Non-Tariff Measures (NTMs): Evidence from ASEAN-India Trade

RIS
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Ambassador (Dr) Mohan Kumar
Chairman, RIS

Foreword

ASEAN-India relation is one of the cornerstones of India's foreign policy and the Act East policy (AEP). Starting as a sectoral partner of ASEAN in 1992, India became a dialogue partner of ASEAN in 1996, a summit-level partner in 2002 and strategic partner in 2012. On January 25, 2018, India and ASEAN celebrated 25 years of its partnership, at a Commemorative Summit in New Delhi, with the participation of Heads of State/Government from all the ten countries of ASEAN and India.

ASEAN-India region together accounts for a combined economic size of US$ 3.8 trillion. ASEAN is India's 4th largest trading partner, accounting for 10 percent of India's total trade. India is ASEAN's 7th largest trading partner. Bilateral trade between us has crossed US$ 80 billion in 2017-18, which may likely to cross US$ 100 billion by 2020. Investment flows between them have also remained robust.

India is actively engaged in the Regional Comprehensive Economic Partnership (RCEP) negotiations involving ASEAN and its six FTA partners, which, when finalized, will be the largest regional trading arrangement, accounting for about 40 per cent of the world trade. However, the success of RCEP would depend how India, the second largest market in Asia, and ASEAN able to narrow the trade policy differences and work together to deal with protectionism arising across the world at the moment. Non-Tariff Measures (NTMs) are increasingly considered as one of the most significant barriers to trade.

The ASEAN-India Centre (AIC) at RIS has completed a major study on ASEAN-India NTMs. This publication "Non-Tariff Measures (NTMs): Evidence from ASEAN-India Trade" is an outcome of this study. This Report focuses on understanding the perspective of exporting and importing firms and their experience on NTMs. It also looks into two specific NTM measures, namely, SPS and TBT. Besides, it has also investigated the regulatory environment and identified the regulatory gaps for policy recommendations.

I would like to record my appreciation of the efforts that have been put by my colleague, Dr Prabir De and his team, in conducting this study at RIS. I wish to thank Prof. Sachin Chaturvedi, Director General, RIS for his stewardship.

I am certain that this publication will be a valuable reference for policymakers, academics and practitioners.

Mohan Kumar

Prof. Sachin Chaturvedi
Director General, RIS

Preface

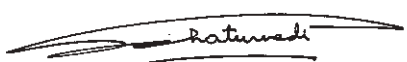
As has been emphasised time and again, economic dimensions are the strong bases of ASEAN-India partnership. They become all the more important as both ASEAN-India share land and maritime boundaries. This partnership received the desired momentum with the signing of ASEAN-India Free Trade Agreement (AI-FTA) in goods in January 2010. The resultant higher market access led to ASEAN becoming India's 4th largest trading partner and India becoming ASEAN's 7th largest trading partner, the most obvious positive outcome of India's 'Act East Policy'. However, there has also been rise in Non-Tariff Measures (NTMs) which are adversely affecting promotion of trade between India and ASEAN.

RIS has been engaged in the task of providing vital policy research inputs for deepening ASEAN-India partnership since early 1990s. The ASEAN-India Centre (AIC), set up at RIS, has also been providing evidence-based policy research inputs. In order to analyse the adverse effects of NTMs on ASEAN-India trade, the AIC at RIS has undertaken a comprehensive study on Non-Tariff Measures (NTMs) based on evidence from ASEAN-India Trade. The aim of the study is to identify regulatory hurdles and other NTMs that obstruct ASEAN-India from taking advantage of deeper trade relationship. It also suggests the steps needed for deepening trade integration between ASEAN-India, keeping in view the broad framework of ASEAN-India FTA in goods, the 2030 Agenda of Sustainable Development Goods (SDGs) as well as RCEP.

We are grateful to the Ministry of External Affairs, Government of India for its support for conducting this study. Thanks are also due to Ms. Vijay Thakur Singh, Secretary (East), Ministry of External Affairs, Government of India and Ambassador (Dr) Mohan Kumar, Chairman, RIS for their encouragement and guidance.

I am sure the present Report, prepared by the AIC Research Team comprising Dr Prabir De, Dr Durairaj Kumarasamy and Ms. Komal Biswal, will serve as valuable reference for all stakeholders involved in strengthening ASEAN-India partnership.

I would also take the opportunity to thank the RIS Publication team, led by Mr Tish Malhotra, for bringing out the Report well in time.



Sachin Chaturvedi

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We wish to thank Ambassador (Dr) Mohan Kumar, Chairman, RIS, and Prof. Sachin Chaturvedi, Director General, RIS, for their cooperation and encouragement. Our sincere thanks are also to Mr Anurag Bhushan, Joint Secretary (ASEAN Multilateral), MEA; Col. Sandeep Puri, the then Director (ASEAN Multilateral), MEA; Dr Madan Sethi, Director (ASEAN ML), MEA; Mr Rakesh Upadhyay, Director (ASEAN ML), MEA and Ms Shashwati Arya, Under Secretary, (ASEAN Multilateral), MEA, for their cooperation. We also wish to extend our thanks to Mr Suresh Reddy, former Indian Ambassador to ASEAN for sharing his views on the earlier draft of this Study.

We would like to acknowledge, in particular, the annual grant extended by the Ministry of External Affairs (MEA), Government of India, to the ASEAN-India Centre (AIC) at RIS for the year 2017-18, which helped carrying out this Study.

The Study has been benefitted from the discussion of the Stakeholders Consultation on ASEAN-India Non-Tariff Measures (NTMs), which was held at RIS on 20 April 2018. The findings of the study were also presented and discussed at the conference/seminar organised by the Indian Chamber of Commerce (ICC) at Kolkata on 29 November 2018 and Indian Council for Research on International Economic Relations (ICRIER) at New Delhi on 16 January 2019. In particular, we had received valuable comments on the Study from Prof. Amita Batra, Jawaharlal Nehru University, New Delhi; Dr Anil Jauhri, Chief Executive Officer (CEO), National Accreditation Board for Certification Bodies (NABCB), New Delhi; Mr Suranjan Gupta, Executive Director, Engineering Export Promotion Council (EEPC), New Delhi; Mr Pranav Kumar, Head, International Trade Policy Division, Confederation of Indian Industry (CII), New Delhi; Ambassador Biren Nanda, Distinguished Fellow, Delhi Policy Group (DPG), New Delhi; Dr Yann Duval, Chief, Trade Policy Division, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Bangkok. We are thankful to Prof. Arpita Mukherjee, ICRIER, for organising a consultation on the Study at the ICRIER on 16 January 2019. We are also thankful to Mr Rajeev Kher, Former Commerce Secretary; Mr Dammu Ravi, Joint Secretary (TPD), Ministry of Commerce and Industry (MoCI), Government of India; Dr Saon Ray, Senior Fellow, ICRIER, for their remarks on the ASEAN-India trade in general and NTMs in particular. We also acknowledge the comments from experts, policy-makers, research scholars, and government officials from time- to- time on this Study. In particular, we would like to thank our Industry Associations such as CII for helping us in carrying out the primary survey.

This Report benefited greatly from the assistance and support by the RIS Administration. Copy editing of the Report was carried out by Mr Tish Malhotra, who along with Mr Sachin Singhal also coordinated the production aspects of the Report. Additional copy editing was also done by Ms Shashi Verma.

Views expressed in this Report are those of the authors and not the views of the Governments of India or ASEAN countries, Research and Information System for Developing Countries (RIS), ASEAN-India Centre (AIC) or the ASEAN Secretariat. Usual disclaimers apply.

For any further queries on the Report, please contact prabirde@ris.org.in, or durairaj@ris.org.in

List of Abbreviations

ACC	ASEAN Cosmetic Committee
ACCSQ	ASEAN Consultative Committee on Standards and Quality
ACCSQPFPWG	ACCSQ Prepared Foodstuff Products Working Group
AEGFS	ASEAN Experts Group on Food Safety
AEM	ASEAN Economic Ministers
AEP	Act East Policy
AHEEER	ASEAN Harmonized Regulatory Regime for Electrical and Electronic Equipment
AHS	Effectively Applied
AIC	ASEAN-India Centre
AIFTA	ASEAN-India Free Trade Agreement
AMAF	ASEAN Ministers of Agriculture and Forestry
ANOVA	Analysis of Variance
APEC	Asia-Pacific Economic Community
APEDA	Agricultural and Processed Food Products Export Development Authority
APLAC	Asia Pacific Laboratory Accreditation Cooperation
APMP	Association of Proposal Management Professionals
APT	Asia-Pacific Telecommunity
APTA	Asia-Pacific Trade Agreement
APWG	Automotive Product Working Group
ARAI	Automotive Research Association of India
ASEAN	Association of Southeast Asian Nation
ASEC	ASEAN Secretariat
ASWGC	ASEAN Sectoral Working Group on Crops
ASWGF	ASEAN Sectoral Working Group on Fisheries
ASWGL	ASEAN Sectoral Working Group on Livestock
ATFC	ASEAN Task Force on Codex
ATIGA	ASEAN Trade in Goods Agreement
AWG	ASEAN Working Group
AWGFI	Ad-hoc Working Group on Food Irradiation
BEC	Broad Economic Categories
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BIPM	Bureau International des Poids et Measures
BIS	Bureau of Indian Standards
BPOM	National Agency of Drug and Food Control
BSE	Bovine Spongiform Encephalopathy
CB	Certification Body
CBEC	Central Board of Indirect Taxes and Customs
CCA	Coordinating Committee for ATIGA

CECA	Comprehensive Economic Cooperation Agreement
CEO	Chief Executive Officer
CEPA	Comprehensive Economic Partnership Agreement
CEPII	Centre d'Études Prospectives et d'Informations Internationales
CGE	Computable General Equilibrium
CII	Confederation of Indian Industry
CLM	Cambodia, Laos, Myanmar
CLMV	Cambodia-Lao PDR-Myanmar-Vietnam
COMESA	Common Market for Eastern and Southern Africa
CR	Engineering Export Promotion Council
DIPP	Department of Industry Policy and Promotion
DLD	Department of Livestock Development
DOTS	Direction of Trade Statistics
DPG	Delhi Policy Group
DST	Department of Science & Technology
EDI	Electronic Data Interchange
EEE	Electronic Equipment
EEPC	Engineering Export Promotion Council
EIC	Export Inspection Council of India
EL	Exclusion List
EMS	Environmental Management Systems
EPA	Economic Partnership Agreements
ERIA	Economic Research Institute for ASEAN and East Asia
ETI	Enabling Trade Index
EU	European Union
FAO	Food and Agricultural Organisation
FDA	Food and Drug Administration
FI	Frequency Index
FICCI	Federation of Indian Chambers of Commerce and Industry
FM	Finance Measures
FSMS	Food Safety Management System
FSSAI	Food Safety and Standards Authority of India
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GHP	Good Hygienic Practices
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis and Critical Control Points
HAS	Halal Assurance System
HS	Harmonized System
ICC	Indian Chamber of Commerce
ICRIER	Indian Council for Research on International Economic Relations
IEC	International Electro-technical Commission
IECEE	IEC System for Conformity Assessment Schemes for Electrotechnical Equipment and Components
ILAC	International Laboratory Accreditation Cooperation
IMF	International Monetary Fund
IPC	In-Patient Consultants
IPPC	International Plant Protection Convention
ISO	International Organization for Standardization
ISQUA	International Society for Quality in Health Care

IT	Information Technology
ITC	International Trade Centre
ITU	International Telecommunication Union
JAKIM	Jabatan Kemajuan Islam Malaysia
JV	Joint Venture
LDC	Livestock Development Council
LEP	Look East Policy
LPG	Liquefied Petroleum Gas
LPPOM	Assessment Institute for Foods, Drugs and Cosmetics
MABIMS	Association of Religious Ministers of Brunei Darussalam, Indonesia, Malaysia and Singapore
MARD	Ministry of Agriculture and Rural Development
MAST	Multi-Agency Support Team
MDPWG	Medical Device Product Working Group
MEA	Ministry of External Affairs
MENA	Middle East and North Africa
MFN	Most Favoured Nation
MGC	Mekong-Ganga Cooperation
MOA	Ministry of Agriculture
MOCA	Ministry of Consumer Affairs
MOCI	Ministry of Commerce and Industry
MOHFW	Ministry of Health and Family Welfare
MOPNG	Ministry of Petroleum and Natural Gas
MRA	Mutual Recognition Agreement
MUI	Indonesian Council of Ulama
NA	Not Applicable
NABCB	National Accreditation Board for Certification Bodies
NABH	National Accreditation Board for Hospitals & Healthcare Providers
NABL	National Accreditation Board for Testing and Calibration Laboratories
NAFIQAD	National Agro-Forestry-Fisheries Quality Assurance Department
NCC	National Cadet Corps
NMIC	National Meat Inspection Commission
NMIS	National Meat Inspection Service
NPL	National Physical Laboratory of India
NRBPT	National Registration Board for Personnel and Training
NTBs	Non-Tariff Barriers
NTMs	Non-Tariff Measures
OECD	Organisation for Economic Cooperation and Development
OIE	World Organisation for Animal Health
OIML	International Organization of Legal Metrology
OTRI	Overall Trade Restrictiveness Index
PAC	Pacific Accreditation Cooperation
PCM	Price-Control Measures
PFPWG	Prepared Foodstuff Product Working Group
PIC/S	Pharmaceutical Inspection Convention and Pharmaceutical Inspection Cooperation
PNGRB	Petroleum and Natural Gas Regulatory Board
PPWG	Pharmaceutical Product Working Group
PSI	Pre-Shipment Inspection
QCI	Quality Council of India
QCM	Quantity-Control Measures
RBPWG	Rubber-Based Product Working Group

RCA	Revealed Comparative Advantage
RCEP	Regional Comprehensive Economic Partnership
RIS	Research and Information System for Developing Countries
RMC	Ready Mixed Concrete
RMCMA	Ready Mix Concrete Manufacturers Association
SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asian Free Trade Agreement
SL	Sensitive List
SPS	Sanitary and Phytosanitary
STC	Specific Trade Concerns
STQC	Standardisation Testing and Quality Certification
SWIFT	Single Window Interface for Trade
TB	Trade Barriers
TBT	Technical Barriers to Trade
TCMCS	Coding System of Trade Control Measures
TFM	Trade Facilitation Measure
TISI	Thai Industrial Standards Institute
TMHS	Traditional Medicines and Health Supplements
TMHSPWG	Traditional Medicines and Health Supplements Product Working Group
TRAINS	Trade Analysis and Information System
TRM	Trade-related Investment
TRQ	Tariff Rate Quotas
TSE	Transmissible Spongiform Encephalopathy
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNIDO	United Nations Industrial Development Organisation
USA	United States of America
WBPWG	Wood-Based Product Working Group
WITS	World Integrated Trading Solutions
WTO	World Trade Organization

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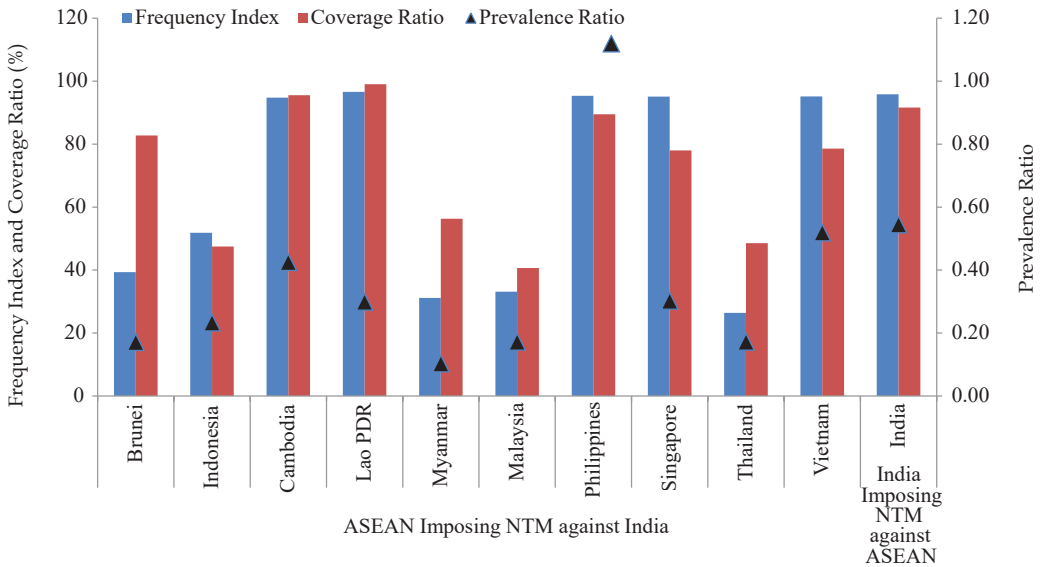
Executive Summary

