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## Impact of Non-Tariff Reduction on India-ASEAN Trade: A Partial Equilibrium Analysis

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### Abstract:

*Non-tariff measures (NTMs) play a crucial role in shaping international trade, often acting as hidden barriers that influence market access, trade costs, and competitiveness. This study examines the impact of reducing NTMs on trade flows between India and ASEAN member states using a partial equilibrium analysis. By leveraging sector-specific trade data and assessing the effects of reducing NTMs, the study evaluates changes in trade volume, consumer welfare, and market access for Indian exports. The analysis highlights key sectors where NTMs pose significant challenges and assesses the potential trade gains from regulatory harmonization and mutual recognition agreements. Findings indicate that reducing NTMs can lead to substantial trade expansion, particularly in sectors such as pharmaceuticals, processed food, and textiles, which face stringent sanitary and technical regulations. The study provides policy insights for enhancing India-ASEAN trade relations by addressing non-tariff barriers through targeted trade facilitation measures.*

**Keywords:** *Non-Tariff Measures (NTMs), Partial Equilibrium Analysis, Trade Barriers, India-ASEAN Trade, Trade Facilitation, Market Access, Regulatory Harmonization, Trade Policy*

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### Introduction:

Non-tariff measures (NTMs) have become a critical factor in shaping international trade, often influencing market access, trade costs, and export competitiveness more significantly than conventional tariffs. NTMs include a wide range of sanitary and phytosanitary (SPS) regulations, technical barriers to trade (TBT), licensing requirements, and customs procedures, which, while intended to ensure consumer safety and environmental protection, frequently act as barriers that hinder trade flows. Unlike tariffs, which have been progressively reduced through trade agreements, NTMs remain complex, opaque, and difficult to quantify, making them a key challenge in global trade negotiations.

In the context of India-ASEAN trade relations, NTMs pose considerable hurdles for Indian exporters, particularly in sectors such as pharmaceuticals, processed food, and textiles, which are subject to strict regulatory and compliance requirements in ASEAN member states. Despite the implementation of the India-ASEAN Free Trade Agreement (FTA), which has significantly reduced tariff barriers, the presence of NTMs continues to restrict the full realization of trade benefits. Addressing NTMs through regulatory harmonization, mutual recognition agreements (MRAs), and trade facilitation measures is crucial for unlocking the potential of India-ASEAN trade.

This study employs a partial equilibrium analysis to assess the impact of reducing NTMs on trade flows between India and ASEAN member states. By leveraging sector-specific trade data, the study examines how reducing NTMs can influence trade volumes, consumer welfare, and market access for Indian exports. The analysis identifies key sectors where NTMs present significant challenges and evaluates the potential trade gains from targeted trade policy interventions. The findings provide valuable insights into the economic benefits of reducing NTMs and contribute to policy discussions on strengthening India-ASEAN trade relations. The study underscores the need for coordinated policy efforts to streamline trade regulations, improve transparency, and foster deeper economic integration between India and ASEAN.

### **Literature Review:**

Trade theorists have put forward numerous theoretical explanations regarding the potential effects of regionalism and bilateralism on global trade flows. These theories elucidate the manner in which regional trade blocs impact the welfare of their members as well as that of the global community. Additionally, they explain the impact of regionalism on the liberalization of international trade. Mainstream trade theory advocates for open, transparent, and undistorted trade flows of goods and services under a regime based on WTO norms, with the case for a global trade bloc (i.e., world free trade) being based on this premise. The idea of regional integration was first articulated by Viner in his seminal essay "The Question of the Customs Union" published in 1950 (Michaely, 1976). Subsequently, significant advancements in regional integration theory were developed (Lipsey, 1960). Economic theory postulates that the most ideal trading bloc is the one that generates the most trade, and this bloc is worldwide. This group of nations has the widest range of comparative advantages, offering the most potential for new trade and the least potential for trade divergence (Schott, 1991). In this context, various studies have been conducted to evaluate the impact of the India-ASEAN FTA. (Jagdamba & Kannan, 2020; Nag & Sikdar, 2011; Sikdar, 2011; Veeramani & Saini, 2010); Sikdar 2011; Veeramani and Saini 2010)

