further reducing costs and bidding down prices despite growing global food demand. Temporary deviations from this trend, such as the price spike during the 1970s oil crisis and the peaks between 2007-2014, did not alter the overall downward trajectory. However, the 2000s witnessed a dramatic rise in world commodity prices, especially in basic foods, which some interpret as a persistent change towards higher price levels. This view contradicts the Prebisch-Singer hypothesis, which posits that commodity prices increase less rapidly than those of manufactured goods over the long term due to differences in income and price elasticities and the transmission effects of productivity gains. According to the PS hypothesis, productivity gains result in lower commodity prices but higher wages in the manufacturing sector due to organized labour markets. Recent trends, however, show a sustained rise in the terms of trade for commodities, mainly due to their nominal prices rising more rapidly than those of manufactured goods.

Tariffs Barriers

Agricultural protection has historically been much higher than manufacturing tariff levels, with agricultural tariffs remaining significantly higher even into the 2000s. While tariffs have been reduced within multilateral frameworks, non-tariff barriers have become increasingly important. Trade agreements like CUSTA and NAFTA had low agricultural tariffs before entering into force, highlighting the complexity beyond just tariff levels. Despite some countries unilaterally liberalizing agricultural trade as part of economic reforms, high protection levels persist in middle-income developed countries. Asia's aggressive implementation of free trade policies has been crucial as the global economic recovery shifts from Europe and North America to Asia. In BIMSTEC member states, average tariff protection for agricultural products remains significantly higher than for non-agricultural products, impeding the free flow of goods within the region. Efforts to liberalize tariff regimes have been evident, with the region seeing a reduction in IWT rates from 2003 to 2019, although rates rose again during the global recession. Tariff liberalization trends vary among BIMSTEC member states, with some countries experiencing undisrupted liberalization and others maintaining stable tariff levels. High tariffs on agricultural products particularly impede intra-BIMSTEC trade, with the live animal and animal product sub-sector witnessing rising tariff rates globally and within BIMSTEC. Preferential access for LDCs under SAFTA may change as countries like Bangladesh graduate from LDC status, making an

overarching FTA framework essential for reducing tariffs and enhancing regional cooperation in BIMSTEC.

Non-Tariffs Barriers

Regional integration among BIMSTEC countries, despite being linked through various preferential arrangements, has faced significant challenges, particularly concerning the determination of rules of origin, safeguard lists, and sensitive lists. Trade growth in the region is driven not only by tariff elimination but also by addressing numerous non-tariff barriers (NTBs) and implementing trade facilitation measures. NTBs, including procedural requirements, sanitary standards, certification, and technical standards, remain prevalent. Many BIMSTEC members, also part of SAFTA and APTA, have reduced average tariffs, but numerous NTBs still need to be removed to realize the trade potential. Harmonization of standards, tariff elimination, and dismantling of para-tariff and non-tariff barriers are crucial for achieving regional integration. Reducing long negative lists among BIMSTEC countries within a specified timeframe is essential. Signing a region-wide Mutual Recognition Agreement (MRA) could complement and strengthen the BIMSTEC-FTA, addressing delays in customs clearance related to SPS-TBT compliance, especially in agricultural goods trade. Leveraging the work of the South Asian Regional Standards Organisation (SARSO) could expedite the signing of MRAs. In anticipation of the MRAs, BIMSTEC members could start by agreeing to a common conformity assessment procedure through recognition of accreditation and certification concerning agri-products.

India's food trade linkages with regional countries

New food classification

Several classification systems express concerns about the transition to industrially-made food products and the associated increase in chronic diseases. Historical contexts, such as the agricultural and industrial revolutions, led to increased consumption of refined sugars and other foods, linking industrialized food consumption to higher risks of chronic diseases. Fardet describes a "fourth nutrition transition" with the 1980s introduction of ultra-processed products, characterized by fractionated and recombined foods with numerous additives. Systems like NOVA and Siga critique nutrient-based approaches and conventional food groupings for industrial products. Researchers are developing operational definitions for "processed food" to enhance its utility in epidemiological analyses. Classification systems are designed to study relationships between industrial products, nutritional intake, and health risks. NOVA is recommended for dietary guidelines, while Siga aims to help industry revise product offerings and guide consumers. These systems are often based on the "degree of processing" and the extent of change from the natural state, including changes to a food's properties or the addition of ingredients like fat, sugar, salt, or additives. Siga uses a holistic approach, viewing whole food as more than the sum of its parts, while NOVA and Poti focus on industry methods. Some systems classify home-processed

foods, considering them minimally or moderately processed. Socio-cultural elements are included in some systems, segregating culinary ingredients used in home cooking. Processing adds value through preservation, safety, making foods edible or enjoyable, and increasing convenience, though lines between processing and convenience can blur. NOVA and Poti assess the "purpose" of processing, but this is not systematically evaluated. Most systems do not include quantitative nutritional assessment, but Siga evaluates nutritional content concerning dietary recommendations.

India's agriculture trade with BIMSTEC countries

A study conducted from 1997 to 2017 has examined the trend of BIMSTEC nations' share of agricultural products in total trade with India. Myanmar's agricultural sector, which contributed almost 90% to its total trade with India in 2004, saw a significant decline to 40% by 2017 due to production and supply constraints, along with a strategic shift in investment towards economic development. In contrast, Nepal's and Sri Lanka's agricultural shares remained relatively stable at around 20% until 2017. Bhutan's share decreased from 20% to 10% due to low international market prices and competitiveness. Thailand experienced a decline in its agricultural share due to diversification and the reallocation of labour to non-agriculture sectors. Consequently, aside from Myanmar, the other BIMSTEC economies showed negligible changes in their total trade shares during the study period. India's agricultural exports were predominantly directed towards the USA, China, Bangladesh, UAE, Vietnam, Saudi Arabia, Indonesia, Nepal, Iran, and Malaysia, which together accounted for 52.2% of the total agricultural exports in 2020-21. Indonesia emerged as the largest agricultural exporter to India, followed by Malaysia, Argentina, Ukraine, and the USA, with these top five countries contributing to 54.5% of India's total agricultural imports in 2020-21. The USA was the largest importer of Indian agricultural products in 2021-22, with significant imports also going to Bangladesh and the UAE. India's major agricultural exports to BIMSTEC countries are varied, with Thailand importing molluscs and pepper, and Bangladesh importing a range of products including onions, garlic, and cotton items. Sri Lanka imports significant quantities of onions, garlic, and woven cotton fabrics, while Nepal imports oil seeds and non-Basmati rice. Bhutan's primary import from India is dairy products. This diverse export portfolio underscores India's significant role in the agricultural trade within the BIMSTEC region.

Trade in agriculture implements with the region

India's farm machinery market is predominantly led by tractors, followed by other equipment such as rotavators, power tillers, and threshers. Major manufacturers in this sector include Mahindra & Mahindra, TAFE, John Deere, Escorts, and Sonalika Tractors, alongside numerous small and medium enterprises producing a variety of farm machinery. The adoption of contract farming and precision agriculture is expected to boost demand for farm equipment in the coming years, further driven by agri-tech start-ups developing machinery with IoT, AI, drones, and other cutting-edge technologies. Specific states in India have been identified as technology hubs for the manufacture

of various farm equipment. Tamil Nadu focuses on brush cutters and millet dehullers, Punjab on forage reapers and rice track combines, Chhattisgarh on paddy threshers and multi-crop threshers, Odisha on rotavators and power tillers, and Gujarat on groundnut diggers and mulching machines. India maintains a trade surplus in the agricultural machinery sector, with exports reaching USD 1.02 billion against imports of USD 300 million in 2019-20. Tractors constitute around 70% of these exports, with major export destinations including the USA, Thailand, Nepal, Sri Lanka, Bangladesh, and several African and South-East Asian countries. The ASEAN Free Trade Agreement supports exports to neighbouring countries like Thailand, Malaysia, and Indonesia, by reducing duty structures. Leading Indian tractor exporters such as TAFE, Mahindra & Mahindra, and John Deere significantly contribute to this export market, with approximately 65,000 tractors exported annually. India also imports certain types of tractors from Thailand, Japan, and South Korea, as well as combined threshers from China, Thailand, Japan, and Germany, and various components from Italy, Denmark, and Turkey. This dynamic interplay of domestic production, technological advancement, and international trade underscores the robust and evolving nature of India's farm machinery market.

Agriculture Trade Competitiveness and Export Potential

Studies on the growth of India's agricultural exports have extensively utilized the Revealed Comparative Advantage (RCA) index to assess competitiveness. Various approaches, such as examining relative domestic and foreign prices, and cost of production, have been used, with Balassa's method being the most prevalent. In India, RCA studies primarily focus on agricultural commodities, revealing that rice, groundnut, shrimp, gram, onion, and bovine meat are the most competitive exports. The Relative Export Competitiveness (REC) of these commodities spiked during high global price periods and moderated until the pandemic, with rice, bovine meat, and shrimp maintaining competitiveness. Processed agricultural products also show varying degrees of competitiveness. Meat of bovine animals, certain fish, and molluscs have maintained high RCA, while products like cane sugar and coffee extracts have seen declines. India holds a comparative advantage in several products within the BIMSTEC region, including fish, crustaceans, tea, cereals, oil seeds, and sugar, with each BIMSTEC country having specific competitive products. In the ASEAN markets, India enjoys a revealed comparative advantage in live animals and vegetable products but faces a disadvantage in animal fats and prepared foodstuffs. While India's RCA in food grains and other agricultural products remains stable, textiles exports show fluctuations due to competition. Processed and semi-processed products dominate India's agricultural exports to ASEAN, with a significant number of these products being competitively positioned, although some are threatened by competition. Overall, India's agricultural export competitiveness is influenced by various factors, including global prices, trade agreements, and market demand dynamics.