- India and ASEAN are home to 1.8 billion people and have an economic size of US$ 3.8 trillion, accounting for a substantial share of world resources, economic and otherwise. India has taken steps on its passage towards economic integration, particularly with Southeast and East Asian countries. India has active regional trade agreements both at bilateral and multilateral level with most of the South Asia and Southeast Asian countries. The partnership with ASEAN has witnessed significant progress in recent years. India and ASEAN have recently celebrated a Commemorative Summit, held on 25 January 2018 at New Delhi to mark the 25th anniversary of ASEAN-India Partnership.
- ASEAN is India's 4th largest trading partner, accounting for 10 percent of India's total trade. India is ASEAN's 7th largest trading partner. Trade between ASEAN and India has increased to US$ 81 billion in 2017-18, which may likely to cross US$ 100 billion by 2020. India is also gaining production linkages with Malaysia (e.g. electronics), Thailand (e.g. automobiles), Singapore (e.g. digital and financial services), etc. Easing the barriers to trade would certainly lead to strengthen the economic relations between ASEAN and India.
- While the ASEAN-India Free Trade Agreement in goods is fully operational from January 2010, ASEAN and its six dialogue partners including India are actively engaged in the Regional Comprehensive Economic Partnership (RCEP) negotiations, which, when finalized, will be the largest regional trading arrangement, accounting for about 40 per cent of the world trade. However, the success of RCEP would depend how India, the second largest market in Asia, and ASEAN able to narrow the trade policy differences and work together to deal with protectionism arising across the world at the moment.
- While the trade between ASEAN and India has grown over time, the rise in Non-Tariff Measures (NTMs) has been phenomenal. NTMs are increasingly considered as one of the most significant barriers to trade. Today, a large part of merchandise trade between ASEAN and India is unrealized mainly owing to high trade costs due to cumbersome customs procedures, differences in standards and technical regulations among the trading partners. There are over a dozen types of NTMs applied to tradable goods, which include sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBT) measures, tariff rate quotas (TRQs), anti-competitive measures, import or export licenses, export restrictions, customs surcharges, financial measures, and anti-dumping measures and so on. The most common forms of NTMs are SPS and TBT. Imposing SPS or TBT could be justified to protect the health, security, environment, and consumers. While SPS or TBT measures aim to ensure that regulations, testing and certification

procedures do not create unnecessary obstacles to trade, at the same time, it could also have adverse effect on trade and increase the cost of doing business.

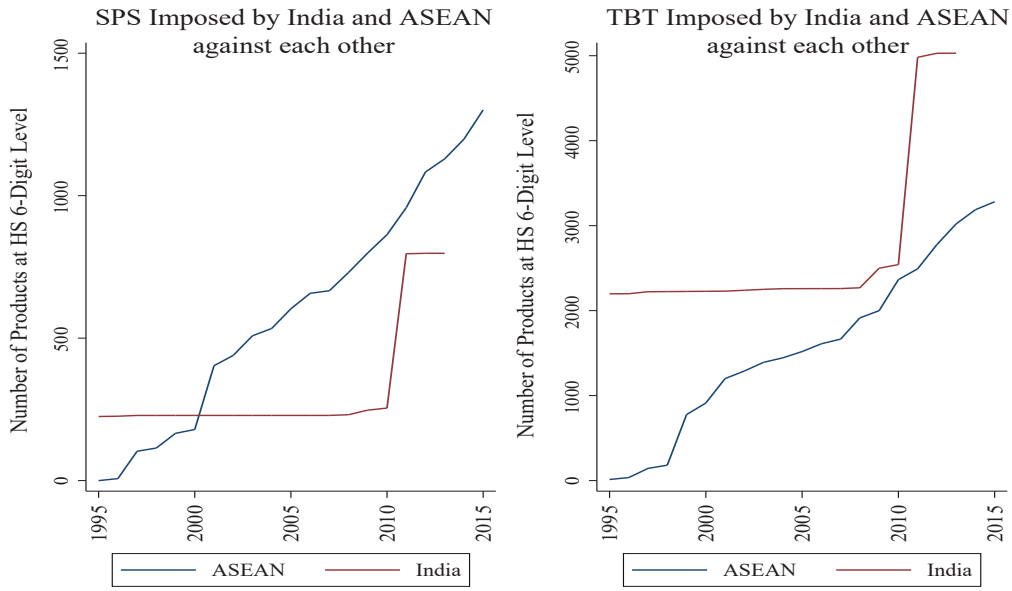
- SPS and TBT measures have consequences on trade because exporters seeking market access for their products need to meet the compliance requirements that are imposed by several regulatory agencies. Lack of essential knowledge in fulfilling the compliance and the cost of compliance are major impediments to trade, if different standards are maintained between the countries, lack of transparency, complex regulatory measures, discriminatory among country's trading partners, to protect domestic industries, etc.
- The presence of NTMs has hindered the trade between ASEAN and India. As illustrated in Figure 1, incidences of NTMs have been very sporadic and as high as 95 percent of tradable items. Both India and ASEAN have witnessed steep rise in imposition of NTMs (Figure 2). Therefore, despite better market access due to trade liberalizations and several bilateral, regional and multilateral trade agreements between countries, the complexities and applications of NTMs have increased over time, while some of the NTMs are legitimate. Therefore, exporters often consider NTMs as barriers to trade and compliance of NTMs requirements represents an additional cost and time to export, which also has a negative effect on competitiveness of their products exported to the partner countries.
- This Report focuses on experiences of the exporting and importing firms' on NTMs that are hindering the trade between India and ASEAN. Particularly, it is essential to look at the firms' perspective on the NTM issues in order to identify and define the strategies that can address and overcome the impediments to trade. Firms dealing with exports and imports have to deal with NTM related issues on a daily basis and they also face several challenges and problems pertaining to specific NTMs. Therefore, understanding firms' concern and difficulties would help the government and other stakeholders to take necessary policy directions in curtailing the impact of NTMs on the trade. The Report also looks into two specific NTMs, namely, SPS and TBT, and has carried

Figure 1: Country-wise NTMs between ASEAN and India



Source: Authors' calculations based on UNCTAD (2017) Database.

Figure 2: Trend of Average Number of SPS and TBT Imposed by ASEAN on India and India on ASEAN (at HS 6-digit level)



Source: Authors' calculations based on UNCTAD (2017) database.

out case studies on the selected products, which would have consequences for trade because exporters seeking market access for their products need to comply with requirements that are imposed by several regulatory agencies. Finally, the Report also investigates the regulatory environment and identifies the regulatory gaps for policy recommendations. Outcomes of this Study may not only help better monitoring the ASEAN-India FTA in goods but also strengthen our understanding on NTMs. This would also facilitate better preparation to effectively implement the 2030 Agenda for Sustainable Development Goals (SDGs) as well as RCEP.

- The Study has used both primary and secondary data. The primary survey gave special focus on SPS and TBT specific questions pertaining to sub-classification of SPS and TBT related issues, standard and technical regulations, impact of SPS and TBT on cost and time to trade, procedural obstacles, barriers and suggestions to ease NTM associated problems and to improve ASEAN-India trade and economic relationship in future. Besides, it also covered awareness and perception on NTM, FTAs and trade facilitation related issues. The secondary data has used various methods to assess the incidence of NTMs and its impacts on ASEAN and India, both at country and sectoral levels. The Study also investigated the impact of NTM measures on sector-wise export patterns and its effect on shift in export competitiveness between ASEAN and India.
- The Study has reviewed the existing literatures on NTMs for better understanding of NTM implications on India's exports to ASEAN; and designed the way forward. It is divided in two major components: first, analysis of primary and secondary data, which has shown us the intensity and perception on the trade barriers; and second, analysis of regulatory environment in order to identify the gaps in regulatory system. Both ultimately lead us to draw some recommendations and the way forward.

Major Findings

- Although AIFTA has considerably reduced the tariff for almost 80 per cent of the products granting the market access, due to stringency and complexities of NTM some of the sectors and products are denied market access in both ASEAN and India.
- More than 60 per cent of India's export is affected by NTMs imposed by ASEAN on India. In addition, ASEAN countries impose higher tariffs on products such as agricultural and food processing products, chemical products, textiles, base metals, machinery and electrical equipments, thereby indicating that countries are protecting their domestic sectors with both NTMs and tariffs, despite tariff liberalizations. Especially, ASEAN countries such as Vietnam, the Philippines and Cambodia complement both tariff and NTMs to restrict market access from India, whereas, Brunei and Singapore substitute tariff with NTMs on imports from India.
- Relatively both ASEAN and India have imposed almost equal number of NTMs against each other. However, in the case of India, TBTs, Price-Control Measures (PCM) and Trade-Related Investment (TRM) measures are imposed in almost all the products, whereas ASEAN has imposed several types of NTMs in both technical and non-technical measures.
- About 27.41 per cent of India's export was affected ASEAN's SPS measures, whereas about 56.28 per cent of India's export was affected by ASEAN's TBT measures in 2016. India has imposed few SPS measures against ASEAN, and its effect on ASEAN's export was about 17.12 per cent. Besides, India has imposed TBT measures against ASEAN to most of the product that affect about 92 per cent of ASEAN export to India in 2016.

Business firms are more optimistic towards ASEAN and India future trade

- About 72 per cent of the respondents believed that the trade between ASEAN and India in next 20 years would increase. The study has found that problems and procedural obstacles related to NTMs and barriers related to standard and technical regulations did have a negative effect on the trade. Harmonisation of standards and technical regulations, benefits associated to NTMs would positively promote trade between ASEAN and India in future.

Majority of the firms experience difficulties with both SPS and TBT

- About 53 percent of the firms faced difficulty with SPS reasons and 41 per cent of the firms experienced difficulty in TBT reasons.
- Almost 50 to 70 per cent of the respondents experienced difficulties in most of the SPS types, such as Temporary geographic prohibitions for SPS reasons, Geographical restrictions on eligibility, Systems approach, Special authorisation requirement for SPS reasons, Registration requirements for importers, Restricted use of certain substances in foods and feeds and their contact, Microbiological criteria of the final product, Hygienic practices during production, Cold/heat treatment, Irradiation, Fumigation, Plant-growth processes, and Food and feed processing. This shows that Indian firms are experiencing serious difficulties in meeting SPS requirements.
- About 60 percent of the firms found most difficultly in trade due to authorization requirement for TBT reasons. In addition, more than 50 percent of the respondents responded that TBT requirements such as tolerance limits for residues of or

contamination by certain substances, registration requirement for importers, product identity requirement, regulations on production processes, etc.

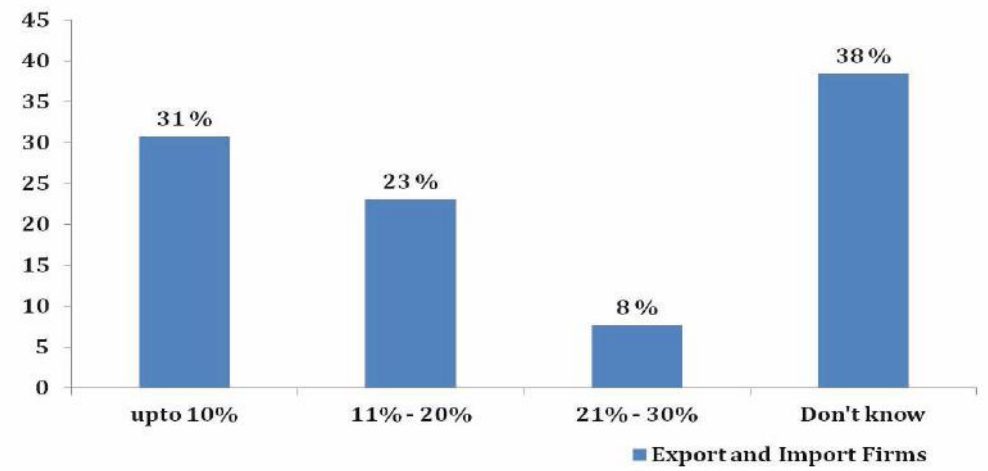
Harmonisation of standard and technical regulations would improve trade

- Respondents believed that mutual recognition, international standards, harmonization, common positive and negative list of additives and stakeholder consultation would majorly ease problems/challenges in meeting SPS and TBT measures and promoting trade between ASEAN and India.
- Most of the respondents believed that NTMs leads to harmonization of standards and technical regulations between ASEAN and India will improve trade (36 percent) would improve competitiveness (25 per cent) and protects consumer safety (22 per cent).

Major Barriers to Trade between ASEAN and India

- Standard and technical regulations for SPS and TBT measures hindered entry of exports to a large extent, in addition to the decrease in export performance due to increased per unit cost.
- Most of the respondents believed that complicated trade procedures (37 per cent), handling of documents manually (25 percent), rise in cost of compliance (21 percent) and increase in time to trade (13 percent) were the major obstacles to NTM.
- Almost 30 per cent of the respondents reported that Complication in utilizing ASEAN-India FTA and lack of transparency of trade-related rules and regulations were major barriers to trade for majority of the respondents.
- Lack of credit availability for traders, insufficient cash flow for business expansion, exchange rate volatility, non-acceptance of local currency trade, lack of banking facility in both host and domestic country were the problems restricting trade between ASEAN and India.
- Almost 40.4 per cent of the respondents reported that NTM measures led to incur additional time and cost to trade. Similarly, 23 per cent of the respondents believed that lack of regulatory incoherence and bad design in implementing countries and its nature of restricting trade.
- More than 30 percent of the respondents strongly agree that procedural obstacles of NTMs in the form of regulatory barriers, information obstacles, documentation obstacles and logistics obstacles hinder a firm's ability to export and import.

Figure 3: Perception on Utilisation of ASEAN-India FTA



Firms reported low utilisation of ASEAN-India FTA

- Exporter and importer firms had poor knowledge and utilisation of FTAs between ASEAN and India. And also firms used other FTA routes to trade with ASEAN countries such as APTA, India-Singapore CEPA, and India-Malaysia CEPA. As a result, only 30 per cent of the firms have utilised upto 10 per cent of share of export to ASEAN countries.
- Majority of export and import firm believed that low general custom tariff; obstacles due to rules of origin and costs and procedural delay are the reasons for low utilisation of ASEAN-India FTA.

Recommendations

- Business firms particularly small and medium-sized enterprises (SMEs) faces several barriers on behind-the-borders, such as lack of information on specific regulations, lack of coordination and coherence of regulatory regimes, complexities in following certain requirements. Besides, regulations also

List of Recommendations

- Ensuring health protection, while minimising trade transaction costs
- Improve transparency on SPS and TBT requirements
- Streamline documentary requirements and control procedures
- Implement risk-based approach (e.g. follow the country-level and internal guidelines)
- Strengthen collaboration between SPS-TBT and other border management agencies between ASEAN and India
- Promote greater use of equivalence and unilateral / mutual recognition
- Facilitating safe trade (e.g e-Phyto certificates)
- Enhancing capacity to effectively implement SPS and TBT measures
- Ensure periodic consultative process and efficient consultation with stakeholders
- Review and follow up private sector in delivering SPS and TBT outcomes
- Need strong coordination between government agencies
- Aim for harmonisation and Mutual Recognition Agreement (MRA) of Standard and Technical Regulations
- Improve transparency in terms of norms, regulations, procedure and documentation for the traders for easy accessibility
- Bilateral swap arrangements between India and ASEAN countries to avoid exchange rate volatility
- Build warehousing facilities such as cold chain at airport and port would reduce the cost and delay in exports due to NTM related issues.
- Develop linkages in Single Window System for Custom procedures between ASEAN and India
- Support MSMEs through financial assistance and capacity building to meet the requirement of NTM related issues
- Simplify the procedures and disseminate the knowledge on FTAs among traders and other stakeholders for better utilisation of FTAs
- Provide training and capacity building related to FTAs for officials at the implementation level

tend to change in a short duration that creates uncertainty among the business firms. Therefore, it affects the business decisions for firms due to non-tariff obstacles to trade. The present series of recommendations to improve the ease of regulatory regime such as adopting good regulatory practices, enhance transparency in NTM regulations, non-discriminatory treatment, eliminate unnecessary trade restrictiveness, simplify the procedures for firms to comply with regulations at ease, effective dissemination of FTA, single window system for NTMs and simplify trade procedures.