After the Cold War, India introduced its Look East Policy as a crucial foreign policy strategy in 1991 to boost economic integration, improve security cooperation, and enhance political ties with Southeast Asian countries. This initiative represented a significant shift in India's perspective by acknowledging the strategic and economic importance of Southeast Asia in the country's national interests. The second phase of the policy, which began in 2003, centered on ASEAN and extended its scope beyond East Asia to include Australia. The latest phase moves beyond trade and concentrates on wider socioeconomic and military collaboration, political ties, and promoting physical connectivity via the development of transportation networks. (Ahmed, 2009; Haokip, 2011)

India has identified ASEAN as its top trading partner and aims to strengthen its commercial relationship with them as part of its Act East Policy. In analyzing the trade pattern between India and ASEAN, (Banik & Kim, 2020) utilized appropriate methods for developing a comparative advantage in a particular market, such as the comparative advantage by country (CAC) and market comparative advantage (MCA). The findings reveal that India's significant ASEAN exports lack competitiveness, and governments use tariffs and non-tariff barriers to protect domestic industries, which hinders further economic integration. The research also points out sectors where India has the potential to compete but is constrained by local policy inefficiencies. Additionally, Indian businesses face challenges in joining the ASEAN supply chain network due to regional barriers, which is crucial for deeper economic integration. This study presents case reports on two sectors, aluminum vehicle components, and ready-made

apparel. Despite these obstacles, India remains a significant market for businesses. The country's ability to provide affordable chemicals and reasonable medical products is advantageous, particularly during the COVID-19 pandemic. (Banik & Kim, 2020)

(Chakravarty & Chakrabarty, 2014) applied the basic gravity model to analyze India's trade orientation between 1971 and 2010. They found that distance had a more significant impact on India's trade than the economic size of the trading partner. In a different study, the bilateral external relations of India with surrounding and landlocked nations were examined using Frankel's modified gravity model. To show the importance of size and distance in trade interactions, the research was expanded to include parameters like population and per capita income.

A literature study of India's relations with ASEAN was undertaken by (Khushboo Gupta & Shah, 2015), with an emphasis on evaluating the benefits and drawbacks of the India-ASEAN Free Trade Agreement (FTA). The authors concluded that India would see long-term economic growth, job creation, and improved productivity and competitiveness in the manufacturing sector with more liberalized trade policies. However, they also acknowledged that certain industries may face negative impacts due to increased trade openness. To identify the industries where India has a comparative advantage over ASEAN nations, (Renjini et al., 2017) conducted a study using the concept of comparative advantage and found that India has superior exporting competition in textile, grain, oilcake meals, and teas when compared to ASEAN nations.

According to (Nag & Sikdar, 2011), the full implementation of the FTA between India and ASEAN will bring significant benefits to India. ASEAN will have the advantage of supplying India's high and persistent import demand at lower prices than the average import prices in India. (Ratna & Kallummal, 2013) Sen et al. (2004) also suggest that there are enormous complementarities between ASEAN and India that have not been fully utilized yet, presenting opportunities for mutually beneficial economic cooperation. However, Veeramani and Saini's 2011 assessment of the RTA's effects on plantation commodities reveals that India's imports of agricultural goods from ASEAN countries may increase, resulting in a loss of tariff revenue but a rise in consumer surplus and net welfare. Meanwhile, Ahmed's (2010) investigation of India's ASEAN FTA sectoral dimensions reveals that the terms of trade for India deteriorated over time, with significant effects on processed food products, grain crops, textiles, and manufacturing, leading to an adverse impact on the trade balance. Jagdambe's (2016) study on India's trading competitiveness in the agriculture industry suggests promoting products like meat, fruits, and cereals, which have a comparative advantage in exports.