Chapter 2

Macroeconomic Shifts in Regional Agricultural Developments

2.1 Economic Resurgence in the Regional Grouping

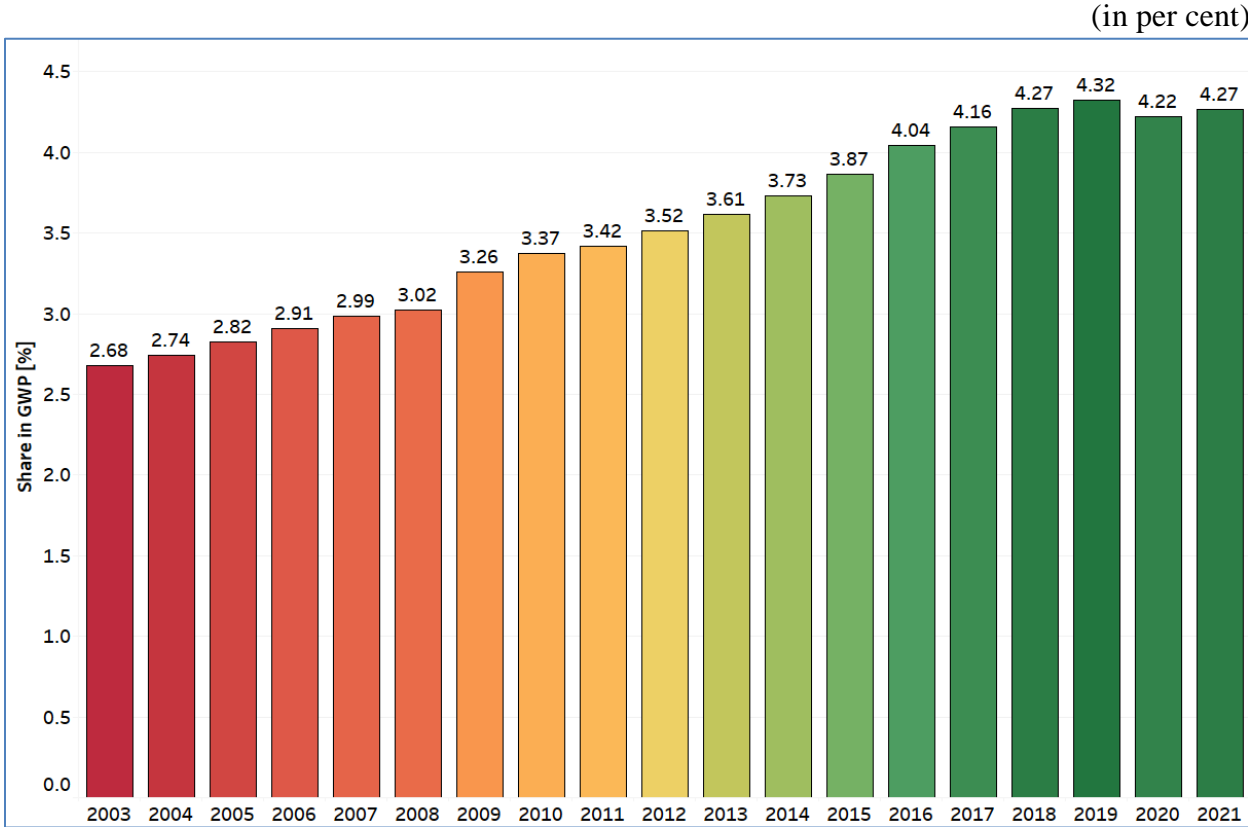
The region has transitioned from a traditionally low-performing state to a high-growth state, driven by individual country efforts. However, the full impact of regional integration is yet to be realized. With long experience in economic reforms, the region's economies have adopted growth-oriented strategies, positioning themselves on a high-growth trajectory through trade as the engine of growth. Taking advantage of the global buoyancy in the early 2000s, many regional countries adopted export-led growth (ELG) as the main strategy to drive growth through trade. For several countries, this process began with self-propelled liberalization as part of the structural adjustment programmes. These programmes mandated liberalisation at different times across the region. Thailand and Sri Lanka initiated this process much earlier than the rest of the BIMSTEC countries, while most of the remaining member countries began their liberalization journey in the early 1990s. During the period of Structural Adjustment Programmes (SAP) followed by reforms, the regional countries' experiences have been diverse in terms of their willingness to undertake sweeping reforms with the IMF, managing macroeconomic stability, and performance in the social sector. In several countries within the region, there was a mismatch in balancing these three elements of economic reforms, leading to painful outcomes. However, India's experience has been favourable on all fronts. Notably, a relatively lesser degree of reforms in agriculture and the transfer of resources to this sector helped regional countries improve their agricultural production to address hunger and meet export needs. The advent of global buoyancy in the early 2000s spurred rapid progress, with trade as the lead sector. However, this phase of global buoyancy was short-lived, and the world economy soon experienced the longest global recession in its history.

Dynamics of Macroeconomic Stability and Growth in Regional Economies

After the 'financial economic crisis in Asia' in the mid-1990s, which caused a major economic setback for the continent, a recessionary trend persisted until the early 2000s. As the global economy regained buoyancy, the BIMSTEC region began to expand rapidly, achieving an annual growth rate of 7.3% compared to the world economy's 4.1% during 2003-07. However, this buoyant phase was short-lived as the global recession hit in 2008, bringing most economic activities to a standstill and adversely affecting the world economy. The average global GWP growth rate in constant prices declined to 2.5% per annum, while the BIMSTEC region maintained a higher average growth rate of 6.1% during 2008-16. The global recession persisted, and economic activities worldwide declined significantly, exacerbated by the COVID-19 pandemic, which caused unprecedented negative growth. Despite these challenges, the global economy posted a growth rate of 3.7%, and the BIMSTEC region achieved 6.0% during 2017-22, excluding the pandemic year. Including the pandemic's impact, the average growth rates for the world and BIMSTEC region fell to 2.6% and 4.1%, respectively, during 2017-22. The high growth

performance of the BIMSTEC region resulted in a substantial rise in per capita income, leading to more people joining the middle-income group.

Figure 2.1 Accelerating BIMSTEC Share in the GWP

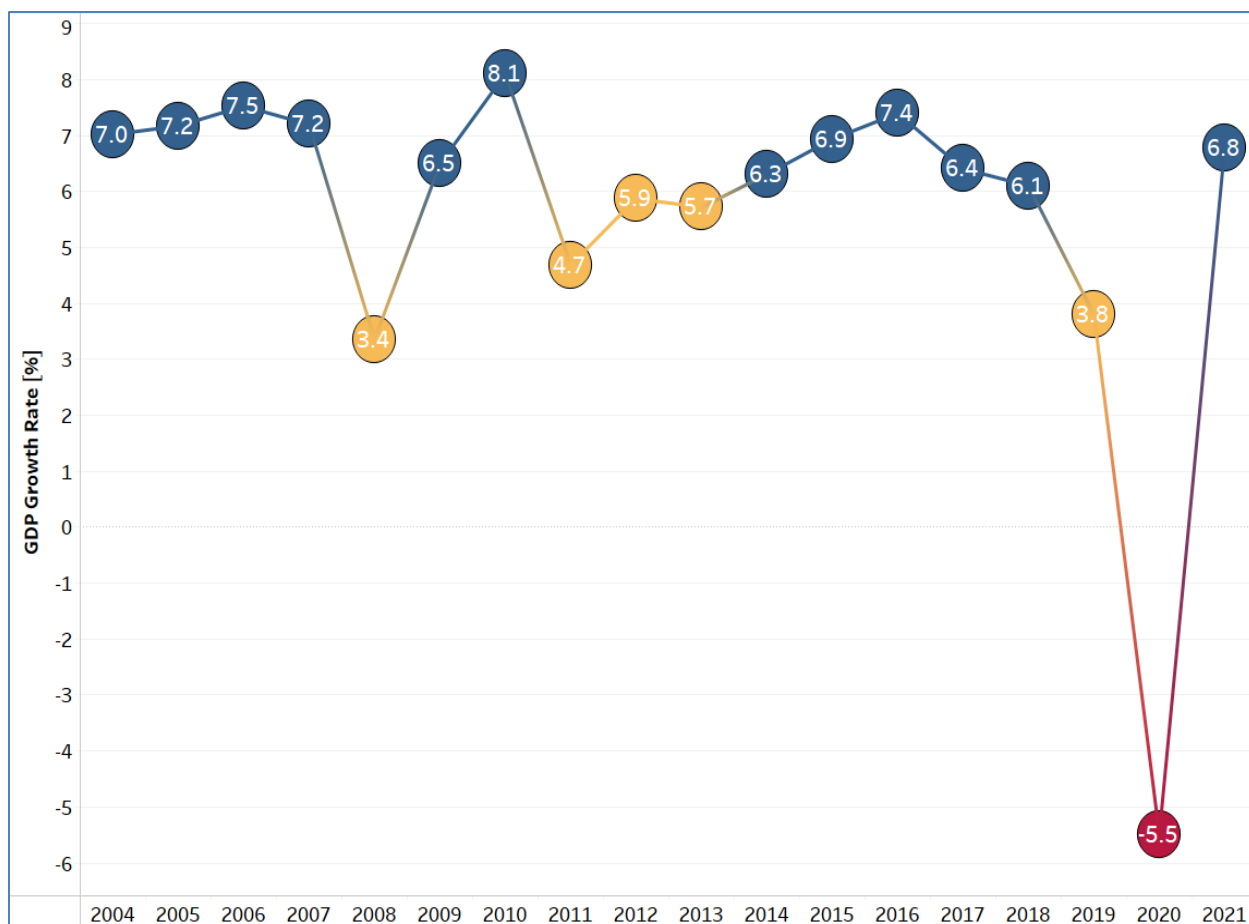


Source: Estimation of authors based on World Development Indicators, World Bank (Online)

The persistent growth of the BIMSTEC region compared to the world economy has significant implications for its relevance in the global economic landscape. When a region grows faster than others, it tends to increase its share in the Gross World Product (GWP), as evidenced by the BIMSTEC region over the last two decades as illustrated in Figure 2.1. The GDP share of the BIMSTEC region in the GWP has been steadily rising in constant prices, from 2.6% in 2002 to 3.0% in 2007, 4.0% in 2016, and 4.4% in 2022. This growth trend persisted during both global economic buoyancy and periods of recession, with only a marginal decline during the global pandemic. Remarkably, the BIMSTEC region's share in the GWP did not decline significantly despite widespread economic contractions worldwide. The resilience of the region is highlighted by the region's impressive recovery following the pandemic year of 2020, demonstrating its robust economic performance and growing importance in the global economy.

Figure 2.2 Economic Growth Trends in the BIMSTEC Region (2002-2022)

(in per cent)

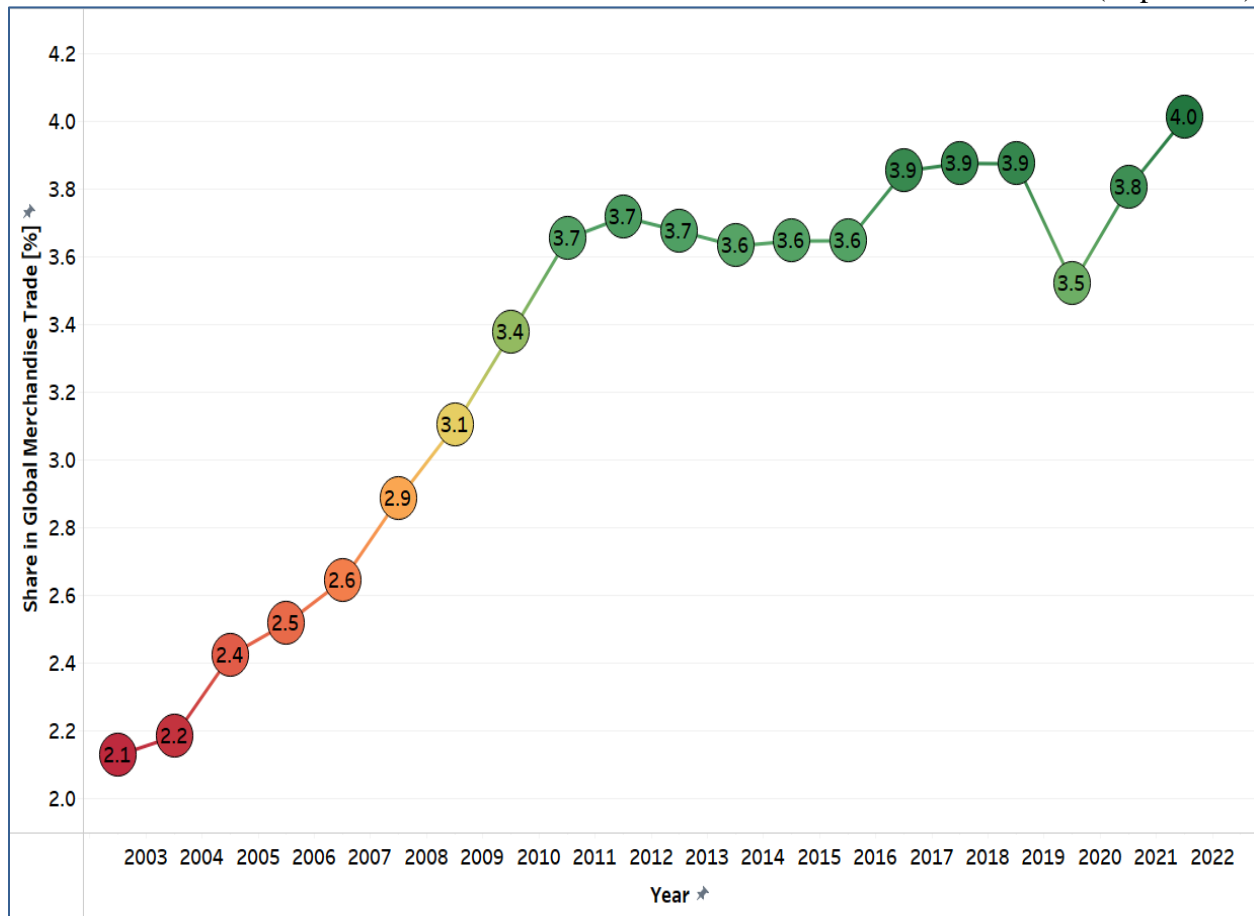


Source: Estimation of authors based on World Development Indicators, World Bank (Online)