- Besides, there is need for regulatory coherence between ASEAN and India to carry out discussion on the activities based on regulatory cooperation in terms of dialogues, meetings, information exchanges, including for small and medium enterprise related issues; training programmes and other assistance; and strengthening cooperation and relevant interaction amongst government regulatory bodies, private sector and other voluntary / non-profit organisations and associations. The deliberation should help improve conformity assessment capabilities and facilitate process of mutual recognition of each other's accreditation certificates.
- In addition to tariff liberalization, streamlining of NTMs is equally important for facilitating preferential market access between ASEAN and India. Therefore, there is a need for regional agreements between ASEAN and India to facilitate trade by streamlining NTMs through harmonization of standards and regulations and mutual recognition of conformity assessments and reduction of border procedures. Only then any regional trade agreements can promote trade and investment activities. There is a need for cooperation in terms of negotiations in streamlining NTMs between ASEAN and India.
- Conformity assessment procedures can raise barriers when there is a duplication of costs in different markets for essentially identical tests against the same or equivalent standards. Therefore, both ASEAN and India should harmonise standards and mutually recognise declarations, conformity assessment certificates, testing and licensing that would help minimize the burdens of additional trade costs for firms, especially, small and medium enterprises (SMEs). There is also a need for bilateral and multilateral negotiations by creating and strengthening the discipline around the sectoral mutual recognition agreements (MRAs), particularly in dealing with the SPS and TBT measures at sectoral and product-specific level.
- Aiming towards ASEAN single market, ASEAN Consultative Committee on Standard and Quality (ACCSQ) has undertaken initiatives to harmonise standards and technical regulations for the priority sectors. In this regard, India should monitor development of ACCSQ Working Group on product standards and engage in cooperation with ASEAN in order to mutually recognise the standards. India should also disseminate the development of harmonisation of standards and technical regulations within ASEAN, and how Indian SMEs and large enterprises should be adopting and improving the standards accordingly to promote export from India.
- India and ASEAN may consider setting up a working group to find out an appropriate strategy to deal with NTMs with participation of industry associations and private enterprises.

Chapter 1

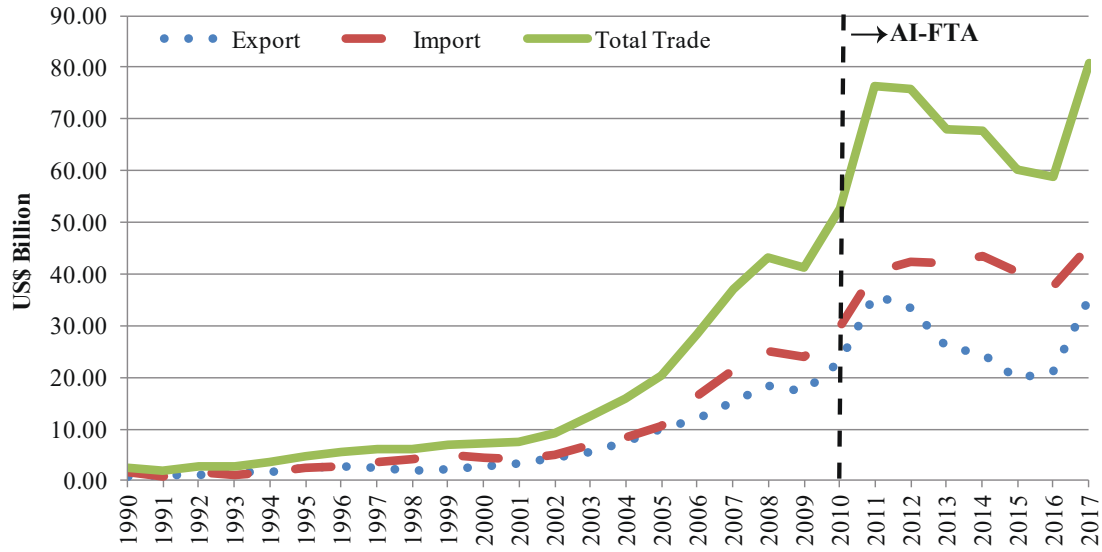
Introduction

1.1 Background

India and ASEAN (Association of South East Asian Nations) are home to 1.8 billion people and have an economic size of US$ 3.8 trillion accounting for a substantial share of world resources, economic and otherwise. ASEAN and India share both land and maritime boundaries. ASEAN-India relations are firmly embedded in culture, commerce and connectivity (3Cs). India's 'Look East Policy' (LEP), which was in force for more than two decades, has now been transformed into 'Act East Policy' (AEP) with ASEAN at its core. However, ASEAN-India relations have gained continuous momentum in the last 25 years. Starting as a sectoral partner of ASEAN in 1992, India became its dialogue partner in 1996, a summit-level partner in 2002 and a strategic partner in 2012. India and ASEAN celebrated their 25 years of partnership that culminated into a Commemorative Summit, held on 25 January 2018 at New Delhi.

The partnership between India and ASEAN has made significant progress in the recent years. In January 2010, ASEAN-India Free Trade Agreement (AI-FTA) in goods was signed, through which ASEAN and India reduced considerably the average tariff for almost 80 per cent of the products; thereby granting higher market access to each other. In 2017, ASEAN became India's 4th largest trading partner, accounting for 10 per cent of India's total trade. In the same year, India was ASEAN's 7th largest trading partner. Later, the trade between

Figure 1.1: India's Trade with ASEAN



Source: Calculated based on DOTS, IMF database.

ASEAN and India increased to US$ 81.33 billion in 2017-18 from US$ 52.70 billion in 2010-11. In 2017-18, India's export to ASEAN was US$ 34.2 billion and import from ASEAN was US$ 47.13 billion (*see* Figure 1.1).

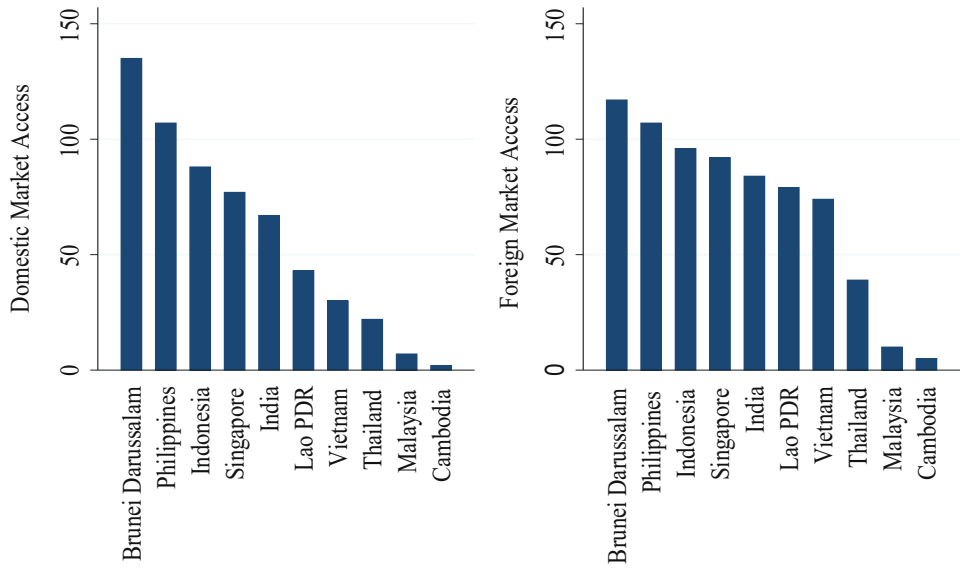
While the trade between ASEAN and India grew over time, the rise in Non-Tariff Measures (NTMs) between them has been phenomenal. Today, a large part of merchandise trade between ASEAN and India is unrealized mainly owing to high trade costs in the form of slow and unpredictable goods delivery, cumbersome trade procedures, to mention a few.[1]

Non-Tariff Barriers (NTBs) are a subset of NTMs (NTM≠NTB). According to the UNCTAD, "The concept of Non-Tariff Measures (NTMs) is neutral and does not imply a direction of impact".[2] NTMs are defined as "policy measures, other than customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both".[3]

According to the UNESCAP, "Non-Tariff Measures (NTMs) have been increasing. NTMs accounted for 56 per cent of the new trade-restrictive measures introduced globally and 55 per cent regionally (Asia-Pacific)".[4] Thus, NTMs tend to pose a more serious barrier to trade between ASEAN and India than tariffs. Apparently, negative effects of NTMs would continue to accumulate if they are not removed or rationalized.

Due to stringency and complexities of non-tariff measures and other trade restrictive policies, some of the sectors and products have been denied market access in both ASEAN and India. Figure 1.2 shows the rank of market access of South and Southeast Asian countries. There exists a wide gap in both domestic and the foreign market access in ASEAN and India (see Figure 1.2). In terms of market access, Brunei Darussalam, the Philippines, Indonesia and Singapore are relatively difficult with regard to accessing their domestic markets as compared to India and the other ASEAN countries; whereas most of the ASEAN countries and India have faced similar experience of difficulties in accessing foreign markets. Several studies indicate that falling tariffs have exposed the importance of other obstacles to trade, particularly NTMs,

Figure 1.2: Domestic and Foreign Market Access of India and ASEAN



Notes: (1) Domestic market access captures the extent and complexity of the country's tariff protection as the result of its trade policy. (2) Foreign market access captures the tariff barriers faced by the country's exporters in the destination market.
Source: Based on World Economic Forum (2016).

which are increasingly considered as the most significant ones for trade[5]. Given the difference between NTBs and NTMs, imposing NTMs can be justified to protect health, security, environment and consumers. However, at the same time, it can also have adverse effect on trade and may increase the cost of trading across borders.

There are several types of NTMs applied to tradable goods, which include sanitary and phytosanitary measures (SPS), technical barriers to trade (TBT), tariff rate quotas (TRQs), anti-competitive measures, import or export licenses, export restrictions, customs surcharges, financial measures, anti-dumping measures, and so on. The impact of imposed NTMs has caused multiple effects on the production process. For instance, NTMs are associated with the production stage of a product to its marketing and distribution stage (*see* Table 1.1). Therefore, NTMs can add costs to trade (e.g. standards require information and compliance); it can preclude trade (e.g. prohibitions, stringent requirements, etc.); it can divert trade (e.g. quotas, standards, etc.) and can also create trade (e.g. SPS and TBT, which guarantee quality, safety, etc.).

Despite better market access due to trade liberalization and several bilateral, regional and multilateral trade agreements between countries, the complexities and the applications of NTMs have increased over the time. Exporters often consider NTMs as barriers to trade, and compliance of NTMs' requirements would cause additional cost and time to export, which would negatively effect on competitiveness of their products exported to partner countries. Therefore, it is not the tariff liberalization, but streamlining of NTMs, which is important for achieving preferential market access between ASEAN and India, which, in turn, may lead to promote trade and investment activities[6]. Agreeing to a common standard may pave the way for an effective implementation of the Regional Comprehensive Economic Partnership (RCEP), Agreement.

In view of the above, this study analyses the effect of NTMs, in general, and discusses

Table 1.1: NTMs Associated with Production to Marketing and Distribution Stages of a Product

(1) Production Stage	**Regulations on the quality or safety of inputs used** • Follow certain safety processes in production • The producer to have Authorizations to produce, or have Certifications for producer (not for the product) • Registration
(2) Final Product	• Quality or safety requirements • Testing, inspection • Authorizations or Certifications needed for the product, Labelling, etc. • Traceability information • Registration
(3) Post-Production Stage	• Transportation • Storage and warehousing • Distribution
(4) Commercial Transaction and Administration	• Taxes and quotas • Any price limitation • Regulations on the mode of payment, financial, etc.

Source: UNCTAD (2016).

perspectives and experiences on NTMs that are hindering trade between India and ASEAN. Given the ASEAN-India FTA in goods, this study also attempts to identify regulatory hurdles and other NTMs and related border costs that prohibit India and ASEAN to reap the gains of deeper trade integration. Particularly, it is essential to look at the firms' perspectives on the NTM issues to identify and define strategies that can address and overcome impediments to trade. Firms dealing with exports and imports have to deal with NTM-related issues on a daily basis where they face several challenges and problems pertaining to specific NTMs. Therefore, understanding firms' concerns and difficulties would help the government and other stakeholders to take necessary policy directions in curtailing the impact of NTMs on the trade. This study has also looked into two specific NTMs, namely, SPS and TBT, and has carried out case studies on the selected products, which have consequences on trade. The case studies are important because exporters seeking market access for their products need to comply with the requirements imposed by several regulatory agencies. Finally, the study has also investigated the regulatory environment and identifies regulatory gaps. Outcomes of this study will not only help better monitoring the ASEAN-India FTA in goods but also strengthen understanding on NTMs and would facilitate better preparation to effectively implement the 2030 Agenda for Sustainable Development Goals (SDGs) as well as RCEP.

1.2 Data and Methodology

The study has used both primary and secondary data for the analysis. In the case of the primary survey, the study has designed a fairly detailed questionnaire to capture all possible issues related to NTMs both in ASEAN and India. The survey gave special focus on SPS and TBT specific questions, pertaining to sub-classification of SPS and TBT related issues, standard and technical regulations, impact of SPS and TBT on cost and time to trade, procedural obstacles, barriers and suggestions to ease NTM associated problems and to improve ASEAN and India trade and economic relationship in future. Besides, it also covered awareness and perception on NTMs, FTAs and trade facilitation related issues. The primary survey was carried out online with participation of firms, experts, associations, government officials and researchers. To ensure the reliability and consistency of the primary survey, the study has followed several diagnostic tests. The study has broadly used descriptive statistics, cross tables, frequency calculations and graphs for presenting the survey results. The study has also estimated factors determining ASEAN-India trade using probit model.

The secondary data on NTMs were collected mainly from the Trade Analysis and Information System (TRAINS) database, which was developed by UNCTAD. UNCTAD has comprehensive database on NTMs at the sub-classification level by Harmonized System (HS) at 6-digit level for most of the countries at the bilateral level. The study has used various methods to assess the incidence of NTMs and its impacts on ASEAN and India at country and sectoral levels.

1.3 About the Report

Following Introduction, the Chapter 2 presents a detailed review of the theoretical and empirical literature on NTMs. This chapter gives brief background on NTM classifications, theoretical framework on how NTMs affect trade and welfare of both the consumer and the producer. The chapter also covers several case studies related to the standard and the technical regulation, procedural obstacles, SPS and TBT measures and their impact on the trade in some of the ASEAN countries and India.

Chapter 3 presents on the market access implications in terms of tariff and NTMs on trade between ASEAN and India. The chapter analyses to what extent the use of tariffs and NTMs has evolved over the period and its

effect on promoting or distorting trade between ASEAN and India.

Chapter 4 addresses implications of NTMs between ASEAN and India and assesses the barriers to trade using various methods on market access for trade between ASEAN and India. This chapter also delves on the complementary versus substitutive effects of trade policy with regard to use of tariff and NTMs to restrict market access between ASEAN and India. The study has used the Revealed Comparative Advantage (RCA) index to investigate how sector-wise export patterns have shifted over time between ASEAN and India and also to assess the impact of NTM measures on shift in export competitiveness between ASEAN and India.

Chapter 5 attempts to understand firms' perspective and experience on NTMs that are hindering trade between India and ASEAN based on the primary survey data. The survey has given special focus on SPS and TBT issues between ASEAN and India. The purpose of this survey is to investigate bottlenecks with NTMs and to find a way to address the difficulties faced by the exporters with the partner countries. The survey has also looked into the existing trade agreements and their effective utilization.

Chapter 6 focuses on firms' perception of regulatory environment and on the implementation mechanism in ASEAN and India with regard to NTMs. The chapter also covers various procedural obstacles of NTMs and their likely impact on ASEAN-India trade. Besides, this chapter has looked into various barriers and benefits of NTMs and their impact on the future trade between ASEAN and India. The chapter has empirically analysed the likely determining factors of future trade between ASEAN and India based on the primary survey data.

Chapter 7 presents an overview of the existing regulatory frameworks for NTMs, especially with regard to SPS and TBT between ASEAN and India. The chapter has carried out a detailed analysis on SPS and TBT at the sub-classification level between ASEAN and India. The chapter also provides details of case studies at the product level on the issues related to SPS and TBT, in particular, between ASEAN and India.