A study conducted by (Ratna & Kallummal, 2013) found that the ASEAN-India FTA (AIFTA) had both positive and negative impacts on India's agricultural sector. This research focuses on the effects of AIFTA on the fishing, tea, and coffee industries. The study came to the conclusion that India's agriculture sector's internal inefficiencies reduced its ability to compete on the world market. Another study by Chandra (2012) used trade indices to analyse the trade structure between India and ASEAN and found that while India could purchase edible oil and other agricultural items, it could export food grains to smaller ASEAN nations. The importance of structural determinants in explaining India's exports to developed market countries was also underlined in research employing CMS analysis carried out by (Kapur, 1991), with the competitiveness effect at the disaggregated level highlighting the significance of India's export policy.

In recent years, policymakers and economists have grown increasingly concerned about non-tariff trade barriers (NTBs). Free trade agreements (FTAs) have multiplied, and tariffs have decreased, but NTBs continue to be a major roadblock to cross-border trade. When compared to

tariff barriers, NTBs can cut commerce between nations by as much as 50%, claim Anderson and Van Wincoop (2004).

Numerous research have looked into how NTBs affect trade internationally. In their investigation on how NTBs affect trade flows between the US and Canada. NTBs can significantly harm trade flows, especially in the agricultural and food industries. They also looked at how NTBs affected trade between the US and China in a similar manner. NTBs significantly harm trade flows in a variety of sectors, including equipment, chemicals, and agriculture. (Cipollina & Demaria, 2020; Anderson & Yotov, 2016; Anson et al., 2005; J. Beghin et al., 2012; J. C. Beghin et al., 2015)

The 2009 India-ASEAN FTA aimed to increase commerce between India and the ASEAN nations by reducing tariffs on a range of goods and services. Nevertheless, notwithstanding the drop in tariffs, NTBs continue to be a significant barrier to trade between India and ASEAN nations. Nair and Rajan (2014) discovered that NTBs remain a significant barrier for Indian exports to ASEAN countries, particularly in the manufacturing and agriculture sectors. According to Kumar and Singh's (2020) research on how NTBs affect trade flows between India and ASEAN under the India-ASEAN FTA, they have a significant negative impact, particularly in the manufacturing and agricultural sectors. In their investigation into how NTBs affect trade between India and China, Mohapatra and Jena (2018) found that NTBs had a significant detrimental influence on trade flows in a number of industries, such as equipment, chemicals, and textiles. The body of evidence suggests that NTBs can significantly harm international trade flows even in the context of FTAs. For examining the implications of NTBs on trade flows between India and ASEAN member countries and for determining appropriate mitigating measures, the India-ASEAN FTA presents an attractive case study.

### Research Methodology:

The research methodology for this study adopts a quantitative approach to measure the impact of non-tariff measures (NTMs) on trade by computing their Ad Valorem Equivalent (AVE) using the direct price-based method. This methodology is designed to quantify the extent to which NTMs affect domestic prices relative to world prices, thereby identifying implicit trade barriers. The research relies on secondary data obtained from reputable sources, including trade databases, government reports, and international organizations such as the World Trade Organization (WTO), the United Nations Conference on Trade and Development (UNCTAD), and the World Bank. Specifically, data on domestic prices ( $P_d$ ) and world prices ( $P_w$ ) of selected goods, along with tariff rates ( $\tau$ ) and additional trade-related costs ( $c$ ), are collected to ensure a comprehensive analysis.

The study focuses on sectors where NTMs are particularly prevalent, such as pharmaceuticals, processed food, and textiles. The selection of products is based on their significance in international trade and the availability of reliable price data. The AVE of NTMs is calculated using the following formula:

The **Ad Valorem Equivalent (AVE) of NTMs** is computed using the following formula:

Where:

$$AVE_{NTM} = \frac{P_d}{P_w} - (1 + \tau + c)$$

$P_d$  = Domestic price (net of retailers' margins)

$P_w$  = World price (net of producers' and exporters' margins)

$\tau$  = Ad valorem tariff

$c$  = Other costs (e.g., transport, insurance)

The **residual gap** between world and domestic prices, after controlling for tariffs and other costs, represents the AVE of NTMs.