The rising share of the BIMSTEC region in the global economy has been the result of its persistent growth performance over the past two decades. High growth has not only been seen in countries like India and Bangladesh but has also been widespread across the region over a long period. Member countries such as Bangladesh, Bhutan, and Nepal are on the verge of graduating from LDC status within the next few years. Bangladesh has already achieved low middle-income status, with its per capita income exceeding \$2000. Non-LDCs, including India, have also performed consistently well over the years. However, certain anomalies have been noticed in some countries, particularly during the second phase of the global recession. The overall growth performance of the region is depicted in Figure 2.2. During the period of economic buoyancy until 2007, the regional growth rate exceeded 7% annually. After the global recession hit in 2008, the region quickly recovered in 2009, with growth resuming and reaching 8.1% in 2010. Continued global economic pressures slightly impacted the regional average growth rate during 2011-13. Despite volatility under recessionary pressures, growth rates remained between 6-7% until 2018, before the US-China trade war caused a setback. The COVID-19 pandemic in 2020 brought a significant but temporary decline. However, the region has shown remarkable recovery in the post-pandemic period, showing its resilience. The trade sector has played a crucial role in maintaining high growth performance for the region.

Figure 2.3 Expansion of Regional Trade Share in the World Economy

(in per cent)



Source: Estimation of authors based on Comtrade, United Nations (Online)

Most regional economies pursued an outward-oriented trade strategy to maintain high growth and integrate with the world economy. Despite severe resource constraints and deprivations, these economies managed to use trade as a growth driver amid high trade imbalance tensions with the rest of the world. This high exposure enabled the region to maintain a significant trade share in global trade as shown in Figure 2.3. The trade share of the region grew much faster during 2003-10, despite global recessionary trends. Although the region's share in global trade remained stagnant during 2011-16, it marked a jump in 2017 and stagnated until 2019. The global pandemic severely impacted the trade sector, leading to a sharp decline in the region's share in global trade in 2020. However, the trade sector of the region recovered sharply in 2021 and continued to improve through 2022. In 2002, the regional trade share in the world was 2.2%, reaching 4% in 2022. A comparison between the region's GDP and trade performance indicates that the trade performance has been more robust. The region expanded rapidly in the trade sector, with the rise of the agricultural trade sector being particularly significant. Despite maintaining a persistent trade surplus in regional agricultural trade, the region encountered a secular trade imbalance with the rest of the world. This agricultural trade surplus has compensated for the large overall trade deficit

of the region. During periods of global buoyancy, trade in the agricultural sector was vibrant, but progress was hampered by the continued recession. Recent pessimism in the region's agricultural trade is due to various exogenous shocks and structural problems within the region, which have greatly affected the sector.

Chapter 3

Trade liberalisation in the Food Sector of BIMSTEC

3.1 Introduction

The rapid transition of the BIMSTEC region from an agrarian economy to an industrial one has been a major achievement registered during the last three decades (Ludden, 2011; Hayami, 2007), but the agricultural sector remains the mainstay for a substantial proportion of the region's overall population for livelihood. The resurgence of these economies with steady growth is mostly triggered by the proliferation of trade with the world economy and countries within the region. Despite substantial progress achieved by most of the regional economies, livelihood security remained the central point for maintaining dual sectoral policies for agriculture and non-agriculture sectors regarding the level of protection. In the BIMSTEC region, most of the regional economies resort to maintaining a highly protected regime in agriculture except for Thailand, which is a part of the 19-member Cairns group in the WTO, supporting liberalisation of the agriculture trade globally. Soon after the inception of WTO in the mid-90s, the world economy came under the grip of the 'Asian financial crisis' and buoyancy returned to the world economy in 2003. The global agriculture trade languished under a highly protected regime during the recessionary period. Global buoyancy brought a new dynamic to the world economy, and the BIMSTEC region was no exception to this trend (Mohanty, 2021).

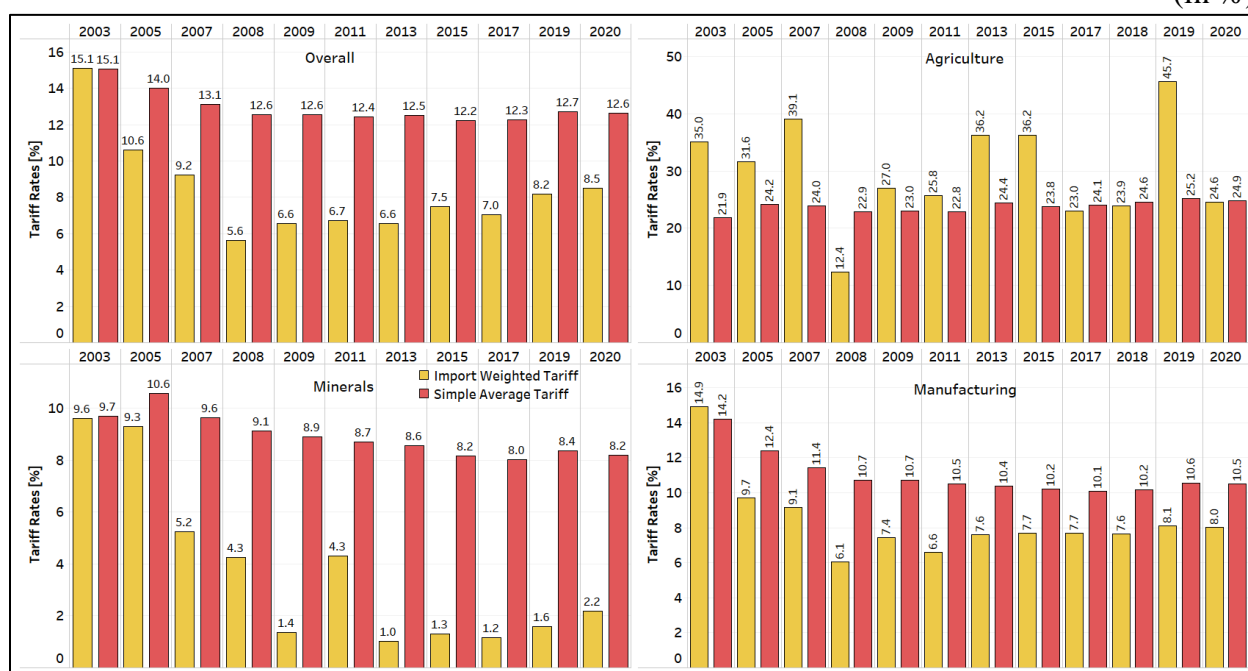
Though global buoyancy lasted for a short period (2003-07), the agricultural trade sector left a strong footprint on the BIMSTEC. The regional agriculture trade thrived along with the steep reduction in the average level of trade protection in the sector. The entire trade sector of the region observed gradual trade liberalisation, but the agricultural sector witnessed the most significant decline in tariff protection. Despite the sharp reduction of agriculture tariff, the average rate of protection in agriculture was much stiffer than in non-agriculture sectors (Kamar & Roy, 2023). Trade liberalisation was not uniformly spread across different member countries and the agro-sectors. With the onset of the global recession, the trade liberalisation process either came to rest or reversed, particularly during the first phase of the global recession. With the intensification of the global recession in subsequent years, trade liberalisation was reversed in several regional economies and remained profound in several sectors. Protection for the agricultural sector has been sensitive in different trade regimes since the onset of buoyancy in the early 2000s. However, protection in agriculture was high and significantly volatile compared to the manufacturing and mineral sectors. Among the three broad sectors, trade liberalisation has been significantly high for the mineral sector, followed by the manufacturing sector. In a recent study, Mohanty and Gaur (2022) have revealed empirical evidence that BIMSTEC regional trade has been flourishing along with the shooting up of average tariffs in the past two decades.

3.2 Trends in Broad Sectoral Liberalisation in BIMSTEC

The agricultural sector tariff regime of the BIMSTEC region is not only one of the most deeply protected in comparison to other groupings of the world but also the most protected sector within the broad economic sectors of the region as shown in Figure 3.1. This trend is observed from the empirical analysis when the comparison is made for both simple average tariff (SAT) and import-weighted tariff (IWT) separately. The level of protection during 2003-05 was high and volatile for the region, particularly high for the agriculture sector. While the region's overall SAT was in the range of 12 to 14 per cent, the corresponding figures for the agriculture sector were between 23 and 26 per cent during 2006-20. In the case of the mineral sector, SAT was in the single digits and the manufacturing sector was less than 12 per cent during 2006- 20. The period of global buoyancy (2003-08) witnessed a sharp decline in the overall level of protection, and the liberalisation trend continued in the early phase of the global recession (2009-14). With the prolongation of the period of global recession (2015-20), a reversal of the trade policy was observed in the region. A disturbing trend was noticed in the region where the protection level was significantly high in the agricultural sector, whereas the mineral and manufacturing sector registered impressive liberalisation during 2003-08 and the liberal tariff regime continued in the early part of the global recession.

Figure 3.1: Trends in Import Weighted Tariff and Simple Average Tariff in BIMSTEC

(in %)



Source: Estimation of authors based on TRAINS WITS, Online, UN.

The sectoral liberalisation profile of the region has been impressive during the global buoyancy (2003-20) where the region passed through the radical phase of liberalisation as shown by the import-weighted tariff (IWT). While taking the sectoral average of tariffs at the regional level, IWT is more appropriate to be used because it not only puts high weights on heavily traded

commodities but also assigns more weightage to large trading member countries with the world. With the onset of the global recession in 2009, liberalisation was prominent only in the mineral sector, putting the overall IWT of the region under pressure. The track record of agricultural liberalisation was highly volatile in the region. A strong tariff regime in the sector has been significantly associated with a global orientation towards trade. The average IWT for the mineral sector revealed that liberalisation was deep for the products that were heavily traded with the world. However, pessimism in regional liberalisation continued with the continuation of the recession for over one and half decades. Both SAT and IWT estimates have indicated that liberalisation was sturdy during 2003-2020, but sectoral experiences were uneven for the region. Most significant liberalisation was seen in the mineral sector which was followed by the manufacturing and agriculture sectors.

3.3 Profile of Sectoral Liberalisation in BIMSTEC

BIMSTEC has been a fascinating region with the rapid agrarian transformation taking place in most of the economies in specific agricultural sectors, thus paving the way for brisk trade within the region. Since regional economies are mostly agrarian, protection for the sector is highly warranted to ensure livelihood security for the vast population of the region. Most of the regional countries have made their positions clear in the WTO that protection in the agrarian sector is to continue because of livelihood security considerations. In this regard, Thailand is different from other economies in the region in the sense that its membership in the Cairns group in WTO favours multilateral trade liberalisation in the agriculture sector. It is paradoxical for the region to demonstrate that it generates a substantial trade surplus with the global economy amidst high trade protection in the agricultural sector. Regional economies are engaged in intensive trade among themselves as compared to their linkages with the world economy in agriculture. The intensity of intra-regional trade in agriculture has been significantly higher than that of the mineral and manufacturing sectors (Mohanty and Gaur, 2022). For examining the pattern of liberalisation in the BIMSTEC region, measures like simple average tariff (SAT) and import-weighted tariff (IWT) are used in this section. MFN tariff and global imports for each country at a 6-digit product level are used for the estimation of SAT and IWT at the regional, country and product level for the period 2003-20.