Chapter 8 presents policy implications and conclusions.

Overall, this study has made a sincere attempt to assess the impact of NTMs between ASEAN and India and to draw policy recommendations in regard to NTMs at a broader perspective. This study also mentions the case studies on specific products, which are affected by SPS and TBT measures of major trading partners between ASEAN and India. However, given the significance of NTMs and their influence on government regulations and institutional mechanism, there is still a need for further research and analysis in several dimensions. Due to paucity of in-depth NTM data and understanding of their procedural requirements, it is felt that a joint study, both at bilateral and multilateral levels between ASEAN and India, is required to minimize the discriminatory effect of NTMs on trade.

Chapter 2

Literature Survey and Stylized Facts

2.1 Introduction

In the last three decades, global trade has witnessed a sharp rise; it increased to US$ 35 trillion in 2017 from a meagre US$ 1 trillion in 1973. In 2017, merchandise trade grew by 4.7 per cent that was its highest growth in the last six years[7]. Over time, multilateral institutions like the WTO have helped the trade to flourish. In 2017, the WTO members accounted for 98 per cent of world merchandise trade compared with 88 per cent in 1995[8]. During this period, the most common barriers to trade were tariffs, quotas, and non-tariff barriers (NTBs). However, there was progressive liberalization on tariffs on trade through the multilateral, regional and bilateral trade agreements. Further, special and differential treatment schemes such as the UNCTAD's generalized tariff preferences and various preferential schemes granted to most needed countries reduced the dependence on tariffs for greater market access.

With reduction in tariffs over time, NTMs (and NTBs) have gained attention. In other words, the failure of tariff liberalization in providing market access has drawn attention to NTMs as the major source in restricting global trade. NTMs are the policy interventions other than tariffs that influence trade, international flow of goods and services, factors of production, prices and quantity (Movchan and Eremenko, 2003). NTMs encompass all measures excluding tariffs such as standards, licensing systems, anti-dumping duties, etc., which restrict trade between countries. According to the UNCTAD classification, the list of NTMs includes market specific trade and domestic policies such as technical barriers to trade, sanitary and phytosanitary policies, custom charges and taxes, import quotas, export subsidies, price control measures and monopolistic measures. According to the UNCTAD, NTMs are "Policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both".[9]

Non-tariff barriers (NTBs) are a subset of NTMs (NTM ≠ NTB), implying a negative impact on trade. However, not all NTBs are harmful for trade and have been designed specifically to restrict imports. NTBs are permissible to be imposed by members in the MFN trade under the WTO.

NTMs do not offer any judgment over legitimacy or lawfulness, and is different from the concept of "Procedural are very diverse and so is their Obstacles". NTMs can add costs to trade (e.g., standards require information and compliance); it can preclude trade (e.g., prohibitions, stringent requirements, etc.); it can divert trade (e.g., quotas, standards, etc.) and can also create trade (e.g., SPS and TBT, which guarantee quality, etc.).

NTMs can be classified into three categories at a broader level. The first category of NTMs is imposed on imports, which include import quotas, import prohibitions, import licensing, and customs procedures and administration fees. The second category of NTMs is imposed on exports, which include export taxes, export subsidies, export quotas, export prohibitions, and voluntary export restraints. And the third category of NTMs is imposed in the domestic economy internally, which includes behind–the–border measures including domestic legislation covering health/technical/product/labour/environmental standards, internal taxes or charges, and domestic subsidies (Staiger, 2012).

UNCTAD has formed a MAST group (Multi-Agency Support Team) in 2006 to support the Group of Eminent Persons on developing a taxonomy for NTMs. The MAST team includes Food and Agriculture Organisation (FAO) of the United Nations, International Monetary Fund (IMF), International Trade Centre (ITC), Organisation for Economic Cooperation and Development (OECD), United Nations Conference on Trade and Development (UNCTAD), United Nationals Industrial Development Organisation (UNIDO), World Bank, and World Trade Organisation (WTO).

The classification of NTMs are categorised into 16 chapters (A to P) and each individual chapter is further divided into sub-groups with upto three levels digits, depending on their scope and coverage. The broad chapters of the classification, including NTMs imposed against importing country on imports (chapter A to O) and exporting country on exports (chapter P) are illustrated in Table 2.1.

Table 2.1: Non-Tariff Measures Classification by Chapter

	Chapter	NTM Classifications	Definition
	Technical Measures		
Import Measures	A	Sanitary and Phytosanitary Measures (SPS)	SPS Measures are applied to protect human or animal life from risks arising from additives, contaminants, toxins or disease-causing organisms in their food. Measures classified under A1 through A6 are technical regulations while those in A8 are their conformity assessment procedures.
	B	Technical Barriers to Trade (TBT)	Measures referring to technical regulations, and procedures for assessment of conformity with technical regulations and standards, excluding measures covered by the SPS Agreement. Measures classified under B1 through B7 are technical regulations while those under B8 are their conformity assessment procedures. Among the technical regulations, those in B4 are related to production processes, while others are applied directly to products.
	C	Pre-Shipment Inspection and other formalities	These are measures related to pre-shipment-inspection and other custom formalities.
	Non Technical Measures		
	D	Contingent Trade-Protective Measures	Measures implemented to counteract particular adverse effects of imports in the market of the importing country, including measures aimed at unfair foreign trade practices, contingent upon the fulfillment of certain procedural and substantive requirements.

Table 1 contd...

Table 1 contd...

	Chapter	NTM Classifications	Definition
Import Measures	E	Non-Automatic Licensing, Quotas, Prohibitions and Quantity-Control Measures other than for SPS or TBT Reasons	Control measures generally aimed at restraining the quantity of goods that can be imported, regardless of whether they come from different sources or one specific supplier. These measures can take the form of non-automatic licensing, fixing of a predetermined quota, or through prohibitions.
	F	Price-Control Measures, including Additional Taxes and Charges	Measures implemented to control or affect the prices of imported goods in order to, inter alia, support the domestic price of certain products when the import prices of these goods are lower; establish the domestic price of certain products because of price fluctuation in domestic markets, or price instability in a foreign market; or to increase or preserve tax revenue.
	G	Finance Measures	Finance measures are intended to regulate the access to and cost of foreign exchange for imports and define the terms of payment. They may increase import costs in the same manner as tariff measures.
	H	Measures Affecting Competition	Measures to grant exclusive or special preferences or privileges to one or more limited group of economic operators.
	I	Trade-Related Investment Measures	These are measures related to trade-related investment measures and other content measures.
	J	Distribution Restrictions	Distribution of goods inside the importing country may be restricted. It may be controlled through additional license or certification requirements.
	K	Restrictions on Post-Sales Services	Measures restricting producers of exported goods to provide post-sales service in the importing country.
	L	Subsidies (Excluding Export Subsidies Under P7)	Financial contribution by a government or public body, or via government entrustment or direction of a private body
	M	Government Procurment Restrictions	Measures controlling the purchase of goods by government agencies, generally by preferring national providers.
	N	Intellectual Property	Measures related to intellectual property rights in trade: Intellectual property legislation covers patents, trademarks, industrial designs, layout designs of integrated circuits, copyright, geographical indications and trade secrets.
	O	Rules of Origin	Rules of origin cover laws, regulations and administrative determinations of general application applied by government of importing countries to determine the country of origin of goods.
	Exports		
Export Measures	P	Export-Related Measures	Export-related measures are measures applied by the government of the exporting country on exported goods.

Source: UNCTAD (2013) Classification of NTM, February 2012 Version, Geneva.

2.2 Theoretical Framework

An important aspect of NTM analysis is not to look at its use but its impact on the trade. To better understand the effect of NTMs on international trade and welfare, Figure 2.1(a) and Figure 2.1(b) illustrate the effects of NTMs on trade and welfare in two different approaches. The first approach aims to investigate effects of NTMs, which would help in understanding the overall restrictiveness of NTMs for countries over a broad group of NTMs. The second approach aims to provide detailed and precise effects of a specific NTM on a single product in a single country that cannot be generalized or would provide overall policy guidance.

Figures 2.1(a) and 2.1(b) illustrate the effects of SPS/TBT measures on both trade and welfare. For example, the government of the importing country introduces a quality assurance programme for foreign producers for compliance; otherwise selling their goods will be prohibited in the country. Since compliance of such policies raises the cost of foreign producers, as the result, the price charged by foreign producers rises from OW to OW'. On the other hand, consumers are assured that foreign producers are selling only high-quality products in the market which shifts their demand to BD'. This increase in demand due to higher-quality import goods results in an increase in consumer welfare [shown by the area BEC in Figure 2.1(a)]. Overall, both societal welfare and trade increased at the same time. However, if demand for the imported goods was low, imports tended to decline (see Figure 2.1(b)). In this case, both trade (falling from OA to OA') and societal welfare declined (the loss of WW'EF outweighs the gain of BEC) (UNCTAD, 2014).

Further, welfare analysis (usually seen from a social planner's perspective) must also internalize the damages linked to the dangerous characteristic of products to capture the impact of SPS and TBT measures, whether or not accounted by domestic consumers. If the consumers account for the hazardous characteristics of products then it leads to a change in demand which de facto affects equilibrium and thus welfare. Let us assume that the consumers do not internalize the damages and the damages are possibly caused by foreign goods only. The damage cost can be calculated by the probability of having contaminated products times the per unit damage costs of the reference good (UNCTAD, 2014). The implementation of a public standard (SPS or TBT) will reduce the

Figure 2.1(a): Effect of TBT/SPS Measures on Trade and Welfare when Import Increases

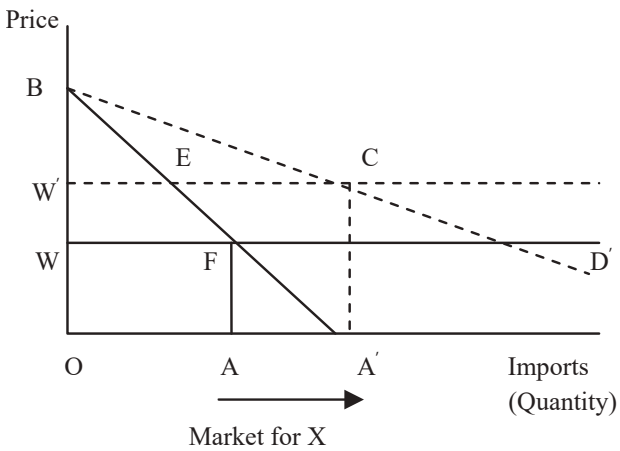
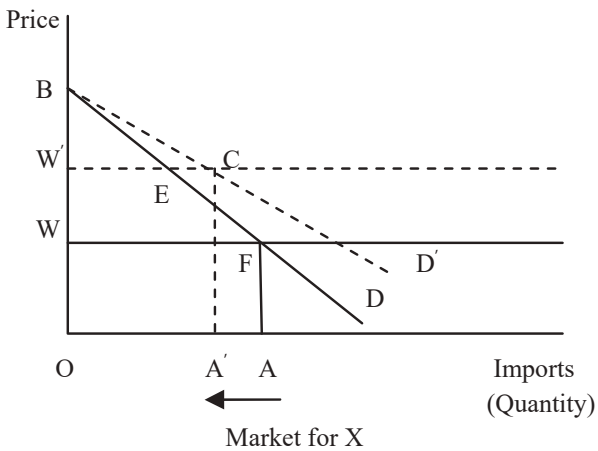
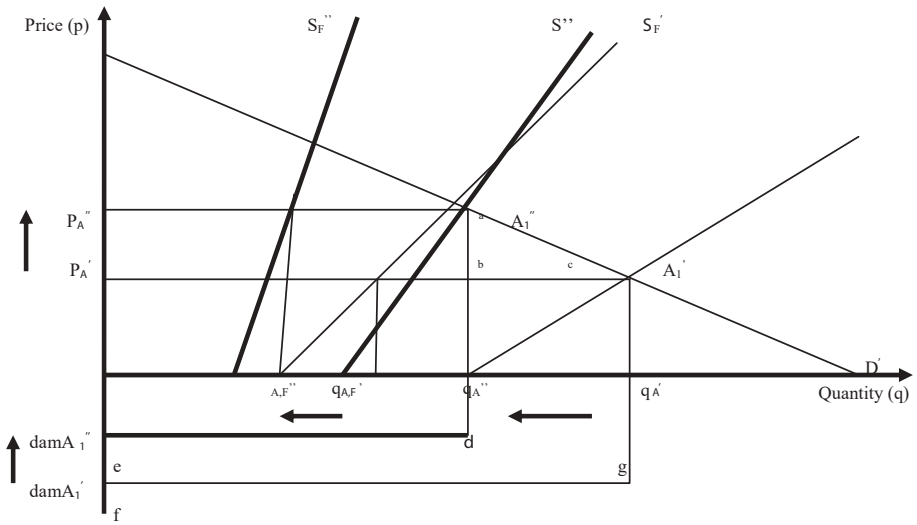


Figure 2.1(b): Effect of TBT/SPS Measures on Trade and Welfare when Import Decreases



Source: UNCTAD (2014).

Figure 2.2: Application of a Public Standard and a Welfare Analysis



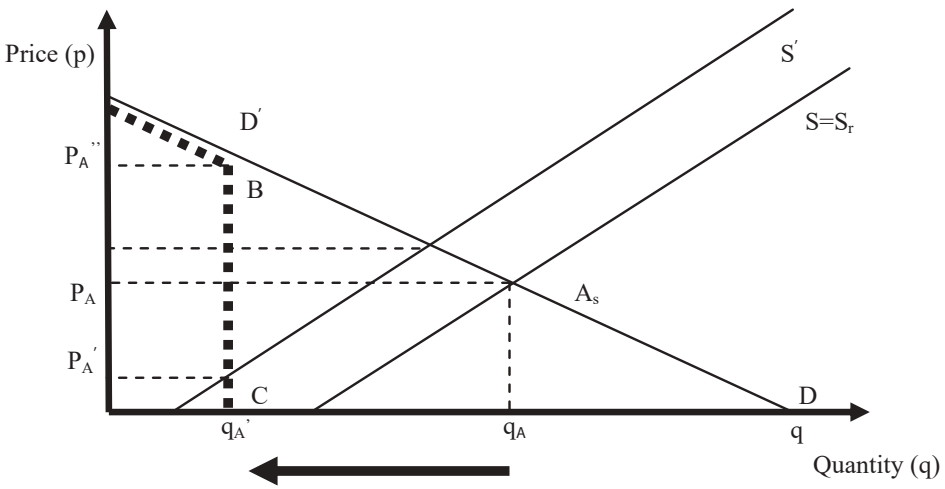
Source: UNCTAD (2014).

probability of contamination. The application of a public standard and a welfare analysis is illustrated in Figure 2.2. The fall in the probability of containment due to the implementation of the SPS or TBT measure is reflected by the move from damA' to damA'' in Figure 2.2. Since the damage cost related to the dangerous product characteristic is reduced by the public standard, the net welfare impact is unclear a priori. As long as reduction in damage cost (qA'qA''defg area) is larger than the dead weight loss (abc area) in Figure 2.2, the net welfare impact will remain positive (UNCTAD, 2014).

2.2.1. Multiple Overlapping NTMs

When several NTMs are imposed on the same product, identifying price and quantity effect of a specific NTM may become difficult. The most lucid approach to capture this is by

Figure 2.3: Multiple Overlapping NTMs



Source: UNCTAD (2014).

considering that the overall impact is related to the relative strength in the trade restrictiveness of each NTM in place. This implies that there is presence of a dominant NTM, which encompasses the impact of all other NTMs. This arrangement is represented in Figure 2.3, which shows the combination of an import quota and some technical regulations. The total supply of a particular good is assumed to be of foreign origin (S=SF). In addition, import quota is also assumed to be binding and restrictive such that the cost effect of technical regulation is not reflected in the equilibrium price increase. In several cases the impact of NTMs adds to each other rather than overlapping. In such cases the price effect of both NTMs (tariff measure and some technical regulations) would capture the aggregate price effect. Theoretically, any country exporting to a country which implements these measures increases the cost of exports. This would shift the supply curve to the left. And when one of the implemented NTMs has a quantity restriction, it is likely that multiple NTMs may have a cumulative but not additive effect.