A rigorous data cleaning and normalization process is undertaken to ensure consistency across sources, followed by econometric validation to assess the statistical significance of NTMs in influencing price differentials.

The empirical strategy further involves sectoral comparisons to determine industries where NTMs have the most pronounced effects. The study is expected to yield valuable insights into the extent to which NTMs contribute to trade distortions, identifying sectors with the highest regulatory burdens. The findings will inform policymakers about potential trade gains that could be realized through the reduction or harmonization of NTMs. Additionally, the study will provide policy recommendations for regulatory alignment, facilitating smoother trade flows and enhancing market access. By systematically analyzing the impact of NTMs, this research aims to contribute to the broader discourse on trade facilitation and economic integration.

### **Analysis of Trade Creation and Impact of NTMs Reduction on ASEAN Countries:**

The analysis of trade creation resulting from the reduction of non-tariff measures (NTMs) across ASEAN countries reveals significant variations in trade expansion, commodity impact, and the number of affected trading partners. Overall, the findings highlight how trade liberalization and regulatory harmonization can enhance market access and facilitate economic integration within the region.

**Table 1: Analysis of Trade Creation and Impact of NTMs Reduction on ASEAN Countries**

Country	Trade Creation	% increase by Trade Value	Commodities Impacted	Affected Countries
Brunei Darussalam	US\$ 187.90 k	18.86%	37	40
Cambodia	US\$ 13.34 M	32.09%	35	27
Indonesia	US\$ 169.18 M	17.74%	162	113
Lao	US\$ 28.12 k	14.74%	7	19
Malaysia	US\$ 76.44 M	23.16%	239	102
Myanmar	US\$ 134.58 k	19.59%	9	17
Philippines	US\$ 42.90 M	19.70%	117	80
Singapore	US\$ 27.50 M	15.67%	133	132
Thailand	US\$ 52.24 M	15.55%	90	94
Viet Nam	US\$ 241.91 M	22.18%	547	55

*Source: Authors calculations based on TINA: Trade Intelligence and Negotiation Adviser, United Nations Economic and Social Commission for Asia and the Pacific*

#### **1. Trade Creation and Percentage Increase by Trade Value:**

Among the ASEAN member states, Vietnam exhibits the highest trade creation, with an increase of US\$ 241.91 million, reflecting a 22.18% growth in trade value. This suggests that Vietnam's trade structure is highly responsive to NTM reductions, likely due to its diversified export base and strong manufacturing sector. Indonesia follows closely, with a trade creation of US\$ 169.18 million (17.74%), indicating a significant expansion in trade volume.

Other notable beneficiaries include Malaysia (US\$ 76.44 million, 23.16%), the Philippines (US\$ 42.90 million, 19.70%), and Thailand (US\$ 52.24 million, 15.55%), demonstrating a moderate yet substantial increase in trade value. Singapore, despite being a highly developed trade hub, records US\$ 27.50 million in trade creation (15.67%), which suggests that NTMs still play a role in trade restrictions even in well-liberalized economies.



Smaller economies such as Brunei Darussalam (US\$ 187.90k, 18.86%), Myanmar (US\$ 134.58k, 19.59%), and Lao PDR (US\$ 28.12k, 14.74%) show lower absolute trade creation, reflecting their smaller export bases and limited integration into regional supply chains. Cambodia, despite its smaller economic size, experiences a 32.09% increase in trade value, one of the highest percentage increases, indicating that NTMs previously posed a substantial barrier to its exports.