The average tariff for the agricultural sector in BIMSTEC was relatively higher than several other neighbouring regional groupings including ASEAN, where SAT for the region ranged between 21 per cent and IWT between 21 per cent and 32 per cent in 2020. Because of variations in the flow of imports and patterns of demand in different product categories, there is a considerable gap between SAT and IWT in different product categories in the agricultural sector as shown in Table 3.1. The region also demonstrates that significant variations can also be seen in SAT of several agriculture HS Sections and the levels of protection are also relatively higher than the sections in the manufacturing and mineral sectors. Similar is the case when the comparison is made between the IWT of agriculture and other non-agriculture sectors at the level of HS sections except for footwear and arms & ammunition. During the period of global buoyancy (2003-08), there was a sizable deceleration in IWT, particularly in the fats & oils sector but the level of protection

increased in the HS Section of live animals & meat. The second period of the global recession witnessed a more liberal trade regime than the first phase of the global recession so far as the agricultural sector was concerned. Taking into account the entire period of the global recession (2009-20), IWT increased in all HS sections of the agricultural sector except for the fats & oils sector. Diversity in the level of protection has been sharp while examining various sectors at the HS chapter level.

Table 3.1: Trends in Composition of Tariffs at the HS Sections during 2003-20: SAT & IWT

(in per cent)

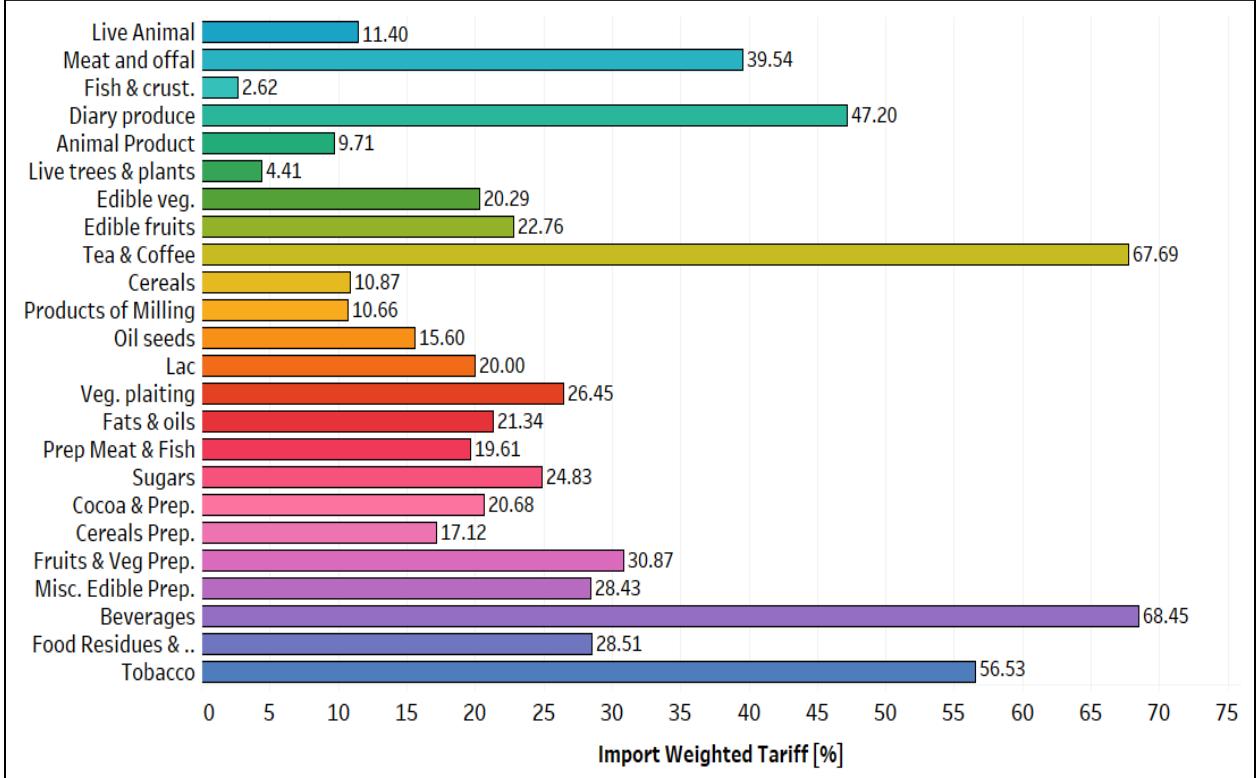
Sec	Section	2003	2008	2014	2020	2003	2008	2014	2020
		Import Weighted Tariff				Simple Average Tariff			
1	Live Animals and Animal Products	8.8	9.6	29.3	25.4	18.1	19.9	20.6	21.1
2	Vegetable Products	23.5	11.9	27.9	22.1	19.6	22.3	23.6	24.2
3	Animal Fats & Vegetable Oils	64.1	24.8	50.3	21.3	25.3	21.2	27.5	25.8
4	Prepared Foodstuff, Beverages, etc.	25.7	23.3	34.4	31.7	28.8	27.5	27.6	29.3
5	Mineral Products	9.6	4.3	1.0	2.2	9.7	9.1	8.4	8.2
6	Products of Chemicals	13.6	5.7	6.3	6.4	10.6	7.4	6.9	7.1
7	Plastics & Articles thereof	22.7	7.0	7.4	8.4	17.3	11.9	11.3	11.6
8	Raw Hides & Skins, Leather, etc.	9.9	9.4	12.5	13.0	15.3	13.7	13.6	14.1
9	Wood & Articles of Wood	6.0	5.1	5.6	6.7	14.0	11.4	11.1	11.2
10	Pulp of wood or other Fibers	14.2	6.4	7.7	6.7	14.1	11.1	10.7	10.8
11	Textile & Textile Articles	15.0	6.7	12.7	14.2	17.2	14.8	15.1	14.9
12	Footwear, Headgear and Umbrella	22.2	16.2	17.1	23.1	23.7	19.2	19.2	20.2
13	Articles of Stone, Plaster, Cement	19.7	10.9	11.1	11.1	18.6	14.8	14.4	15.0
14	Natural or cultured pearls, Jewellery	21.0	4.9	9.0	9.4	16.0	12.3	11.3	11.6
15	Base Metals & Articles of Base Metal	15.0	5.0	5.8	6.8	14.6	10.1	9.6	9.9
16	Machinery & Mechanical Appliances	10.5	4.7	5.2	5.4	11.1	6.9	6.3	6.4
17	Vehicles, Aircraft and Vessels	25.3	14.1	14.2	15.2	17.6	14.8	14.5	15.3
18	Optical, Photograph & Cinematography	13.4	5.4	5.8	5.6	12.2	8.7	7.5	7.7
19	Arms and Ammunition	43.8	26.4	22.0	29.2	28.7	28.0	28.9	28.9
20	Miscellaneous Manufactured Articles	19.3	12.3	12.0	16.3	18.7	15.3	15.1	16.7
21	Works of Art Collectors' Pieces	19.7	10.2	13.2	11.3	17.3	15.3	16.2	16.3

Source: Estimation of authors based on TRAINS WITS, Online, UN.

The level of protection at the disaggregated level of trade indicates that the response of the agricultural sector has been highly susceptible to the changes in the global trade regimes. For demonstrating the general tariff policy regime in the BIMSTEC region, the SAT is important to show variations in the trade policy at the aggregate level over a period of time. The SAT reflects comprehensive tariff policies adopted by the regional economies, assigning similar weights to each member country and the commodities traded by them. The IWT presents in the same manner but includes certain other sensitivities while estimating it such as variations in the levels of trade and import priorities of products associated with member countries of the regional grouping. The same level of SAT over a period of time does not mean similar could be the level of IWT for the region.

The variations in the level of IWT could be due to significant changes in MFN tariffs of certain heavily traded products, as shown in Figure 3.2. The divergences between IWT and SAT curves show the difference between overall tariff policy and effective tariff policies of the region/country/sector. The experience of BIMSTEC indicates that a reduction of the average level of tariffs was noticed in a large number of products in the case of IWT than SAT. This may be the outcome of certain large economies embarking on tariff reductions for certain heavily traded products. Persistent reduction of tariffs has not happened for several chapters in agriculture.

Figure 3.2: Trends in Composition of Tariffs (IWT)at the HS Sections in 2020



Source: Estimation of authors based on TRAINS WITS, Online, UN.

During the period of buoyancy, there was a significant reduction of IWT in fruits & vegetables, oils & fats and a substantial level in the processed food sector. The level of protection for live animals & products remained high without any reduction in IWT. During this period, significant tariff reduction was noticed in HS Chapters like edible vegetables and roots, edible fruits and nuts serial oil seeds, fats and oils, etc. among others. With the onset of the global recession, the region experienced the heat of the rising tariff protection in the agricultural sector except for fats and oils. Certain HS Chapters responded on a negative note by raising IWT significantly including dairy products, cereals, oil seeds and residue and waste from food industries. The global recession entered into its second phase in 2015, and the fury of protection engulfed agriculture imports of the region but all major agriculture sectors were not affected equally by the tight tariff policy of the region. The IWT declined in the case of 13 out of 24 chapters in the agricultural sector during 2015-20. Tariff protection in agriculture declined unprecedentedly in most of the HS Chapters of

the HS Section on live animals and animal products during 2015-20. A similar trend was also followed significantly in IWT for the fats and oils chapter during the same period. Several chapters in the fruits and vegetables section also witnessed a decline in the average rate of protection in recent years. However, several HS Chapters in the processed food sector received protection during the period and strong tariff protection was observed in sugar and sugar confectionery. Even so, country experiences are divergent in different sectors and vary across time.

The IWT indicates the intensity of protection/liberalisation of sectors (at the Chapter level) in the regional agricultural sector. During the period of global buoyancy, the magnitude of tariff liberalisation was more profound than during the period of global recession. The space for sustained liberalisation gradually declined with the inward approaches adopted by other countries in the world. In the case of 13 HS chapters from a total of 24 chapters in agriculture, average protection registered a decline during the period of global buoyancy (2003-08). During the period, the Section representing live animals and animal products was subjected to a rise in the levels of tariff protection than before, but the HS Section on fats & oils was liberalised exceptionally compared to other HS chapters in the agricultural sector. However, other broad agriculture HS Sections such as fruits and vegetables & processed food presented a mixed response towards management of protection in these sectors where liberalisation was also partially accomplished.

In some of the HS chapters, the level of liberalisation was deep such as edible vegetables and certain roots (Ch7), edible fruits & nuts (Ch8), cereals (Ch10), products of the milling industry (Ch11), oil seeds and oleaginous fruits (Ch12) and preparations of vegetables, fruits, nuts, etc. (Ch20). Conversely, certain HS Chapters were highly protected such as meat and edible meat offal (Ch2), products of animal origin (Ch5) and vegetable plaiting materials (Ch14). During the entire period of recession (2008-20), the level of protection for certain Chapters rose persistently such as dairy products, birds and eggs (Ch4), cereals (Ch10), oil seeds and oleaginous fruits (Ch12) and residues & waste from food industries (Ch23). Certain HS Chapters also faced a sharp decline in the levels of protection during the same period. The return of protectionism in the BIMSTEC region during the period of the Global recession also witnessed strong liberalisation policies in certain HS Chapters like fish (Ch3), live trees and plants bulb (Ch6), fats and oils (Ch15) and sugar and sugar confectionery (Ch17). Since more HS Chapters were protected than liberalised during the entire period of the global recession, the agriculture sector appeared to be more protected during the recession compared to the period of global buoyancy. Tariff policies are found to be more divergent from the aggregate regional tariff policies which are discussed briefly below.