2.3 NTMs and Welfare

Yue *et al.* (2006) analyzed the implications of removing SPS regulations while estimating the trade cost, imperfect substitution between domestic and imported apples and pest infestation linked to imports in the Japanese apple market. The authors found that removing restrictive SPS policies resulted in welfare gains even when significant infestation occured. Similarly, by incorporating imperfect substitution, risk levels and seasonal effects, Peterson and Orden (2008) investigated the opening of the US avocado market to Mexican and Chilean products. The authors noticed that there were net welfare gains in the US economy by opening avocado market, even in the case of pest infestation. The simulation of the welfare impact of removing identified NTMs done by Andriamananjara *et al.* (2004) showed that trade liberalization led to substantial welfare gains for trade liberalizing economies. This result suggests that any adverse terms of trade impacts are far outweighed by positive allocative efficiency impact of liberalization.

Winchester (2009) estimated and simulated the impact of reduction in ad valorem tariff equivalents (TEs) and NTBs in a Computable General Equilibrium (CGE) framework. Author estimated further welfare changes of New Zealand's FTAs with China, Japan, Korea and ASEAN countries by considering reduction in both tariffs and NTBs. He also assumed that FTA between New Zealand and its potential partners would reduce NTBs to the same level as between New Zealand and Australia (because New Zealand and Australia are long-standing FTA partners and economically integrated). The post-FTA simulation results have shown that welfare gain would be greater when reduction in NTBs is taken into account. The results indicate that New Zealand's GDP would increase by more than 16 per cent if the country signs the comprehensive FTAs with China, Japan, Korea and ASEAN.

2.4 NTMs and Trade

Very limited literature has covered the findings and the trends of the developing countries, which focus on NTBs. Many studies indicate that the utilization of some NTBs has reduced market size (McGuire *et al.*, 2002; Stephenson, 1999; PECC, 1995; Estevadeordal and Robert, 2001; Arnjadi and Yeats, 1995). However, the frequency ratio analyses of the remaining post-Uruguay NTBs by Michalopoulos (1999) and others have shown that countries with less openness and lower level of per capita income tend to have higher frequency ratios of quantity and price control measures. This suggests that NTBs are more prevalent in developing than in developed country markets.

Considering the incidence and actual impact of NTM on the international trade is an important part of the NTM analysis. Kee *et. al.* (2009) developed widely used overall trade restrictiveness index (OTRI) and market access

OTRI (MA-OTRI) indicators to measure the effect of the NTM on trade. According to Kee *et. al.* (2009), "NTMs greatly contribute in restricting international trade. Their contribution to overall trade restrictiveness is generally much higher than that of tariffs. Large differences in the restrictiveness of NTMs are observed between agricultural and manufacturing products, with NTMs substantially adding to the level of restrictiveness of the agricultural sector, especially in high- and middle- income countries. For these countries, the effect of trade policies on the agricultural sector is estimated to represent on average almost 30 per cent of the value, with about 20 percentage points due to NTMs. In regard to manufacturing, the impact of NTMs does not seem that large, especially in restricting access to high-income markets. NTMs appear to be more important in restricting manufacturing imports entering middle- and low-income markets."

In general, the existing literature on the impact of NTMs using gravity model analysis shows mixed evidences depending on the methodology, direction of trade flows, type of industries and the nature of standards (Li and Beghin, 2012). For example, studies by Anders and Caswell, 2009; Hoekman and Nicita, 2011; Tran *et al.*, 2012; Wilson *et al.*, 2003b have found that standards significantly restrict trade for middle-income and low-income nations. While evidences of a set of rich literature (Fontagné *et al.*, 2005; Czubala *et al.*, 2009; Xiong and Beghin; 2012, Chevassus-Lozza *et al.*, 2008; and Henry de Frahan and Vancauteren, 2006) suggest that international standards or their harmonization trade expanding have no impact on exports of developing nations. Similarly, a study by Disdier *et al.* (2014) have found that harmonization of international standards expand trade for developing countries, while the harmonization of regional standards impede trade for some countries. In addition, heterogeneity in various regulations and food safety standards does not have an impact on trade (Winchester *et al.*, 2012). With these findings, one can conclude that direction and magnitude of effects of NTMs on trade are either sector or standard specific.[10]

2.4.1. ASEAN-India Country-Level Evidences

De *et al.* (2016) provided a comprehensive overview on NTMs in Lao PDR. To assess the policy and market based barriers faced by exporters, the authors had conducted a field survey, particularly for eight export products, namely, banana, coffee, dried cassava, maize, rice, rubber, white charcoal, wood across Lao PDR. They found that manual handling of trade documents, procedural barriers, high transit port handling charges, long waiting time at customs, inadequate infrastructure at border ports were significant barriers to trade in Lao PDR exporters. Overall, the study pointed out that Lao exporters' experienced difficulties with NTMs. The authors observed that harmonization of standards and trade- related processes, enhancement of regulatory environment, building infrastructure such as testing laboratories, roads, etc., could improve border infrastructure, facilitate setting-up Lao PDR's own customs single window, identify and derive actions against procedural barriers, establish mutual recognition agreement with partner countries and coordinate among different ministries and bodies essential to boost Lao PDR's exports.

Ven and Hing *et al.* (2017) used the gravity model to analyze impact and prevalence of NTMs imposed by ASEAN countries on Cambodia's fisheries exports. Their findings indicated a heterogeneous NTM regulatory regime among ASEAN members, which reflects lack of regulatory harmonization among ASEAN countries in practice. They also found that costs of NTMs hindered fisheries exports in Cambodia. They recommended that ASEAN as a whole should accelerate efforts to address NTMs through standard harmonization, conformity procedures, mutual recognition, etc.; Mutual Recognition Agreement (MRA) are likely to reduce the compliance cost burden of the fishery exports and help in increasing fisheries trade. Similarly, Minh and Thanh (2017), based on the survey with 40 respondents in enterprises in the

Vietnamese domestic fisheries sector, noted that standard and technical regulations such as SPS and TBT measures could act as barriers to exports of Vietnam's fisheries sector. The authors were of the opinion of setting-up or sharing facilities as well as request technical and capacity building assistance for minimizing trade protection and compliance costs associated with NTMs and to further work towards MRA. In addition, the ASEAN countries including Vietnam can also discuss and consider recognition of standards and quality certification by designated laboratory facilities to reduce compliance costs incurred by exporters and importers.

Hanif *et al.* (2015) analyzed Malaysia's manufacturing sector, and their findings have shown that NTBs like protection of health, sanitary, security, environment, and intellectual property have been imposed by Malaysia since 1970s. The authors' findings revealed competitiveness of the sectors influencing NTBs in a long run in Malaysia. A more competitive and resilient sector would help in reducing trade protection. In addition, tariff is also an important factor, which influences the level of NTBs in a long run. An increase in the average manufacturing tariff rate would entail lesser need for NTBs to serve as an alternative or additional form of protection (Hanif *et al.*, 2015).

McCarty (1999) analyzed Vietnam's integration with ASEAN by considering NTBs, such as technical standards, import licenses, quotas, etc. In his analysis, the author could find that there were strong and numerous NTMs and NTBs in Vietnam, and general direction of trade reforms appeared ambiguous in nature. Moreover, Vietnam's trade policy seems to be a mix of protectionist and liberalized approach. The author also provided evidence that in the post-APEC liberalization in 1996, the effect of most NTBs in Vietnam has become stronger and trade policies have become more stringent. The author recommends that removing NTBs would lead to sectoral reforms of state enterprises in particular.

2.4.2 Regional Level Evidences

Since tariff liberalization has been insufficient in providing regional integration of many developing nations, NTMs have drawn attention of policy-makers and analysts as the major determinant of developing countries growth. There has been a significant spread of complex NTMs such as SPS and TBT measures. With the establishment of regional agreements, many developing economies are on the path of eliminating these barriers. However, the actual impact of NTMs on trade in the regional agreements is an important area to look at.

Augier *et al.* (2012) analyzed the Middle East and North Africa (MENA) region and highlighted that the MENA region suffered from poor infrastructure and politics, among other impediments. Also, the regional integration was hindered by NTMs to a large extent. Authors observed NTMs to be one of the major reasons for the unaccountability of bureaucracy, unfriendly-business, higher cost and potential for protectionist drift. While capturing the real prevalence and severity of NTMs, the authors found that a major chunk of MENA imports were affected by NTMs. Even though NTMs have been declining with the old-style "command and control", they have shown substantial price gaps capturing strong market-segmentation. Overall, the analysis carried out by the authors provides evidence that NTMs have acted as a substantial barrier to market access in the MENA region. The authors have recommended a balanced assessment of the need for reform, which incorporates non-trade objectives such as public heath, environment and others. Because of the complex nature of NTMs, they can be captured easily, which implies that trade openness can help providing transparent governance processes and can help in keeping in check on the illegitimate use of NTMs. Moreover, improved regulatory design and border management procedures would help the private sector operators in doing their businesses.

Raihan *et al.* (2014) identified priority products in which each SAARC member country had exporting capacity; but actual exports within SAARC were low. Countries can focus on resolving issues related to those specific products for boosting intra-regional trade. Their major recommendations for reducing or eliminating NTMs are capacity-building and advocacy, harmonization of SPS and TBT standards, interaction of Government and industry and other stakeholders on a regular basis, reducing procedural obstacles, and periodically reviewing in the priority products identified in the 'SAFTA Sensitive List' for understanding a country's economic interest for maintaining NTMs.

Ing *et al.* (2016) in their report on NTMs in ASEAN argued that over the years, the ten ASEAN countries have significantly progressed in lowering intra-regional tariff as well as have resolved to work towards eliminating non-tariff barriers. The report shows that with the decline in average tariff rates from 8.9 per cent in 2000 to 4.5 per cent in 2015, the number of NTMs increased from 1,634 to 5,975 measures over the period. As of 2015, there were 5,975 NTMs in the ASEAN region, comprising 33.2 per cent of SPS measures, 43.1 per cent of TBT measures, 12.8 per cent of export measures, and the rest 10.9 per cent of other measures. The report suggests that besides rules of origin, NTMs can be regarded as a missing factor in explaining slow growth of intra-regional trade. The composition of SPS and TBT measures is higher in countries like the Philippines, Singapore, Thailand and Viet Nam. At the same time, in Cambodia, Indonesia, Myanmar and Lao PDR, export-related and other measures that have nothing to do with product safety, have also been on rise.

Saqib and Taneja (2005) analyzed the incidence of NTMs imposed by ASEAN and Sri Lanka against India. The authors found incidence of NTMs increased during 1997-98 to 2002-03. The survey indicated that 32 per cent of the Indian exporting firms experienced some kind of NTBs in ASEAN and Sri Lanka. Smaller Indian enterprises faced disproportionately higher NTBs compared to the larger firms. The extent of NTBs was smaller if the Indian firm had a partner country affiliation. NTBs were most restrictive in Malaysia and the Philippines. Indian exporters to Indonesia, Malaysia, Singapore and Sri Lanka faced NTBs more in terms of product standards, while it took the form of packaging and labelling in Thailand and Vietnam. Even within ASEAN countries differences in standards could be very high, thereby making NTBs very country specific. This made Indian exporters' job even more difficult because they had to maintain separate standards for each country for similar product or product groups. Sometimes individual member countries require different standards only for non-ASEAN countries. Sometimes small Indian firms struggle to maintain high standards and process requirement (e.g. HACCP certification and maintain own slaughterhouse for meat export). There are similar NTBs in terms of certification, registration and testing in other products. They have recommended that Indian government, along with all stakeholders, should work towards harmonization of standards. In this regard, Indian firms and certification authorities should coordinate and build technical capacity for dealing with NTMs better. There should be an information sharing mechanism for Indian exporters to enquire about standard requirements on the real-time basis for better compliance.

Austria (2013) discussed how NTBs were a major challenge to ASEAN economic integration. In the study, the author discussed on NTBs such as import bans, import subsidies, non-automatic licensing, import procedure, additional requirements for import, and technical barriers to trade (TBT) imposed at the border in ASEAN region. While NTBs such as state aid measures, public procurement requirements, investment measures, and trade facilitation related measures, such as poor logistics were imposed beyond the borders. In addition, the study revealed that even though ASEAN's non-tariff trade costs were reduced overtime, the region still performed below

China, Korea and Japan. The main findings of the paper about slow progress in NTBs removal was failure in distinguishing NTBs from NTMs; as many of the regulations may have evolved as a strategic response to the move initiated by some other member countries. All the member countries are not in the same stage of economic development. Thus, sometimes it is hard to reach a consensus in removing NTBs as it might hurt an individual domestic economy. His key recommendations in dealing with NTBs are as follows— (i) work towards harmonization of products and standards while identifying NTBs, (ii) develop a common digital platform for reporting, monitoring and eliminating NTBs, (iii) capacity building in infrastructure and human resources, and (iv) work together for trade facilitation particularly in agriculture.

Pasadilla, Wang and Duval (2013) provided an overview on NTMs in ASEAN. NTMs in ASEAN have evolved over time from traditional (like price and quantity control) to standards and technical requirements (SPS and TBT). They have observed that data availability on NTMs and asymmetric information across ASEAN member countries are two major problems. This makes mutual negotiation in reducing NTMs even more difficult. Business surveys and reverse notifications from other member states can complement official (government) NTM notification data. They have recommended that ASEAN should develop a common e-trade portal with relevant information from all member countries for easy access of stakeholders. There should be a periodic evaluation to make NTMs reduction procedure transparent and consistent. ASEAN should try to move from discretionary criteria to a rule-based approach for addressing NTMs. Sometimes it is really hard to draw a line between NTM and NTB. Some countries can argue the NTBs are 'green' NTMs by invoking a 'legitimate' rationale. At this point, it becomes more of a political issue rather than an economic one. The reduction in NTMs is then dependent upon industry-led or sector specific negotiations. On a long-term approach for reducing NTMs, ASEAN should work towards harmonization and mutual recognition of standards, and capacity- building in human resources, assessment and inspection procedure.

Medalla and Mantaring (2017) conducted a small survey among exporters to understand the types of NTMs encountered within and outside ASEAN and the perceived operating cost impact of NTMs. The authors observed that custom formalities, rules of origin and technical barriers to trade are the three main NTMs affecting business activities of the exporters within and outside ASEAN. They also found perceived operating costs varying across ASEAN. Moreover, clarity and transparency of rules and regulations on NTMs/NTBs also vary across ASEAN countries, which indicate that there is room for improvement. The authors have recommended for creating a comprehensive and updated database of NTMs in the region and in building up the Philippine National Trade Repository. In addition, regular submission of notifications of new NTMs to ASEAN Secretariat (ASEC), establishing a robust mechanism to address NTM issues and harmonization of standards is important to streamline NTM procedures.

2.5 NTMs and Value Chain

The organization and the structure of value chain can be affected by standards and NTMs. The existing literature provides mixed evidences regarding the impact of standards on value chain. For example, Hudson and Johnson (2003) and Jaffee and Masakure (2005) in their studies found that transaction costs, information asymmetries regarding product quality, safety and other product quality issues were found to be reduced in the presence of standards in the value chain. While Gibbon (2003), Dolan and Humphrey (2000) and Maskus *et al.* (2005) found that standards increased transaction cost and fixed cost of production related to conformity assessment, thereby generating economies of scale for larger suppliers. However, this increase in the fixed cost and transaction cost related to conformity assessment could hinder agricultural

food value chains, especially in the low and middle income economies having large number of small and poor farmers. Moreover, Henson and Jaffee (2008), Henson and Humphrey (2010) and Reardon *et al.* (2009) were of the view that there were substantially differing standards in the local markets of these countries in comparison to the standards in the international market.