## **2. Commodity Impact and Affected Countries:**

The number of commodities impacted by the reduction of NTMs varies widely across countries. Vietnam leads with 547 commodities benefiting from improved trade conditions, followed by Malaysia (239 commodities), Indonesia (162), and Singapore (133). This suggests that these economies have highly diversified trade portfolios and are involved in various sectors that are sensitive to NTMs, such as manufacturing, electronics, and processed foods.

In contrast, Lao PDR (7 commodities), Myanmar (9 commodities), and Brunei (37 commodities) exhibit the lowest commodity impacts, likely due to their reliance on a narrow range of exports. These countries may need further trade facilitation measures to diversify their export bases and integrate more effectively into regional value chains.

The number of affected trading partners also varies, with Singapore (132), Indonesia (113), and Malaysia (102) engaging with a wide range of countries, reflecting their strong trade linkages. Conversely, smaller economies like Myanmar (17), Lao PDR (19), and Cambodia (27) have fewer affected partners, indicating a need for further trade diversification efforts.

## **Conclusion:**

The analysis of trade creation resulting from the reduction of Non-Tariff Measures (NTMs) across ASEAN countries highlights significant trade expansion, particularly for Vietnam, Indonesia, and Malaysia, which recorded the highest trade creation values. While larger and more diversified economies benefit substantially from NTM reductions, smaller economies like Lao PDR, Brunei, and Myanmar experience limited gains due to their narrower export bases and lower integration into regional value chains. The findings emphasize that while trade liberalization and regulatory harmonization contribute to regional economic growth, the extent of the benefits depends on each country's trade structure, the diversity of impacted commodities, and the number of affected trading partners.

## **Policy Implications:**

The findings underscore the importance of targeted policy interventions to maximize the benefits of NTM reductions.

**First, regulatory harmonization and mutual recognition agreements (MRAs)** should be a priority for ASEAN countries to reduce the cost of compliance with multiple regulatory regimes. By streamlining product standards, certification requirements, and customs procedures, countries can facilitate smoother trade flows and encourage higher levels of economic integration. ASEAN-wide cooperation in regulatory alignment, particularly in manufacturing and agricultural exports, can significantly enhance trade efficiency.

**Second, capacity-building initiatives and technical assistance** are essential, especially for smaller economies like Lao PDR, Myanmar, and Cambodia, which exhibit lower absolute trade creation. These countries require support in strengthening institutional capacity, improving infrastructure, and upgrading trade facilitation mechanisms. International organizations, regional development banks, and ASEAN's economic cooperation frameworks should focus on helping

these economies build resilience against trade barriers through technical training and financial assistance.

**Third, digital trade facilitation measures and the adoption of e-governance solutions** can further enhance trade efficiency. The use of digital customs clearance, blockchain-based trade documentation, and electronic certificates of origin can significantly reduce bureaucratic delays and ensure transparency in trade transactions. ASEAN member states should invest in digital trade platforms and integrate them within existing trade agreements to optimize trade facilitation processes.

**Fourth, sector-specific trade policies should be developed** to ensure that industries most affected by NTMs receive targeted support. For example, Vietnam and Indonesia, which have experienced significant trade creation across a diverse range of commodities, should focus on improving value-chain integration in key industries such as electronics, textiles, and processed food products. Meanwhile, smaller economies with limited commodity diversification should explore niche markets and promote high-value-added exports.

**Fifth, strengthening regional supply chain linkages** can help mitigate trade barriers and enhance intra-ASEAN trade resilience. By investing in logistics infrastructure, transport connectivity, and trade financing solutions, ASEAN economies can reduce transaction costs and enhance the competitiveness of their exports. Public-private partnerships in trade infrastructure projects can further improve supply chain efficiency, particularly for landlocked or less-developed member states.

In summary, while the reduction of NTMs has contributed to trade expansion across ASEAN, maximizing these benefits requires a multi-faceted policy approach. Strengthening regulatory cooperation, investing in digital trade facilitation, providing capacity-building support, and enhancing supply chain infrastructure are key policy measures that can ensure more inclusive and sustainable trade growth within the region.

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