3.4 Sectoral Profile of Countries in Agricultural Trade Liberalisation

India resorted to significant tariff liberalisation in the manufacturing and mineral sectors, but the pace of trade liberalisation in the agricultural sector remained on a low pedestal during the past two decades. During 2005-10, trade liberalisation in the manufacturing and mining sectors was reported to be profound but the agriculture sector was liberalised at a slower pace. The rate of decline in sectoral tariffs was in double digits for several manufacturing and mineral sections, but not in the agriculture Sections during the period. In the agricultural sector, a moderate level of tariff liberalisation was undertaken except for the Section on live animals & animal products. In

the early phase of the global recession, the liberal trade regime continued unabatedly with the intensification of liberalisation efforts in specific sections like live animals & animal products and fruits & vegetables. Since the Section on fruits & vegetables has been a competitive one for India, the level of liberalisation was more pronounced in this Section than in other Sections of agriculture in the early years of the global recession. With the continuation of the recession, several countries adopted inward-oriented policies and as a sequel to this global trend, India also made a partial shift in the tariff regime during 2015-20. Interestingly, with the deepening of the global recession, there was a sharp decline in the IWT of animal fats and vegetable oils during the same period. The change in the tariff regimes during 2005-20 had a lasting impact in continuing with persistent liberalisation of specific agricultural trade sectors like animal fats, vegetable oils, and processed food. During the said period, the HS Section on live animals and animal products was the most protected and the HS Section on animal or vegetable fats and oils was the most liberalised product group in the Indian agricultural trade Sector.

Chapter 4

India's food trade linkages with regional countries

4.1 Introduction

The role of agriculture in the BIMSTEC region has shown its importance with a huge share of the population dependent on agriculture and agriculture-allied activities, a major contribution to the GDP of the region and its growing agriculture trade over the years. A mix of different climate zones in the region provides high resource availability and the required diversity in agricultural produce to different member countries for domestic consumption and international trade (Ghonkrokta, 2022). With nearly 22 per cent of the global population, the region's demand for agricultural goods has ever grown. The region's growing population has been exerting tremendous pressure on the sector and food security (Thibbotuwawa, 2022). Some member countries are graduating from being least-developed countries and others enjoying the status of emerging economies have raised the demand for food processing with the increase in income and urbanisation in these nations. Given the high demand and supply of agriculture production and trade in the region, the BIMSTEC member states have included *agricultural and food security* as one of the areas of cooperation among the member states.

The agriculture resource heterogeneity of each country in the BIMSTEC region, and the world, has raised the importance of agri-trade. This diversity in resource endowment raises opportunities for nations to gain from trade from intra and extra-regional trade. This applies not only to food products but also to agricultural implements, such as seeds and agriculture machinery (Martin, 2017). The trade policy has also played an important role in attaining food security in the region with the availability of food at lower prices through a reduction in input cost (Suri & Tyagi, 2020). However, the agriculture trade has been criticised over its lack of apprehension on the nutritional and unhealthy dietary consequences. The region supports less than 4 per cent of the global agriculture trade (Roy et al., 2023) and the sturdiness of the agriculture sector of the region has been witnessed during the post-COVID crises due to disruption in supply chains. However, this has been below its potential with high trade and non-trade barriers.

Inefficient utilisation of inputs, low market integration, lack of modern technologies and low level of participation in food value chains, have affected the international trade and intra-regional trade of the region (Sengupta, 2017; Thibbotuwawa, 2022). Poor infrastructural facilities for storage, power, transportation & connectivity and high trade (Bose, 2018) and non-trade barriers (Rahman & Kim, 2015) have worsened the situation to flourish the agriculture trade sector in the region. Improvement in trade facilitation measures, harmonization of standards, use of technology and innovation, and moving up the value chains with support to food-SMEs provide the necessary boost to the momentum of agriculture trade in the region. A free trade agreement (FTA) among the BIMSTCE countries, with reduced tariff barriers and enhanced trade facilitation measures may help in increasing the intra-regional trade of the region (Kamar & Roy, 2023). This chapter discusses the trends in agriculture trade in the BIMSTEC region and dwells on the challenges and opportunities faced by the member nations in agri-trade.

4.2 New food classification

In a world with vulnerable supply chains and volatile geopolitics, especially after the COVID-19 pandemic, the concern of food security has been a pressing issue. There has been ample literature on the positive impact of international trade of agricultural goods and food security (Maasdorp, 1998; Zakaria and Xi, 2014; Pasara and Diko, 2020). However, the increase in food availability through international trade also comes with challenges like market access, food safety (Verter, 2015) and nutrition with the availability of cheap calories and fats (Walls, *et al.*, 2019) for developing countries. The difference in classification for agriculture trade and production makes it difficult for the relevant actors to analyse the current trends and challenges faced by the sector where trade and food security are intertwined. This has raised the need for the classification of agricultural products taking into account both the trade and production classification for the agriculture and food sector. The definition of agriculture products under the Standard International Trade Classification (SITC) can be found in the literature which has been further expanded through the adoption of the Harmonised System (HS) in 1988 providing a classification of agricultural goods in a more precise manner. However, both of the classifications fail to categorise the agricultural goods traded into different agricultural industrial products.

A unique trade classification was developed (Athukorala and Sen, 1998) where the SITC classification at the 5-digit product level was cross-referenced with the International Standard Industry Classification (ISIC) at the 4-digit level for industrial origin of the traded goods (Athukorala and Jayasuriya, 2005). This was further developed, as a separate classification, using the HS trade classification which categorised the products as processed and non-processed within the categorisation of traded agricultural products into different industries based on their origin (Mohanty, 2006 and 2014). According to this new classification, the agriculture trade, which is reflected in HS Chapters 1-24, is categorised under a) agriculture raw materials and b) food. The food trade is then further grouped into processed food trade and non-processed food trade. Processed food products are again classified into 11 sub-groups including cereals, coffee, dairy, eggs, edibles, fish, fruits, meat, oils, sugar, and vegetables.

This study uses a further disaggregated classification of food-traded products. This new classification moves one step further and classifies all agricultural traded products into 11 categories – Beverages, Dairy, Edible, Fats and Oils, Food Grains, Fruits and Nuts, Meat, Fish & Eggs, Sugar and Spice, Raw materials (non-processed)/tobacco (processed), Vegetables and, Others. This has been further disaggregated in some cases like Food Grains which are divided into Cereals and Pulses; Beverages into Tea and Coffee, etc.

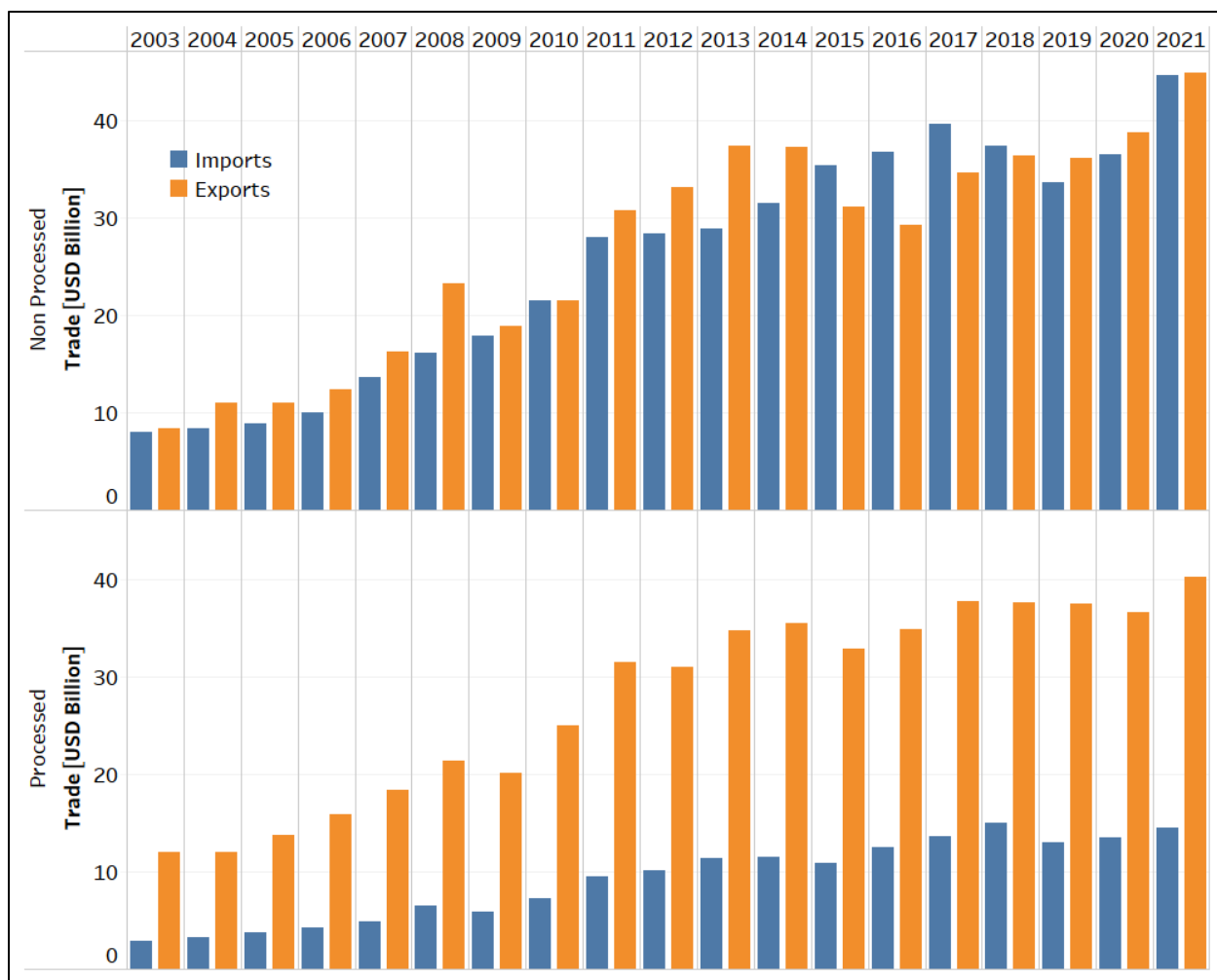
Such classification helps in analysing the trade trends of different food sub-groups in different countries at the international level and also helps in providing the necessary inputs for the policymakers to make relevant policies for the agriculture sector or even negotiating with other countries in proposed trade agreements. Using the above-mentioned classification, this study attempts to analyse the trade trends in the BIMSTEC region and its members in different sub-groups of food trade to identify areas or sectors within agriculture where the countries can cooperate and deepen their linkages to increase intra as well as extra-regional trade.

4.3 Regional Food Trade Trends in BIMSTEC

The global food trade has grown nearly three times in the last two decades. The export in the food sector, though recorded growth during the global pandemic, experienced a fall in its growth rate from 12.3 per cent per annum in the period of buoyancy, i.e., 2003-07, to 2.6 per cent in 2019-20. This was similar to the growth rate for the entire recessionary phase from 2008 to 2019, implying a quick recovery of the sector after the pandemic. A similar trend was observed in the case of food trade to the world by the BIMSTEC member states. The imports and exports of food by the region were recorded at nearly 14 per cent per annum during 2003-07. Though BIMSTEC food exports were affected, with a decline in growth rate to 9.4 per cent per annum, during the first phase of the recession (2008-12), the growth in food imports of the region remained stable. The growth in BIMSTEC food trade, both in terms of exports and imports, was impacted more during the second phase of the recession (i.e., 2012-19) where the food exports (0.3 per cent per annum) and food imports (2.4 per cent per annum) experienced a fall. Food trade during the global pandemic was not much affected in the case of other manufacturing goods in BIMSTEC trade. The food imports recorded a growth of 7.4 per cent during the COVID-19 period whereas the exports grew at a rate of 2.2 per cent in 2019-20. The food exports and imports bounced back to 13 per cent and 18.3 per cent after the pandemic during 2020-21.