Based on the partial equilibrium analysis, Beghin *et al.* (2015) observed that the impacts of the standards on the supplier base of the value chains were sector, country and standard specific. Vandemoortele *et al.* (2012) developed a theoretical model to explain different patterns of smallholder inclusion. The model analyzed inclusion of small producers in the high quality economy by capturing the emergence of demand for high quality and safe food. Findings of this study suggest that in a system where both small and large farm holders are operating, small farm holders are likely to be excluded. These results fall in line with Reardon *et al.* (2009), who found that small farm holders were excluded in the supply chain when the large farm holders were available. On the other hand, there are some empirical studies, which showed that inclusion of small farm holders in the high standard value chain improved their welfare. For example, Maertens and Swinnen (2009) noticed farmers' income doubled as the result of being included in the horticultural export chain in Senegal; and Dedehouanou *et al.* (2013) pointed out that this increased farmers' subjective well-being or happiness. Rao and Qaim (2011) and Rao *et al.* (2012) found that the participation of smallholder vegetable farmers in high-standard supermarket channels in Kenya increased farm productivity by 45 per cent and farmers' income by 48 per cent; and this income gain resulted in poverty reduction. Minten *et al.* (2009) observed that inclusion in a contract-farming scheme for high-standard vegetable export production in Madagascar increased farmer's income and their income stability, improved farm technologies and reduced number of hungry months. Dries and Swinnen (2004, 2010) informed that participation of small-scale farmers in contract-farming schemes in dairy value chains in Poland increased access to credit, technology and farm investment. Similar results were documented by Gow *et al.* (2000), Noev *et al.* (2009), World Bank (2005), and Negash and Swinnen (2013).

2.6 Concluding Remarks

The quantification of the economic effect of NTMs presented in a simple supply-demand framework in the literature review shows that higher demand of the imported products in the market leads to an increase or a decrease in trade and social welfare at the same time. On the other hand, if demand is low then both trade and welfare decline. Moreover, in the presence of multiple NTMs on the same product, identifying price effect and quantity effect of a specific NTM may become difficult which shows that multiple NTMs have a cumulative effect. Further, the studies covered in this chapter provide evidence that removing restrictive SPS and TBT policies, comprehensive FTAs and liberalizing tariff measures have resulted in welfare gains.

Studies related to NTM and trade covered in the literature review using the frequency ratio analysis, gravity model analysis and overall trade restrictiveness index (OTRI) and market access OTRI (MA-OTRI) indicators have showed that even though the utilization of NTBs has reduced in aggregator, they are more prevalent in developing countries than in developed countries. These studies find that international standards significantly restrict trade for developing countries, while they are either trade expanding or have no impact on trade for developed countries. In addition, these studies give evidence that direction and magnitude of effect of NTMs on trade are either sector or standard specific. The experiences of the respective ASEAN countries such as Lao PDR, Cambodia, Malaysia, Vietnam and Cambodia have also revealed that NTMs and costs related to it are hindering their exports in various sectors. Moreover, these studies also indicate that there is a heterogeneous NTM

regulatory regime among ASEAN members, which reflects lack of regulatory harmonization among ASEAN countries in practice.

Similarly, studies covering the regional level experiences show that NTMs are one of the major factors affecting trade. Studies have found that NTMs have lead to higher cost and slow growth of intra-regional trade. Lack of data availability on NTMs, asymmetric information across ASEAN members and country-specific standards have resulted in slowing progress in the removal of NTMs. Besides, several studies suggest that NTMs are one of the major reasons affecting business activities of the exporters within and outside ASEAN.

As long as the organization and structure of value chain is concerned, some studies covered in the literature find that transaction costs, information asymmetries and other product quality issues are reduced in the presence of standards in the value chain. While other studies found that transaction cost and fixed cost of production related to conformity assessment are higher due to the presence of standards. Moreover, the impact of standards in the value chain is sector, country and standard specific.

Overall, the studies covered in the literature review suggest that harmonization of SPS and TBT standards and trade-related processes, enhancement of regulatory environment, development of infrastructure such as testing laboratories, roads, etc., improving border infrastructure, capacity-building and advocacy, G2B interaction (Government and industry) and other stakeholders on a regular basis, reducing procedural obstacles, developing a common digital platform for reporting, monitoring and eliminating NTBs and working together for trade facilitation, are some of the essential policy actions that ASEAN countries and India need to take into account.

Chapter 3

Tariff and Non-Tariff Measures (NTMs) in ASEAN-India Trade

3.1 Introduction

The trade relations between ASEAN and India have made significant progress over the last two decades. ASEAN-India Free Trade Agreement (AI-FTA) in goods implemented in 2010 has considerably reduced average tariff to almost 80 per cent of the products; thereby granting higher market access to each other. While the trade between them has grown over time, rise in NTMs has been phenomenal. Today, a large part of the merchandise trade between ASEAN and India has mainly been unrealized due to high trade costs in the form of slow and unpredictable goods delivery, cumbersome customs procedures, to mention a few.[11]

Despite better market access due to trade liberalization and several bilateral, regional and multilateral trade agreements between ASEAN and India, the complexities and the applications of NTMs have consistently been increasing over time period. Exporters often consider NTMs as barriers to trade, and compliance to NTMs' requirements represents an additional cost and time to export, which has a negative effect on competitiveness of their products exported to partner countries. In view of the above, this chapter has studied the implications of market access in terms of tariff and NTMs on trade between ASEAN and India. Given the complexities, the NTMs are diverse and cannot easily be compared across countries and sectors. The existing literature, however, suggests that NTMs significantly distort trade, perhaps even more than tariffs.[12] Governments have various traditional trade policies such as taxes and subsidies, quotas and other legitimate measures such as SPS and TBTs to meet public policy objectives, including protection of domestic market, public health and domestic environment. In this context, this chapter looks at to what extent the use of tariffs and NTMs has evolved over the period, and what are its effects on promoting or distorting trade between ASEAN and India. The rest of the chapter discusses these issues in greater details.

3.2 Data and Methodology

The secondary data on trade in goods and tariff at combined HS 6-digit level have been collected from the World Integrated Trading Solutions (WITS) database.[13] NTMs are collected from the Trade Analysis and Information System (TRAINS) database, which was developed by UNCTAD. UNCTAD has comprehensive database on NTMs at sub-classification level[14] by Harmonized System (HS) at the 6-digit level for most of the countries at the bilateral level. In this database, NTMs are classified based on Coding System of Trade Control Measures (TCMCS)[15], which has 16 discerned chapters on NTMs.[16]

Table 3.1: Intra-regional Trade Value

(US$ Billion)

Year	ASEAN-India	BIMSTEC	MGC	SAARC
2000	8.99	3.92	3.95	2.2
2005	22.90	9.65	9.63	8.34
2010	58.40	23.67	31.3	16.07
2017	81.33	31.59	23.94	23.04

Source: Authors' calculations based on WITS Database.

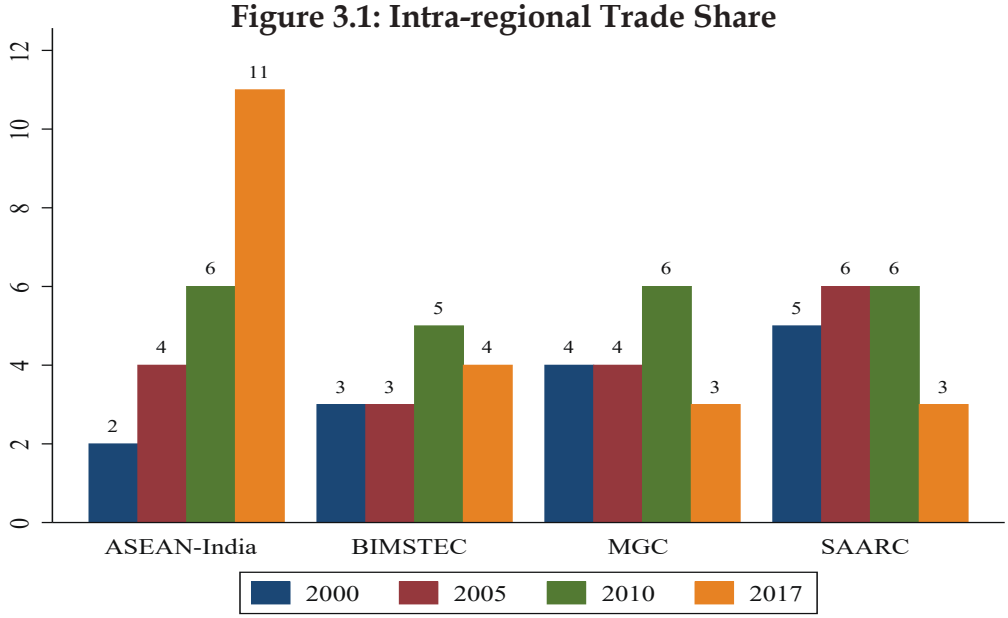
This database covers data for 57 (reporter) countries from 1920 to 2015. However, the database lacks data for continuous period and does not cover complete sub-categories of NTMs for all countries. Therefore, NTMs data collected from UNCTAD may have missing information in terms of detailed coverage of NTMs for some of the periods. UNCTAD has also cautioned that the data are based on the obsolete classification, which does not reflect adequately and accurately on new forms of NTMs (UNCTAD, 2015).

This study measures incidence of NTMs and assesses their impact on the trade between ASEAN and India both at the country and sectoral level. While there are different ways to measure the incidence of NTMs[17], this study has used techniques such as, coverage ratio and prevalence ratio to assess impact of NTMs between ASEAN and India. The detailed methodologies on these measures are mentioned in Box 3.1.

3.3 Trends in ASEAN-India Trade

ASEAN and India have been into a long stable relationship since 25 years, starting as a sectoral partner of ASEAN in 1996; a summit-level partner in 2002 and a strategic partner in 2012. The year 2017 marked 25 years of ASEAN-India dialogue partnership, 15 years of summit- level interaction and 5 years of strategic partnership. ASEAN has become India's one of the largest trading partners in the recent years. For instance, ASEAN was India's 4th largest

Figure 3.1: Intra-regional Trade Share



Source: Authors' calculations based on WITS database.

trading partner in 2017, accounting for 10 per cent of India's total trade. In the same year, India was ASEAN's 7th largest trading partner.

In terms of intra-regional trade, ASEAN-India trade significantly increased from US$ 8.99 billion in 2000 to US$ 81.33 billion in 2017, compared to other regional blocks in the region (*see* Table 3.1). The intra-regional trade between ASEAN and India holds the share of about 11 per cent in ASEAN and India's total export to the world. In case of other regional groupings, the share of BIMSTEC, MGC and SAARC in the world trade was close to 3 to 4 per cent in 2017; which is almost three times lower than ASEAN and India intra-trade value (*see* Figure 3.1).

Most of India's exports to ASEAN countries were directed to Singapore, Malaysia, Indonesia, Thailand, and Vietnam, respectively. However, in terms of annualized growth rate, India's export grew significantly with CLMV countries and Brunei in the range of 10 to 15 per cent between 2010-11 and 2017-18. Overall, India's export to ASEAN accelerated at a rate of 5 per cent between 2010-11 and 2017-18. India's import from ASEAN has grown slightly faster than its export to ASEAN. In 2017-18, India's import from ASEAN has grown US$ 47.13, and export was US$ 34.2 billion (*see* Table 3.2).

India's import from ASEAN has grown at about 5.95 per cent per annum in the recent years; increased from US$ 29.68 billion in 2010-11 to US$ 47.13 billion in 2017-18. Among ASEAN countries, India's import was sourced mostly from Indonesia, Singapore, Malaysia and Thailand. However, in terms of annualized growth rate, India's import from Cambodia, Lao PDR and Vietnam was significant and fall in the range of 25 to 30 per cent in that period. Overall, ASEAN-India bilateral trade has significantly increased since signing of the FTA in 2010.

3.4 Tariffs and NTMs between ASEAN and India

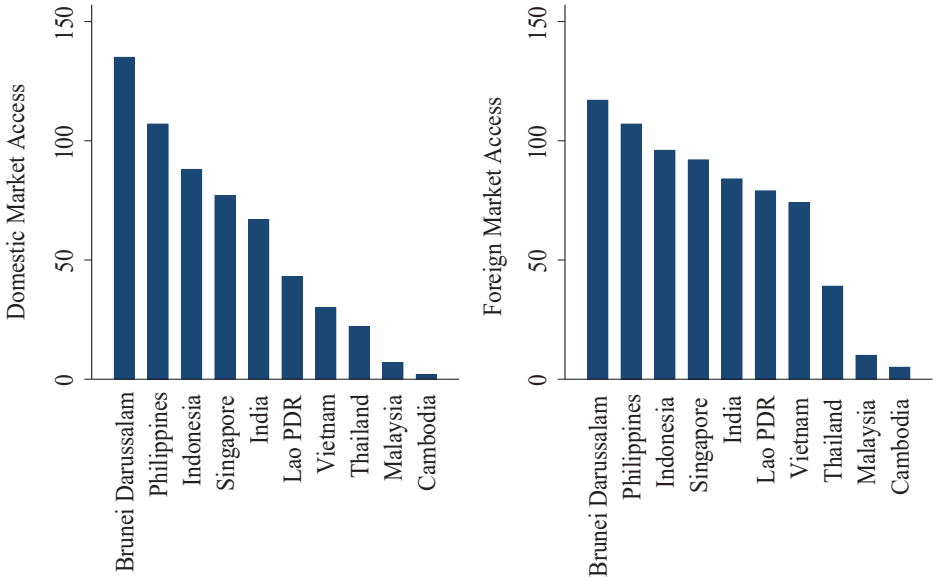
While the trade between ASEAN and India has grown over time, it is evident from Figure 3.2 that owing to stringency and complexities of trade restrictive policies, some of the sectors

Table 3.2: Trends of India's Trade with ASEAN

Country	Export			Import		
	2010-11	2017-18	Annualized Growth Rate (2010-11 – 2017-18)	2010-11	2017-18	Annualized Growth Rate (2010-11 – 2017-18)
	(US$ Billion)		(%)	(US$ Billion)		(%)
Brunei	0.02	0.06	14.70	0.21	0.43	9.4
Cambodia	0.06	0.12	9.10	0.01	0.06	25.10
Indonesia	4.57	3.96	-1.80	9.72	16.44	6.80
Lao PDR	0.01	0.03	14.70	0.02	0.17	30.70
Malaysia	3.55	5.70	6.10	6.00	9.01	5.20
Myanmar	0.27	0.97	17.30	1.12	0.64	-6.80
Philippines	0.80	1.69	9.80	0.40	0.76	8.40
Singapore	9.09	10.20	1.50	7.27	7.47	0.30
Thailand	2.14	3.65	6.90	3.95	7.13	7.70
Vietnam	2.49	7.81	15.40	1.00	5.02	22.30
ASEAN	23.02	34.20	5.07	29.68	47.13	5.95

Source: Based on DOTS, IMF.

Figure 3.2: Ranks of India and ASEAN Countries in Domestic and Foreign Market Access



Notes: (1) Domestic market access captures the extent and complexity of a country's tariff protection as a result of its trade policy. (2) Foreign market access captures tariff barriers faced by a country's exporters in the destination market.
Source: Based on the World Economic Forum, Global Enabling Trade Index (ETI) Report Database (2016).

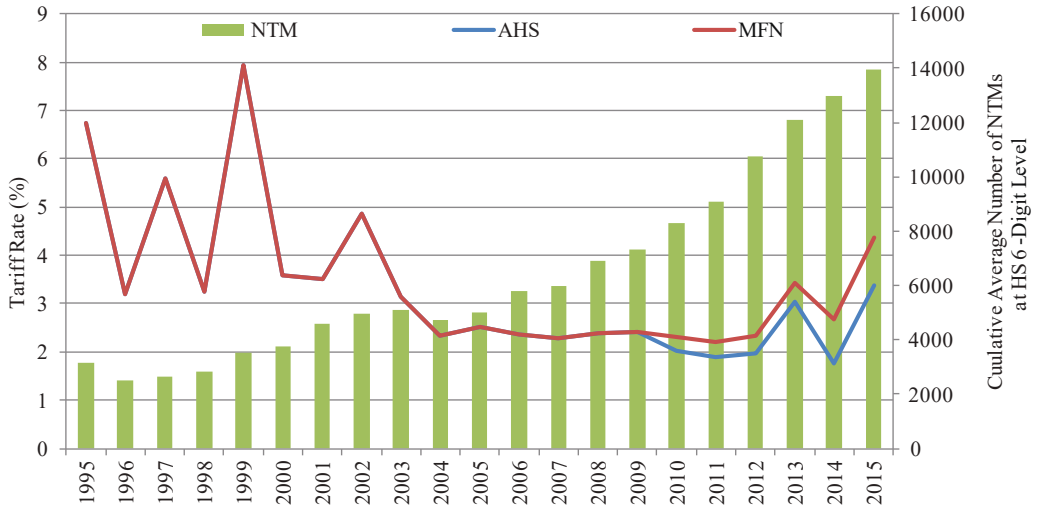
and products were denied market access in both ASEAN and India. In terms of domestic market access, Brunei, the Philippines, Indonesia, Singapore were relatively difficult to access, compared to India and other ASEAN countries; and most of the ASEAN countries and India almost have had similar level of difficulties in accessing foreign markets. For instance, the accumulation of the number of NTMs imposed by ASEAN against India at HS 6-digit level showed increasing trend, whereas, both Effectively Applied (AHS) and Most Favoured Nation (MFN) tariffs showed a declining trend and it was almost settled at the range of 3 to 5 per cent (*see* Figure 3.3). In 1995, ASEAN imposed NTMs on about 3167 products at HS 6-digit level, which increased later to 14000 products at HS 6-digit level. The trends of weighted AHS, MFN tariffs and NTMs showed decline in tariffs since 1990s and increase in NTMs over the time.