The food trade of the BIMSTEC region has been more tilted towards non-processed food, both in exports and imports with a share of 52.7 per cent and 75.4 per cent, respectively, in 2021. The share of non-processed exports has increased from 41.2 per cent in 2003 to 52.7 per cent in 2021 which had an equal reversed trend for the processed exports of the region. The region's exports in the processed food sector, though have increased from USD 12 billion in 2003 to USD 40 billion in 2021, have reduced from 58.8 per cent to 47.3 per cent in the same period. The high share of the processed food sector in BIMSTEC's exports is highly influenced by the export of processed food by Thailand. The country is recognised for its highly developed and technologically advanced food processing sector where more than half of its production is exported to the world economy (SEA-LAC Trade Center, 2014). The structure of exports from the BIMSTEC experienced a bit downtrend from processed food to non-processed food after the 2nd phase of the financial crisis of 2008. The processed food sector, which with a lower cost of labour and a government-supported agriculture base showed growth in the exports of Bangladesh until the first half of the recessionary period, declined due to increasing non-tariff barriers from developed and developing nations (Sahibzada *et al.*, 2020). Myanmar, on the other hand, experienced a rise in processed food exports, fostered by processed nuts exports, till 2014, which fell sharply from 2015 (Diao *et al.*, 2020). However, the region's processed food export gained its position in 2016 with a share of 54.4 per cent in total food exports of the region and experienced some downward trend in recent years after COVID.

Figure 4.1: Trend in BIMSTEC Trade in Processed and Non-Processed Food



Source: Author’s estimate based on WITS Database, Online, 2023.

Food imports of the region are highly dominated by the non-processed segment and the share has been more than 70 per cent since 2003. The imports of non-processed food grew around 14 per cent per annum in the global buoyancy phase (i.e., 2003-07) for the region. It was strong and grew at 15 per cent per annum during the first phase of the recession (2008-12). The momentum was affected in the 2nd phase of the recession where the imports grew at merely 2.6 per cent per annum for the rest of the period from 2013-19. The value of imports in the non-processed segment of the BIMSTEC trade has increased 5.5 times in the period 2003-21. The processed imports have also increased five-fold over 2003-21 in the BIMSTEC food imports.

BIMSTEC member countries have specialised in varied processed food segments over the years. For some of the members, there has been a change in the composition whereas for others the dominant segments have remained constant. For instance, Thailand's processed food sector has increased over the last two decades and is dominated by products like processed shrimp, canned tuna, processed chicken, and canned pineapple, which are also globally demanded (Tanrattanaphong, 2021) and ready-to-eat meals, rice, noodles, bakery, functional drinks, and snacks which are demanded within the country due to shift in consumption pattern (Sirikeratikul,

2023). Subsequently, the Bangladeshi processed food segment has seen a shift from flour and cereal preparation to preserved fruits and vegetables, especially fruits and vegetable juices, and bakery products during 2001-17, which are growing at a faster rate. The modern fish processing sector accounts for a major share of Bangladeshi exports in processed foods (Hussain and Leishman, 2013) and within this industry, frozen fish and shrimp are major exporting products (BIDA, 2020). The continuous support from the government and the low cost of labour in the country has helped the processed food sector to diversify the export basket with preserved crustaceans, pasta, sugar-added mineral water, etc. over the years (Sahibzada *et al.*, 2020). Similar to Bangladesh, India and Sri Lanka have diversified their processed food basket over the years.

Processed food exports have been shifted from flour and cereal preparation and fats and oils to meat products in 2017 in the case of India. It has also diversified its exports while introducing new products, like ice cream, groundnut oil, sausages, etc., to its export basket in 2017. A similar trend has been observed in Sri Lanka where the country exported 15 new processed food items like cocoa powder, preserved meat & vegetables and cereal grains. The relatively smaller countries in the BIMSTEC have experienced a concentration of few products in their processed exports, as shown in Figure 3.4. For instance, in the case of Myanmar, processed fish accounted for major exports (Diao *et al.*, 2020) with a value of USD 0.7 billion covering more than 80 per cent of its processed agri-food exports to the world in 2021. Regional processed food exports have seen a shift from developed nations to developing nations. The BIMSTEC processed food exports were majorly destined for developed nations. Such exports accounted for nearly 63 per cent of the region's processed food exports in 2003. A detailed analysis of India's food trade in processed and non-processed food is taken forward in the next section.

4.4 Country's agricultural trade with BIMSTEC members

India dominates the agriculture trade of the BIMSTEC region in both exports and imports. The country constituted more than half of the region's agriculture exports in 2021 to the world economy, the same share in imports was 47.7 per cent. India's agriculture imports and exports are dominated by a single sector, that is, fats & oils and fruits & vegetables, respectively. Around 60 per cent of India's agriculture imports are constituted by fats and oils and 50 per cent of its agri-exports are in the fruits and vegetable sector in 2021. In 2020, the top exports included marine products, rice (basmati and non-basmati), spices and buffalo meat (Kumar, 2021). Palm oil, on the other hand, accounts for more than 60 per cent of India's total food imports (Ajmani *et al.*, 2019). The distribution of agriculture trade of the BIMSTEC region among the member nations has been concentrated with India and Thailand. Out of a total of USD 89 billion agri-exports of the region in 2021, these two countries together have exported nearly 89 per cent of the region's total agricultural exports to the world. In the case of agri-imports, 74 per cent of the total region's imports from the world are shared by India and Thailand.

Chapter 5

Trade in Agriculture Implements with Region

5.1 Introduction

Agriculture has been the lifeline of the BIMSTEC region, playing a strategic role in maintaining food security, creating employment, and generating trade opportunities. In many member countries, including India, the agricultural sector's value-added share has surpassed that of manufacturing, showing the importance of the agricultural sector in the region. The Green Revolution in South Asia, driven by mechanisation and seed-fertiliser technology, effectively addressed poverty and hunger, leading to a persistent rise in domestic production of agricultural implements to meet growing domestic needs. However, nutritional security has continued to be a pressing issue for the region. With growing rural industrialisation in certain pockets of India, domestic production of farm machinery and implements surpassed its domestic demand in certain product segments. This surplus production has prompted domestic producers to export, facing stiff competition from leading global exporters, particularly from the West. There are studies, referring to exports of tractors from India (Mehta, 2023) and Thailand (Hossen, et al. 2020) to the regional economies and other countries.

The transformation from importers to net exporters of farm machinery in developing countries follows a distinct sequence: rising domestic demand, import substitution industrialisation, establishment of large domestic industries, and creation of exportable surplus. India exemplifies this progression. During the first phase of the global recession, India met its domestic demand for tractors and exported a total volume of 10.5 million units to different parts of the world (Mehta, et al, 2014). As Indian farmers became familiar with tractors, their need for diverse machinery grew, shifting from manual and animal-powered to mechanized equipment. This led India to engage in both exporting and importing tractors and other farm machinery, promoting increased Intra-Industry Trade (IIT) and facilitating technological advancements through mutual collaborations, improving product standards. The extensive use of mechanized farm implements in India also spurred rapid agricultural mechanization in neighbouring BIMSTEC countries and beyond.

In the BIMSTEC region, countries are at different stages regarding the importation and exportation of farm implements, with varied experiences over the past two decades. No definite development pattern has emerged in the utilisation of agricultural implements. Bhutan, Myanmar, and Nepal were latecomers in trading these products, and in exports, Bangladesh, Bhutan, and Nepal remain marginal players. Conversely, India and Thailand continue to be significant players in the regional trade of agricultural implements. Some economies are early participants in this trade, highlighting the diverse progress in the region's agricultural machinery sector.

5.2 Dimension of Mechanisation in the Region

The success of the Green Revolution globally has been significantly supported by farm mechanisation programmes. The need for farm equipment in developing countries expanded

rapidly to keep pace with the requirements of the Green Revolution and al to catch up with the adoption style of industrialised nations. Mechanisation has led to the rise of commercial farming and the decline of subsistence farming worldwide. This has been the case with several countries in BIMSTEC. With rising farm income and the positive spillover effects of the Green Revolution, new land tenure regimes have emerged, expanding agrarian sectors. Farm mechanisation has promoted commercial farming regardless of tenancy size, introducing contract farming and precision agriculture in South and Southeast Asian economies, including India (WTC, 2023). Although the second 'Green Revolution' was never formally launched in India, the spread of mechanisation expanded there and in other regions, with its spillover effects evident in the BIMSTEC region. Numerous initiatives were set into motion to trigger this second green revolution using similar institutional mechanisms, employed during the first green revolution in the 1960s (Subramanian, 2015).

In 2021, the global trade of farm equipment saw robust growth, with the sector's overall trade reaching \$899.2 billion. Global exports stood at \$484.7 billion, while imports hit \$414.5 billion. Estimating global trade in agricultural machinery is complex due to the diverse nature of farm equipment. According to FAO (2021), agricultural machinery and equipment are categorized into five main classes, with some further divided into subclasses. In 2021, machine-powered equipment dominated global trade, accounting for 92.8% of exports and 92.6% of imports as shown in Table 5.1. This category includes machinery for various sectors, such as agricultural farms, livestock, and aquaculture. Tractors and related machinery had the largest share within the machine-powered equipment category, followed by general farm-use machines, crop machinery, livestock machinery, and other agricultural machinery. Livestock and agricultural machinery together comprised less than 5% of the total global trade in agricultural machinery and implements.

Table 5.1: Global Trade in Agriculture Implements, 2021

(in USD Billions)

Description	Imports	Exports	Trade Balance
Manually-operated equipment	3.34	4.33	0.99
Animal-powered equipment	27.20	30.69	3.48
Machine-powered equipment	383.97	449.69	65.72
Machines for general farm use	113.57	121.88	8.31
Tractors, bulldozers and other vehicles	197.23	240.77	43.54
Crop machinery and equipment	58.12	64.47	6.34
Livestock machinery and equipment	12.64	18.43	5.79
Aquacultural machinery and equipment	2.41	4.14	1.73
Total	414.50	484.70	70.20

Source: Author's estimation based on UN ComTrade, WITS, Online, 2023

In 2021, machinery and equipment for the aquaculture sector constituted less than 1% of the global trade in agricultural implements. The crop machinery and equipment category is divided into four major subclasses, with land preparation and planting machinery and equipment holding the largest

share at 82.2%. On the contrary, crop maintenance, crop harvesting, and post-harvest machinery and equipment combined contributed only about one-fifth of the crop machinery and equipment segment. To strategically evolve its export sector, a country should understand global trends in agricultural implements and the specific demands of different markets. While the demand structure of the BIMSTEC region may differ from the global market in size and expansion, export strategies should focus on these differences to position the country as a hub for global agricultural machinery and equipment.

Rising demand for India's Farm Machinery

India's farm machinery market is primarily dominated by tractors, followed by equipment such as rotavators, power tillers, and threshers. The adoption of modern agricultural practices, extending beyond rice and wheat cultivation to include millets, oilseeds, fruits, and vegetables, is expected to drive demand for farm equipment in the coming years. The sector is largely controlled by medium and large manufacturers, which account for three-fourths of domestic production, while small manufacturers cover the remaining segment (Singh et al., 2019). Despite the dominance of larger manufacturers, there is significant potential for small manufacturers in India. The emergence of agri-tech start-ups leveraging IoT, AI, drones, and other advanced technologies offers better business prospects for small manufacturers in the machinery, implements, and spare parts segments (WTC, 2023). Major manufacturers in India include Mahindra & Mahindra, TAFE, John Deere, Escorts, and Sonalika Tractors, alongside numerous small and medium enterprises producing various implements like ploughs, cultivators, and harvesters. These manufacturers, particularly the large and medium ones, focus on tractor-operated implements such as combine harvesters and rotavators, while all categories produce general implements based on local needs.

Structure of Farm Machinery Sector: Opportunity for Jobs and Exports

The demand for agricultural implements in India is region-specific, leading to significant differences in production structures across Indian states. While demand for traditional machines like cono weeders in Tamil Nadu and potato diggers in Gujarat is declining, new technologies are emerging, such as brush cutters and millet dehullers in Tamil Nadu and forage reapers and mini combines in Punjab (Singh et al., 2019). The farm machinery, implements, and spare parts sector is highly employment-intensive, forming a crucial part of India's small-scale manufacturing with 18,354 units producing an annual gross output of ₹6,632.4 million. This sector employs about 45,000 people and generates around \$69 million in foreign exchange through exports (Arora, 2005). Growth in this segment is driven by advancements in agri-tech and increasing demand for diversified and technologically advanced farm machinery. Despite this demand, small and medium manufacturers face challenges like electricity supply interruptions, labour shortages, and lack of testing centres, while large manufacturers also struggle with labour shortages and tax-related issues. Such production bottlenecks need to be addressed through a proper comprehensive regional strategy for production and trade.

5.3 Profile of India's Trade in Farm Machinery

India's agricultural machinery sector, though small, is an expanding manufacturing export sector with a consistent trade surplus over the years. Key segments include tractors and other heavy farm machinery, which dominate India's farm equipment exports, accounting for around 70% of the country's overall agricultural machinery and Implementation exports. Imports mainly consist of machinery such as combine harvesters, threshers, dryers, spray guns, rotary tillers, and grading machines. Indian manufacturers maintain high product quality, with markets in developed, emerging, and developing countries, as well as least developed countries (LDCs). Major export destinations for Indian tractors include the USA, the Netherlands, South Africa, Thailand, Nepal, Sri Lanka, Bangladesh and Sudan. Besides machinery, India also exports components for trailers and other agricultural machinery, adhering to international standards. Key markets for these components include Germany, Australia, the UAE, Denmark, Spain, Hungary, and Lithuania. In 2020, India exported agricultural machinery worth INR 3.1 billion including a total of 65,000 unit tractors to countries in the Southern African region. Indian agricultural machinery exports were made to over 147 countries, showcasing the global reach and demand for Indian farm equipment (WTC, 2023; Mehta et al., 2014).

Export Trends in Agri Machinery

India has been exporting tractors to various countries, with Sri Lanka, Nepal, and the USA being major destinations. However, recent years have seen a decline in exports due to factors such as the failure to secure extensive overseas markets, deteriorating foreign exchange situations, poor buying capacity in African countries, and the availability of cheaper second-hand tractors in Southeast Asian markets. Despite these challenges, Indian tractors, which meet international standards due to foreign collaborations, have significant potential for export to rice and wheat-growing countries like Canada, the Philippines, and Bangladesh. While Nepal, Bangladesh, Sri Lanka, and the USA remain major markets, the expanding footprint of Indian tractor manufacturers in African and new Southeast Asian markets is expected to drive export growth in the medium to long term. The ASEAN Free Trade Agreement lends support to Indian exports to neighbouring countries such as Thailand, Malaysia, and Indonesia by reducing duty structures among member countries. The introduction of higher HP tractors by Indian manufacturers is expected to enhance export volumes, with major exporters like TAFE, Mahindra & Mahindra, and John Deere leading the way. Historically, India's tractor manufacturing industry has not only met domestic demand but also exported a large number of tractors annually to Africa, Asia, Oceania, Europe, and North America, including several developed nations (Mandal & Maity, 2013; Mehta et al., 2014). There is not much literature to highlight India's present status in agricultural machinery and components other than tractors.

Import Dependence on Farm Equipment

India specializes in producing and exporting specific agricultural machinery and components while sourcing distinct machinery to meet domestic needs. The pattern of sectoral imports indicates that

there has been a trade preference for selected products from specific trade destinations. For example, Tractors are imported from Thailand, Japan, and South Korea; combine threshers from China, Thailand, Japan, and Germany; harvesting machine components from Italy; dryers from Denmark and Turkey; and spray guns from China, the USA, Germany, and Japan. A study by Mehta et al. (2014) noted a significant rise in agricultural machinery imports, increasing from approximately INR 4.75 billion in FY 2018-19 to around INR 13 billion in FY 2020-21. Despite importing from 47 countries, India maintains a certain level of safeguard for domestic production, including a 41% Customs Duty and a 12% GST on agricultural machinery imports (Singh, 2021). Other significant imports include sugarcane harvesters, cotton pickers, and rice transplanters. To promote domestic farm mechanisation, the Government of India has introduced several initiatives like providing credit and subsidies to farmers and establishing farm machinery testing institutes. Challenges for Indian manufacturers include high raw material prices and a disparity in GST rates, with inputs taxed at 18% and finished equipment at 12%. Future policies should address these tax anomalies and support exporters by reimbursing taxes paid on inputs. This structured approach offers a comprehensive view of India's agricultural machinery import and export landscape, government initiatives, and challenges faced by manufacturers.

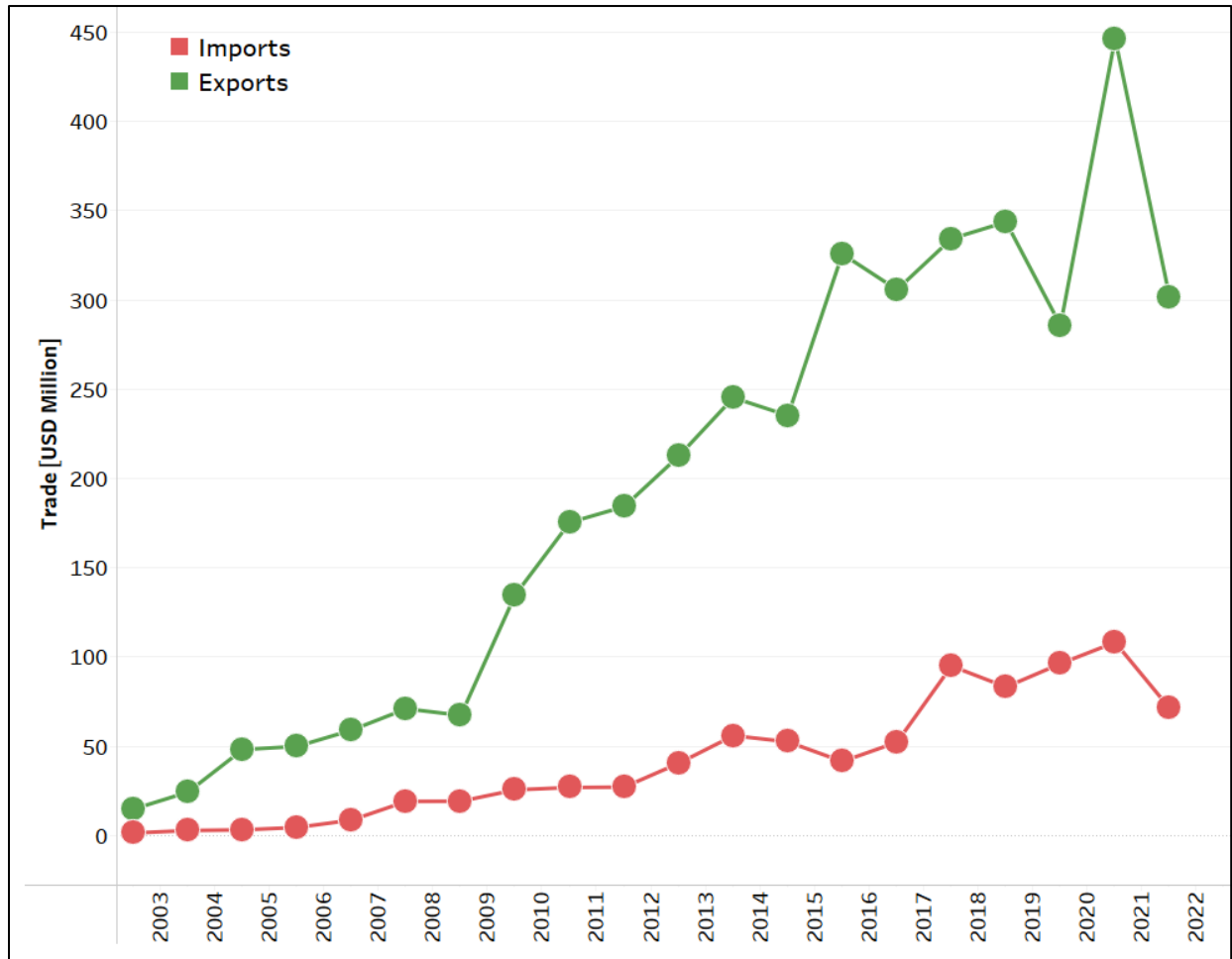
Export Potentials

India has significant trade potential in various farm products, including parts and components, with notable exports to numerous countries. However, the full export potential in agricultural machinery, implements, and farm components remains untapped. According to a recent ITC study (2024), India has a USD 21.9 billion export potential for farm equipment, including parts used in tractors, trailers, bumpers, harvesting machinery, and miscellaneous farm tools, based on EXIM bank data. Despite progress in agricultural machinery trade, India has yet to emerge as a major global player, holding only a 1.4% share in global exports of these commodities. Major global exporters include Germany, China, Italy, the USA, France, and other European countries. Considering the significant potential in the BIMSTEC region for cultivation, dairy farming, and fishery, a regional strategy could help farmers and artisans drive a food revolution in a climate-friendly manner.

5.4 Trade in Farm Machinery Situation in BIMSTEC

Over the last two decades, trade in agricultural machinery has become a significant source of economic activity for several BIMSTEC member countries. While nations like India and Thailand are involved in both exporting and importing agricultural machinery from within the region and globally, others such as Bhutan and Myanmar are more recent participants in this trade. The global business cycle, particularly during the prolonged phase of the global recession, has had varied impacts on the region's trade in farm machinery. Particularly, during the latter phase of the global recession, the BIMSTEC region saw a more progressive expansion in the export of farm implements compared to imports. This experience contrasts with many other regions in the world economy. As a result, the BIMSTEC region has steadily increased its presence as a supplier of agricultural implements in the global market. Among the member countries, India has notably enhanced its trade performance in this sector, bolstering its position in the global economy.

Figure 5.1: India's Agri Implements Trade with the BIMSTEC Region



Source: Author's estimate based on UB ComTrade, WITS, Online, 2023

India's trade with the BIMSTEC region in agricultural implements has experienced significant fluctuations over the past two decades. During the period of economic buoyancy and the first phase of the global recession, trade increased rapidly. However, the prolonged recession adversely affected trade prospects, leading to a significant slowdown in the second phase. Despite these challenges, India's overall trade balance in agricultural implements with BIMSTEC remained favourable, demonstrating India's competitiveness in the region. From 2003 to 2015, India enjoyed a buoyant trade period, but this momentum slowed between 2015 and 2022. The agricultural implements trade witnessed deceleration on three occasions due to exogenous shocks: the onset of the global recession in 2008, the first phase of the recession in 2015, and the pandemic in 2020. Remarkably, in 2021, India's sectoral trade with BIMSTEC recovered to record levels, achieving the highest trade balance in agricultural implements. However, this resurgence was short-lived, as trade volumes declined again in 2022.