On the other hand, India imposing NTMs on imports from ASEAN showed a gradual rise in the trend till 2010 and shifted upwards from 2011 onwards up to 5000 products at HS 6-digit level (*see* Figure 3.4). At the same time, tariff showed an upward trend up to 40 per cent till 2002 and then dropped to 15 per cent in 2003 onwards, and remained at the same rate till 2015 (*see* Figure 3.4). Overall, both Figure 3.3 and Figure 3.4 show shrinking tariffs and increasing number of NTMs, thereby indicating that the effectiveness of the NTMs are increasing due to consumer demand for higher-quality and safer products and also to protect domestic market access.

3.5 Complementary Vs. Substitution Effect of Tariff and NTMs on Trade

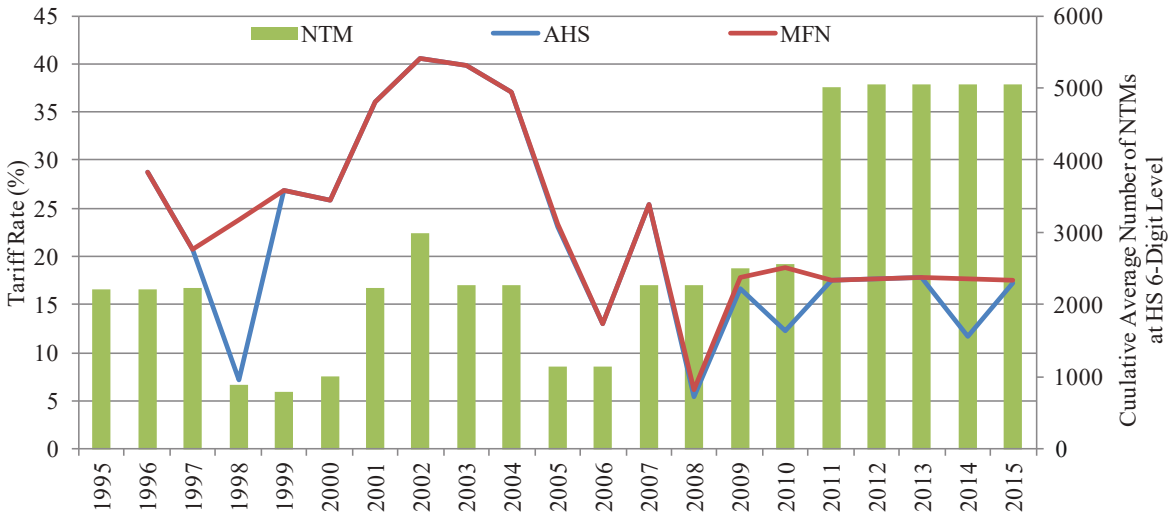
It is evident from Section 3.4 that both ASEAN and India engaging in tariff liberalization either by preferential or free trade agreements have used NTMs as a tool to restrict market access, besides other traditional trade policy measures, such as tariff for some of the products which are not partly covered under FTA negotiations to regulate imports. ASEAN and India have FTA in goods between them

Figure 3.3: Tariff vs. Non-Tariff Measures: ASEAN Imposing on India



Source: Authors' calculation based on WITS and UNCTAD database.

Figure 3.4: Tariff vs. Non-Tariff Measures:India Imposing on ASEAN



Source: Authors' calculation based on WITS and UNCTAD database.

since 2010 that, in turn, has led to reduction in tariff for more than 80 per cent of the products at HS 6-digit level. Along with average number of NTMs imposed by ASEAN and India have also increased significantly over years (*see* Figures 3.3 and 3.4). Therefore, the relationship between NTMs and tariffs can be assessed across countries and sectors to understand the intensity of both tariffs and NTMs on the trade between ASEAN and India.

In this context, we have investigated the correlation between tariffs and NTMs to assess whether ASEAN and India use tariffs and NTMs as a complementary or a substitutive trade policy measure to restrict market access between them. For some products, countries use more frequently restrictive trade policies such as high tariff as well as high NTMs to protect their domestic market from the foreign competition. Both NTMs and tariffs may tend to work

towards the same direction when the products are protected by both NTMs and high tariffs. Although a large number of NTMs may result from the nature of the products traded, when these are accompanied by a high tariff, it may indicate the intent to use NTMs complementing tariffs to further insulate domestic industries from foreign competition.[18]

To measures the incidence of NTMs between ASEAN and India, we have used Coverage Ratio and Prevalence Ratio for the analysis. The Coverage Ratio (CR) describes percentage share of trade value affected by NTMs for the importing country on the total trade value, and therefore, it provides a measure of the impact of NTMs on overall exports. Prevalence ratio indicates the average number of types of NTMs imposed at each of the product level at HS 6-digit level (*see* Box 3.1).

The correlation between NTMs and tariffs across countries is illustrated in Figure 3.5, where NTMs are defined by Coverage Ratio and Prevalence Ratio. Figure 3.5 shows that ASEAN countries such as Vietnam, the Philippines, Cambodia impose higher tariff close to 8 per cent and also impose NTMs to almost 80 per cent of the products traded at HS 6-digit level. The average preferential tariff imposed by Lao PDR against India was about 2 per cent, whereas it imposed NTMs close to 100 per cent on India's export. In the case of Malaysia and Indonesia, both tariff and NTMs coverage on India's export were low, whereas, Singapore and Brunei imposed lower tariff but higher NTMs, covering about 80 per cent of India's export to ASEAN. In terms of correlation between prevalance ratio (i.e., average number of types of NTMs) and preferential tariff, except the Philippines and Vietnam, all other ASEAN countries imposed fewer NTM types on India's exports. The Philippines imposed higher tariff and more than one type of NTMs on India's export, followed by Vietnam, which imposed close to 8 per cent of tariff and 0.50 average number of types of NTMs. Overall, ASEAN countries such as Vietnam, the Philippines and Cambodia showed complemnetary tariff and NTMs, and Brunei and Singapore substitute tariff with NTMs on imports from India.

In case of India imposing NTM on imports from ASEAN, the correlations between Coverage Ratio and tariff in Figure 3.6 showed

Box 3.1: Incidence of NTMs: Coverage Ratio and Prevalence Ratio

Coverage Ratio measures the percentage of trade subject to NTMs for the importing country. It shows the importance of NTMs on overall imports. The coverage ratio (*Cj*) for the importing country *j* is given by:

$$C_j = \left[\frac{\sum D_i V_i}{\sum V_i}\right].100$$

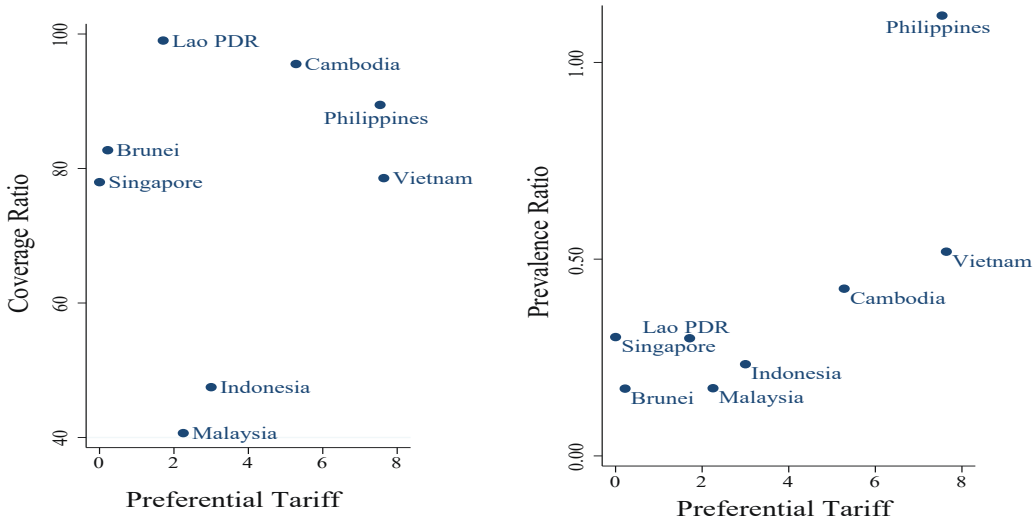
where V_i is the value of imports in product *i* and *D* is defined as above. However, frequency index and coverage ratio do not take into account the possibility of more than one type of NTM being applied to the same product. In practice, a large number of products have more than one regulatory measures applied to them. To measure prevalence of NTMs, prevalence ratio approach is employed.

Prevalence Ratio indicates average number of NTMs affecting imported product. It accounts whether more than one NTM is applied to the same product (which is not captured by frequency index and coverage ratios). The prevalence ratio (*Pj*) is given by:

$$P_j = \left[\frac{\sum N_i M_i}{\sum M_i}\right]$$

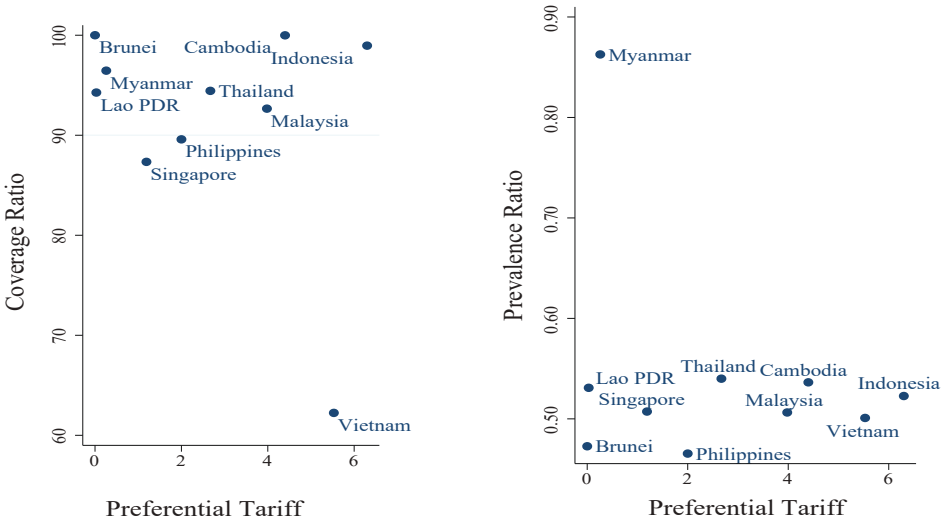
where *Ni* is the number of NTMs and *Mi* is as above.

Figure 3.5: Correlation between Coverage Ratio and Tariff: (ASEAN Imposing NTM and Tariff against India)



Source: Authors' calculations based on UNCTAD (2017) database.

Figure 3.6: Correlation between Coverage Ratio and Tariff: (India Imposing NTM and Tariff against ASEAN)

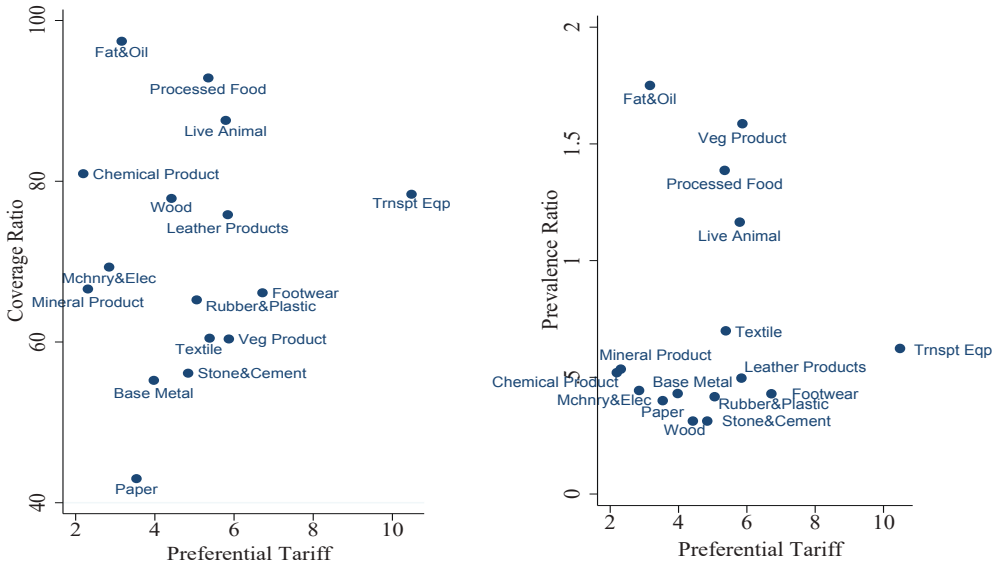


Source: Authors' calculations based on UNCTAD (2017) database.

that except Vietnam, more than 85 per cent of ASEAN's exports were affected by India's NTMs with relatively less impact on India's tariff against ASEAN. Similalry, the average number of types of NTMs imposed by India on a single product was less than 0.60 against most of the ASEAN countries. India also imposed less than 6 per cent of average tariff against most of the ASEAN countries. Figure 3.6 depicts that India follows substitution effect of NTMs with tariff on imports from ASEAN.

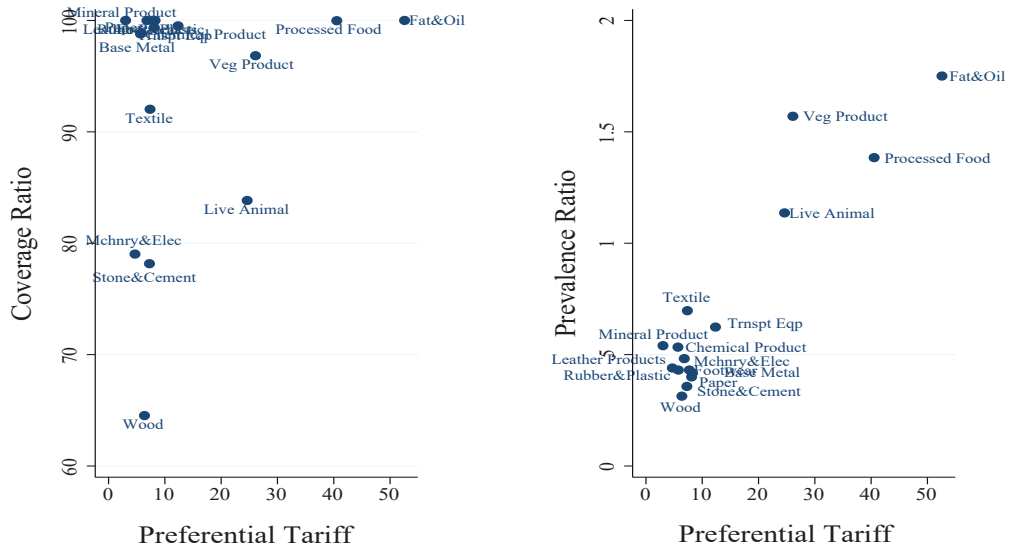
To understand whether NTMs are used in addition to tariffs to protect specific sectors, we have considered sector-wise correlation between Coverage Ratio and tariff for trade between ASEAN and India. Figures 3.7 and 3.8 show relationship between the NTMs and the tariffs across major sectors. Clearly, India's exports to ASEAN on transport equipments experienced higher NTMs and tariffs, followed by processed foods and live animals. In terms of correlation between numbers of NTM types

Figure 3.7: Correlation between Coverage Ratio and Tariff: (ASEAN Imposing NTM and Tariff against India by Sector)



Source: Authors' calculations based on UNCTAD (2017) database.