5.5 Policies Towards Agricultural Implements in India

The Bureau of Indian Standards (BIS) oversees the quality of farm machinery in India, certifying products such as tractors, irrigation equipment, and dairy machinery (Mehta et al., 2014). BIS has developed over 540 standards to ensure Good Manufacturing Practices (GMP), though improvements are needed for small-scale manufacturers (Singh, 2015). Research and development institutions, alongside quality certification agencies, conduct Testing and Evaluation (T&E) on new equipment to ensure quality, reliability, and cost-efficiency, using BIS, ISO, or OECD standards (Mehta et al., 2014). For instance, power tillers and attachments are tested for safety and performance (Balaji & Din, 2019).

India's network includes over 1000 farm equipment manufacturers and artisans, supported by R&D institutions and training centres. Training in manufacturing, marketing, and quality control is vital. Despite numerous training and testing institutes, demand exceeds supply. Four Farm Machinery Training and Testing Institutes and 29 testing stations offer specialized training to artisans and professionals (Singh, 2015). Tractor testing facilities are limited, with CFMTTI in Budni being the sole provider, necessitating more centres due to increased production (Mandal & Maity, 2013). Quality and after-sales service remain concerns, with inadequate maintenance services and local manufacturers struggling to meet standards (Mehta & Pajnoo, 2013). The proposed FTA in BIMSTEC should address these issues, promoting regional specialization and production hubs for farm machinery.

Chapter 6

Agricultural Trade Competitiveness and Export Potential

6.1 Introduction

The BIMSTEC region has established itself as an emerging trade hub on the global stage, with many countries developing competitiveness in various sectors and product lines. These regional economies have learned that to drive growth through trade, they must be competitive globally, even when they compete among themselves in similar products. In certain sectors where competition is fierce, member countries have been trading vigorously, with the agricultural sector being a prime example. Intra-regional trade has become a significant development, with countries specialising in narrow product lines to minimize direct competition. As global and regional trade scenarios evolve, countries have adopted various strategies to remain relevant. During periods of global economic buoyancy, most regional economies pursued Export-Led Growth (ELG) but switched to Domestic Demand-Led Growth (DDLG) as the global recession deepened (Mohanty, 2009). With rising tariff walls globally, regional economies have focused on expanding production and trade within their large domestic and regional markets to sustain economic activities. Several prudent trade promotion policies have been adopted to boost the agricultural sector.

Many countries are transitioning to middle-income status, where domestic market demand patterns are similar to those of international markets. This has compelled regional countries to become more competitive, accessing both domestic and international markets effectively. Consequently, regional countries have specialized in selected sectors, becoming hubs for production and trade. The expansion of production bases in diverse sectors has made intra-industry trade (IIT) a reality in the region. There have been serious efforts to promote regional value chains across different segments of agricultural trade, including upstream, midstream, and downstream segments. These developments are directly linked to the competitiveness of countries in various product lines, enhancing the region's overall trade performance.

6.2 Model - Modified Viner's Model

Export competitiveness is estimated using modified trade creation, based on Viner (1960). In a partial equilibrium framework, export competitiveness is estimated based on ground realities existing in the global economy. Price competitiveness, whether naturally acquired or policy-induced, is the basis for the estimation of trade potential.

For estimation of price competitiveness, each product is considered separately at a disaggregated level (i.e., at 6-digit HS level). In this approach, the export price of each product from the j th country is compared with the corresponding prices offered by its competitors in the k th importing country. In this analysis, the trade potential of the j th country (i.e., India) is estimated in the k th country (i.e., Bangladesh).

6.2.1 Competitive products: Trade Creation

Let us assume that jth country exports ith product to the world at a given price (Pxiw). Importing country k has several suppliers for the ith product, i.e.,

$$\text{Suppliers}_{ik} = 1, 2, 3, \dots, j, \dots, \dots, l, \dots, m, \dots, r, \dots, s, \dots, n \quad (1)$$

Consider another competing supplier s also exporting the same product to country k at a different price (Pxi_sk), where Pxiw denotes the export price of jth country, for the ith product in the global market, Pxi_sk represents the export price of the ith product of the sth competitor in kth market. Country j may prefer to maintain its global price in the kth market to maintain its competitiveness, and if this is the case, then Pxiw = Pxi_j.

For the ith product, if jth country has price competitiveness over a few other competitors in the kth market, then the export price of jth country should be lower than those of other competitors in the kth market. In such a case, the condition may be:

$$P_{xij} < P_{mik} \dots \dots \dots \dots \dots \quad (2)$$

This is the case of the ith product where the jth country has absolute price competitiveness over some suppliers in the kth country. Like ith commodity, all those products where the jth country has competitiveness in the kth country would be jth country’s competitive products based on trade creation.

If jth country has price competitiveness in one product, it does not mean that all the competitors in that product category necessarily have higher prices than that of jth country. For a given product, some of the competitors may also offer lower prices than jth country. In that case, jth country must look at the market share of those competitors, whose export prices are higher than that of jth country. The export market share of jth country’s inefficient competitors may be considered as its export potential. Viner referred to such trade potential as the trade creation effect of the jth country in a regional trading arrangement.

Suppose jth country exports ith product, while another r number of suppliers are also present for the same product segment in the kth market. Each competitor holds some portion of the market share (Shirk) in the import of the ith product in the kth market. Therefore, all the suppliers cover a total market share of the kth market for the ith product. It implies the following.

$$\sum Sh_{ikj} = 100 \dots \dots \dots \dots \dots \quad (3)$$

where Shirk stands for the market share of r-number of exporters of the ith product to the kth market.

Suppose jth country has price competitiveness over a few competitors (but not all of them) in the export of ith product, in that case, the jth country effectively enters the kth market as a supplier, and the combined market share of uncompetitive competitors (assuming sum of ratio as α), may be treated as jth country’s potential export share.

$$0 < \alpha < 1 \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (4)$$

where, α denotes the proportion of the market for the i th product, which is covered by the export of less competitive competitors of the j th country in the market of the k th country.

The export potential of the j th country (POT_{ij}) in the exports of i th product in the k th country may be estimated as:

$$POT_{ij} = \psi M_{ij} \quad \dots \quad \dots \quad \dots \quad \dots \quad (5)$$

where M_{ij} stands for total imports of the i th product by k th country from all sources. If ψ is less than 1, it means that the j th country has a price edge over a few competitors and a part of the k th import market (i.e., ψ) will constitute the j th country's potential export. If ψ is equal to 1, it means that the entire import of the i th product by the k th market would be a potential export of the j th country.

Often trade creation or trade diversion is not fully absorbed by the exporting countries for several reasons including measurement errors of export/import prices of commodities, data reporting errors, difficulties relating units of products, data error of reporting countries, quality consideration of products, traditional relationship with the importer vis-à-vis other competing countries, etc. among others. For these reasons, the complete realisation of export potential does not happen fully in the medium term (Mohanty, 2003). Hence, the achievable potential is estimated as:

$$APOT_{ij} = \beta POT_{ij} \quad \dots \quad \dots \quad \dots \quad \dots \quad (6)$$

where $APOT_{ij}$ is a proportion of the total potential of country j of product i . In this analysis, we have used β as 0.05, based on the experiences of some developing countries. A sum of all products of the j th country in the k th market may, therefore, present the total export potential of country j in market k . This trade potential may be considered as a modified trade creation effect of a regional trading arrangement (Mohanty, 2013; Mohanty, Gaur, Fernandez, & Sikri, 2019).

6.3 India's Competitiveness in Agriculture

India has been maintaining a sizeable trade surplus in agriculture trade with the region and the rest of the world. Trade surplus has been a growing strategy over the years because of export competitiveness and the rise of value chains in India in diverse sectors. Several studies have examined the export competitiveness of India in different products from time to time. Suganthi (2023) examined the relative export competitiveness (REC) of eight agricultural commodities—rice, wheat, maize, gram, groundnut, onion, bovine meat, and shrimp—from 1990 to 2020. The findings reveal that India's export of rice was the most competitive, followed by groundnut, shrimp, gram, onion, and bovine meat. To assess the pre-pandemic stagnation in agricultural exports between 2013-14 and 2019-20, a comparison between India's REC with its select global competitors is made. Initially, India's competitiveness was lower than its competitors, but it has since outpaced them in rice, groundnut, onion, and bovine meat. The REC of most of these

commodities spiked during the years of high global prices relative to domestic prices and moderated until the outbreak of the pandemic, except for rice, bovine meat, and shrimp.

Another study focused on the trade competitiveness of processed agricultural products (Andhale and Kannan, 2015), analysing 32 processed animal products and finding that 7 products have shown comparativeness (RCA) in all four indices. The competitiveness for frozen meat of bovine animals increased and maintained a high rank among processed animal products, while the RCAs for frozen fish, excluding fillets, stabilised. However, the competitiveness for crustaceans and molluscs, as well as for birds' eggs and natural honey, declined slightly. India also demonstrated a relatively high comparative advantage in exporting processed vegetable products. Of the 40 processed vegetable products studied, 12 maintained a comparative advantage over the period. Products like provisionally preserved vegetables, coconuts, Brazil nuts, cashew nuts, and tea had relatively high comparative advantages, although some, such as groundnut oil and its fractions, saw a gradual decrease over the years. Notably, the competitiveness of provisionally preserved coconuts, Brazil nuts, and cashew nuts declined. Products like pepper, vanilla, and other fixed vegetable fats and oils showed fluctuations in their levels of competitiveness, while the competitiveness for flour, meal, and powder of dried leguminous vegetables increased gradually over the years.

The situation in the Processed Food Sector

A comprehensive analysis of processed food products revealed that out of 44 products, only 7 exhibited comparativeness across all four indices. Notably, products such as cane or beet sugar and chemically pure sucrose in solid form, molasses resulting from the extraction or refining of sugar, and substitutes prepared from starch initially showed high competitiveness in 2005, which then decreased in 2013. Mushrooms and truffles prepared or preserved and extracts, essences, and concentrates of coffee, tea, or mate displayed a declining trend in competitiveness over the years. Extracts and juices of meat, fish, or crustaceans, molluscs, or other aquatic invertebrates moved from a comparative disadvantage until 2005 to an improved level of competitiveness in 2013. In contrast, crustaceans, molluscs, and other aquatic invertebrates prepared or preserved shifted from a comparative advantage until 2005 to a comparative disadvantage in 2013. Overall, the average value of processed food products indicated a mixt experience for India over the years.

Narayan and Bhattacharya (2019) examined the Relative Export Competitiveness (REC) of rice, wheat, maize, and sugar from 1961 to 2012, finding that India's rice exports were the most competitive, followed by cotton and sugar, whereas wheat consistently experienced a competitive disadvantage. The study also assessed the determinants of REC for these commodities between 1960 and 2012. It was found that export restrictions negatively impacted the REC of cotton, rice, and wheat from 1981 to 2012, while labour and farm size had no significant influence. India's accession to the WTO positively influenced the REC of rice, though the South Asian Free Trade Area (SAFTA) adversely affected the REC of rice and wheat but strengthened that of cotton and sugar.

Further research into the comparative advantage status of India's major agricultural exports compared to other Asian countries during the post-reform period (1991–2004) found that India maintained its comparative advantage in commodities like cashew and oil meals. However, it lost its comparative advantage in tea, coffee, spices, and marine products to other Asian competitors during the period following economic reforms (Shinoj and Mathur, 2008).

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