Figure 3.8 Correlation between Coverage Ratio and Tariff: (India Imposing NTM and Tariff against ASEAN by Sector)



Source: Authors' calculations based on UNCTAD (2017) database.

imposed at a single product and tariffs on agricultural products like vegetables, processed food, live animals experienced higher number of NTM types imposed by ASEAN with tariff of about 6 per cent. This suggests that most regulated sectors are also experiencing higher tariffs. Overall, the presence of positive (and statistically significant) correlations between the use of NTMs and traditional trade policy indicators such as tariffs are visible in some of the ASEAN countries and sectors. More generally, countries impose higher tariffs on those products that also have a larger NTM impact, thereby indicating that countries are protecting their domestic sectors with both NTMs and tariffs, despite tariff liberalization.

3.6 Sectoral Level Tariffs and NTMs on ASEAN-India Trade: An Assessment

This section analyses the sectoral level tariffs and NTMs between ASEAN and India and also the extent to which the AIFTA has benefited from the trade between them. Table 3.3 shows sector-wise impact of ASEAN's tariff and NTMs on imports from India. The second column on sector-wise share of India's export clearly shows that India's export to ASEAN were mineral products (20.4 per cent), live animals (14.5 per cent), chemical products (10.8 per cent), machinery and electrical (9 per cent), transport equipments (9 per cent), vegetable products (7.2 per cent) and textile products (5 per cent) of total India's export to ASEAN in 2016, respectively. Though average bound tariff was in the range of 20 to 30 per cent against India's export, the MFN rates were considerably low between 3 and 10 per cent in most of the sectors, and preferential tariffs were even further low in the range of 2

Table 3.3: ASEAN's Tariff and NTM on Imports from India

Major Sector	Trade Value# (2016)		Tariff Rate# (2016)			ASEAN-India FTA$			NTM$$	
						Average Number of Products at HS 6-Digit Level				
	India's Export (US$ Billion)	Sector-wise Share of India's Export (%)	Bound Tariff (%)	Applied Tariff (%)	Most Favored Nation (%)	Exclusion List (EL) (Nos.)	Sensitive List (SL) (Nos.)	Share of India's Export in EL and SL (%)	Average Number of NTMs at HS 6 digit level (Nos.)	Share of India's Exports Affected by ASEAN NTMs (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Live Animals	4.24	14.5	26	6	8	19	26	23.5	171.0	87.6
Vegetable Products	2.09	7.2	29	6	9	24	36	19.2	218.0	60.4
Fats & Oil	0.09	0.3	24	3	5	7	3	26.9	41.0	97.4
Processed Food	0.83	2.8	36	5	10	22	34	38.2	182.0	92.9
Minerals Products	5.94	20.4	20	2	3	3	4	1.5	126.0	66.6
Chemical Products	3.16	10.8	19	2	3	24	48	14.3	603.0	80.9
Rubber & Plastic	0.65	2.2	23	5	8	18	40	38.9	148.0	65.2
Leather Products	0.23	0.8	28	6	8	2	9	21.8	63.0	75.8
Wood	0.01	0.0	21	4	8	0	6	0.5	53.0	77.9
Paper	0.14	0.5	21	4	6	3	10	1.5	106.0	43.0
Textile	1.47	5.0	20	5	9	25	117	29.4	566.0	60.5
Footwear	0.06	0.2	28	7	11	3	10	11.9	34.0	66.1
Stone and Cement	0.13	0.5	25	5	8	10	20	31.1	85.0	56.1
Base Metals	2.62	9.0	26	5	7	60	60	0.0	380.0	74.1
Machinery & Electrical	2.61	9.0	22	4	6	24	32	14.5	561.0	55.2
Transport Equipment	3.30	11.3	17	3	5	20	13	9.9	105.0	69.3
Instruments	0.35	1.2	25	10	14	0	14	8.7	153.0	78.4

Notes: # India's export data collected from WITS database is the average of 2015-2016. # Trade and Tariff rate data are collected from WITS database, $ ASEAN-India FTA is collected from Ministry of Commerce, Government of India and $$ NTM data is collected from UNCTAD (2017) database.
Source: Authors' calculation based on several secondary sources.

to 7 per cent mainly due to ASEAN-India Free Trade Agreement (AIFTA).[19]

Under AIFTA, some of the products in specific sector are still under exclusion list and sensitive list, which are excluded from trade liberalization. Columns (7) and (8) show sector-wise distribution of average number of products falling under exclusion and sensitive lists at HS 6-digit level. It clearly shows that both the lists are mostly for agricultural and processed foods, chemical products, rubber, textiles, base metals, machinery and electrical products. In terms of sector-wise share of India's export, column (9) shows that barring a few sectors, almost 20 to 40 per cent of India's export to ASEAN were covered under exclusion and sensitive lists, which also impacted India's export to ASEAN. For instance, shares of India's export routed through exclusion and sensitive lists on India's total exports were higher in agricultural and processed goods, textile,

Table 3.4: India's Tariff and NTM on Imports from ASEAN

Major Sector	Trade Value# (2016)		Tariff Rate# (2016)			ASEAN-India FTA$			NTM$$	
						Average Number of Products at HS 6-Digit Level				
	ASEAN's Export (US$ Billions)	Sector-wise Share of ASEAN's Export (%)	Bound Tariff (%)	Applied Tariff (%)	Most Favored Nation (%)	Exclusion List (EL) (Nos.)	Sensitive List (SL) (Nos.)	Share of ASEAN's Export in EL and SL (%)	Average Number of NTMs at HS 6 digit level (Nos.)	Share of ASEAN's Exports Affected by India's NTMs (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Live Animals	0.03	0.1	107	25	29	39	6	8.6	210	83.8
Vegetable Products	1.15	2.8	97	26	33	108	6	22.1	248	96.8
Fats & Oil	5.93	14.1	211	53	48	27	2	99.8	45	100.0
Processed Food	0.38	0.9	101	41	35	69	2	31.8	191	100.0
Minerals Products	9.79	23.4	39	3	4	13	9	68.1	143	100.0
Chemical Products	4.03	9.6	42	6	8	14	111	19.8	747	98.8
Rubber & Plastic	3.01	7.2	36	8	9	15	90	42.1	210	100.0
Leather Products	0.08	0.2	28	6	9	0	13	10.7	68	100.0
Wood	0.81	1.9	37	7	9	0	0	0.0	55	64.5
Paper	0.44	1.1	36	8	9	0	6	0.9	141	99.4
Textile	0.58	1.4	31	7	10	75	163	24.2	769	92.0
Footwear	0.08	0.2	40	8	10	1	24	87.0	49	100.0
Stone and Cement	0.17	0.4	39	7	10	1	12	7.3	123	78.2
Base Metals	2.97	7.1	40	7	11	0	0	0.0	51	100.0
Machinery & Electrical	9.58	22.9	35	6	9	6	7	0.1	554	98.8
Transport Equipment	0.89	2.1	27	5	7	14	41	5.9	705	79.0
Instruments	0.85	2.0	35	12	13	15	6	32.7	128	99.5

Notes: # ASEAN's export data collected from WITS database is the average of 2015-2016. # Trade and Tariff rate data are collected from WITS database, $ ASEAN-India FTA is collected from Ministry of Commerce, Government of India and $$ NTM data is collected from UNCTAD (2017) database.
Source: Authors' calculation based on several secondary sources.

leather, rubber and plastic goods, chemicals, etc. Further, it has also clearly showed that India has a huge export potential in items of the exclusion and sensitive lists.

In addition, rise of NTMs has nullified effect of AIFTA on trade. Unlike tariff, the NTMs have differential market access impact, based on the quality of the product and the perceived impact from the products' entry. Column (10) shows that sector-wise average number of NTMs imposed by ASEAN on imports from India at HS 6-digit level were relatively higher for agricultural and food processing products, chemical products, textiles, base metals, machinery and electrical equipments. Almost more than 60 per cent of India's export was affected by NTMs imposed by ASEAN on India.

Table 3.4 shows sector-wise India's tariff and NTMs on imports from ASEAN. Column (2) on sector-wise share of ASEAN's export clearly shows that ASEAN was majorly exporting in 2016 mineral products (23.4 per cent), transport equipments (23 per cent), oil products (14 per cent), chemical products (10 per cent), machinery and electrical (7 per cent) of total ASEAN's export to India, respectively. Compared to ASEAN's AVE and MFN tariffs, India's AVE and MFN tariffs were slightly higher in the range of 7 to 10 per cent, except for agricultural products. Columns (7) and (8) clearly show that India has liberalized most of the products under AIFTA; leaving a few in exclusion and sensitive lists, except specific sectors like textiles, agriculture and chemicals, rubber and plastics. In terms of the sector-wise share of ASEAN's export to India, column (9) shows that almost 100 per cent of fats and oil export to India were under exclusion list, followed by footwear (87 per cent), mineral products (68 per cent), rubber and plastic (42 per cent) and processed foods (31 per cent), respectively, covered under exclusion and sensitive lists. However, the shares of those products in ASEAN's export to India were very marginal. Therefore, sectors covered under exclusion and sensitive lists have had less impact on ASEAN's actual export to India, but more on ASEAN's potential export to India. Column (10) shows that barring a few, sector-wise average number of NTMs imposed by India on ASEAN's export at HS 6-digit level was affected most of the sectors close to 100 per cent.

Overall, at the sectoral level, most of the products like vegetables, processed food, chemicals, transport equipments, machinery and electrical equipments are still under exclusion and sensitive lists that have the potential exports between ASEAN and India. In addition, NTMs are also significantly higher. ASEAN-India FTA in goods has large exclusion (negative) list on which concessional tariffs are not offered. There are certain products reserved under the sensitive lists, for which tariff reductions have been slower than the reduction in the normal track. The rationale for any kind of exclusion or sensitive list is to provide protection to the domestic industries. Contrary to popular belief, import demand has gone up in sensitive and exclusion list items between India and ASEAN countries since the signing of the FTA in 2010.

3.8 Conclusions

With the rise in trade, trade policies are transiting from the traditional trade policies such as tariff and quota barriers to NTMs to restrict market access and also to control quality/safety of products. This study finds that although AIFTA has considerably reduced the tariff for almost 80 per cent of the products granting the market access, due to stringency and complexities of NTMs, some of the sectors and products are denied market access in both ASEAN and India. The major findings of this chapter are as follows.

- Among ASEAN countries, Cambodia, Lao PDR, the Philippines, Singapore and Vietnam have imposed more NTMs on India's export. Particularly, the Philippines has imposed highest number of NTMs at each product level, compared to other ASEAN countries. On the other, India's NTMs have affected exports of ASEAN

countries like Thailand, Malaysia, Myanmar, Brunei, respectively. However, India imposes lesser number of types of NTMs against ASEAN.

- ASEAN countries such as Vietnam, the Philippines and Cambodia show complemnetary tariff and NTMs, whereas, Brunei and Singapore substitute tariff with NTMs against India's exports to ASEAN. India follows substitution effect of NTMs with tariff, and imposes on ASEAN's export.
- Barring a few ASEAN countries, both ASEAN and India impose almost the same level of NTMs in products like vegetables, chemical, textiles, machinery and electrical and base metals, respectively.
- The impact of NTMs on ASEAN exports to India is much higher than India's export to ASEAN for the sectors like transport equipment, machinery and electrical, textiles, chemical products, food processing and base metals.

The above findings suggest that in addition to tariff liberalization, streamlining of NTMs is equally important for facilitating preferential market access between ASEAN and India to promote trade and investment activities. The study has also found that the impact of NTMs on a particular product or a group of products is restricting market access at sector/industry specific between ASEAN and India. The study has found that ASEAN and India have been trading more and more in those products which have been reserved under the exclusion and sensitive lists, indicating the need for pruning reserved items. Therefore, ASEAN and India may consider forming an expert group to review the ASEAN-India FTA to prune the exclusion and sensitive lists in a phased manner. This would ease tariff burden of traders in both ASEAN and India, in addition to other trade facilitation related barriers such as administrative procedural obstacles related to NTMs.

Chapter 4

NTMs between ASEAN and India: Assessing the Barriers to Trade

4.1 Introduction

Market access to the partner country greatly depends on the compliance with trade regulatory measures such as NTMs in addition to the traditional trade policies such as tariff, quotas and anti-dumping duties, etc. While NTMs act as barriers to trade, they also maintain quality and health standards with a legitimate purpose to protect domestic food and environment by imposing several technical measures. Given the lack of data availability, complexities and policy sources from various government regulatory agencies, precise assessment of the impact of NTMs on the international trade is always a challenging task. In this context, this chapter attempts to address implications of NTMs between ASEAN and India based on the secondary data, sourced from UNCTAD-TRAINS and WITS databases. The main purpose of the chapter is to look at the market access barriers arising from NTMs between ASEAN and India. Not all NTMs are discriminatory against trade, but developing countries like some of the ASEAN members and India more often have limited capacity for meeting the requirements imposed by developed (importing) countries. For instance, lack of advanced production process technology, weak trade-related infrastructure, inadequate export services, lack of harmonised standards and mutual recognition add to trade costs in addition to other trade facilitation related barriers such as administrative procedural obstacles related to NTMs. In addition, both ASEAN and India have been also experiencing higher number of NTMs on the same product groups on which they have export interests. The rest of the chapter discusses in further detail these issues.

4.2 Data and Methodology

The secondary data on the NTMs were collected from the Trade Analysis and Information System (TRAINS) database, which was developed by UNCTAD. UNCTAD has comprehensive database on NTMs at sub-classification level by Harmonized System (HS) at the 6-digit level for most of the countries at the bilateral level. In this database, NTMs are classified based on Coding System of Trade Control Measures (TCMCS), which has well demarcated 16 chapters of NTMs. This database covers data for 57 (reporter) countries from 1920 to 2015. However, the database lacks data for continuous period and in a way does not cover complete sub-categories of NTMs for all the countries. Therefore, NTMs data collected from UNCTAD may have missing information in terms of detailed coverage of NTMs for some of the periods. UNCTAD has also cautioned that the data are based on the obsolete classification,

which does not reflect adequately and accurately on new forms of NTMs (UNCTAD, 2015).

This study measures the incidence of NTMs and assesses their impacts on the trade between ASEAN and India both at the country and sectoral levels. While there are different ways to measure incidence of NTMs, this study has widely used techniques such as Frequency Index, Coverage Ratio and Prevalence Ratio to assess NTMs impact between ASEAN and India. The detailed methodologies on these measures are mentioned in Box 4.1. The study has also used Revealed Comparative Advantage (RCA) index to investigate how sector-wise export patterns shifted over time between ASEAN and India and also to assess impact of NTMs on shift in export competitiveness between ASEAN and India.

4.3 The Incidence of NTMs between ASEAN and India

The NTMs imposed by importing country affect both value and quantity of products exported. Some of the products also encounter more than one type of NTMs on the same product, which consequently affects trade between ASEAN and India. This section has assessed the incidence of NTMs between ASEAN and India at the country and sectoral level using popular techniques, such as Frequency Index, Coverage Ratio and Prevalence Ratio, respectively.

The Frequency Index (FI) describes percentage share of number of products exported affected by NTMs imposed by importing countries. In other words, FI accounts only for the presence or absence of an NTM and summarizes percentage of products to which one or more NTMs are applied. The Coverage Ratio (CR) describes percentage share of trade value affected by NTMs for the importing country on the total trade value, and therefore, it provides a measure of the impact of NTMs on the overall exports. Prevalence ratio indicates average number of types of NTMs imposed at each product level at HS 6-digit level. For instance, both SPS and TBT measures of NTMs are imposed on the processed food products (*see* Box 4.1).

Box 4.1. Inventory-Based Measures

To identify and assess the importance of NTMs and their effects on the international trade, the study employed three simple inventory-based measures: the frequency index and the coverage ratio and prevalence ratio

Frequency Index accounts only for the presence or absence of an NTM, and summarizes the percentage of products i to which one or more NTMs is applied. The frequency index (F_j) of NTMs imposed by country j is calculated as:

$$F_j = \left[\frac{\sum D_i M_i}{\sum M_i}\right].100$$

where D_i is a dummy variable taking the value equal to one if one or more NTMs are in place and M_i is a dummy variable equal to one if there are imports of product i.

Coverage Ratio measures the percentage of trade subject to NTMs for the importing country. It shows the importance of NTMs on overall imports. The coverage ratio (Cj) for the importing country j is given by:

$$C_j = \left[\frac{\sum D_i V_i}{\sum V_i}\right].100$$

where V_i is the value of imports in product i and D is defined as above. However, frequency index and coverage ratio do not take into account the possibility of more than one type of NTMs being applied to the same product. In practice, a large number of products have more than one regulatory measure applied to them. To measure prevalence of NTMs, prevalence ratio approach is employed.

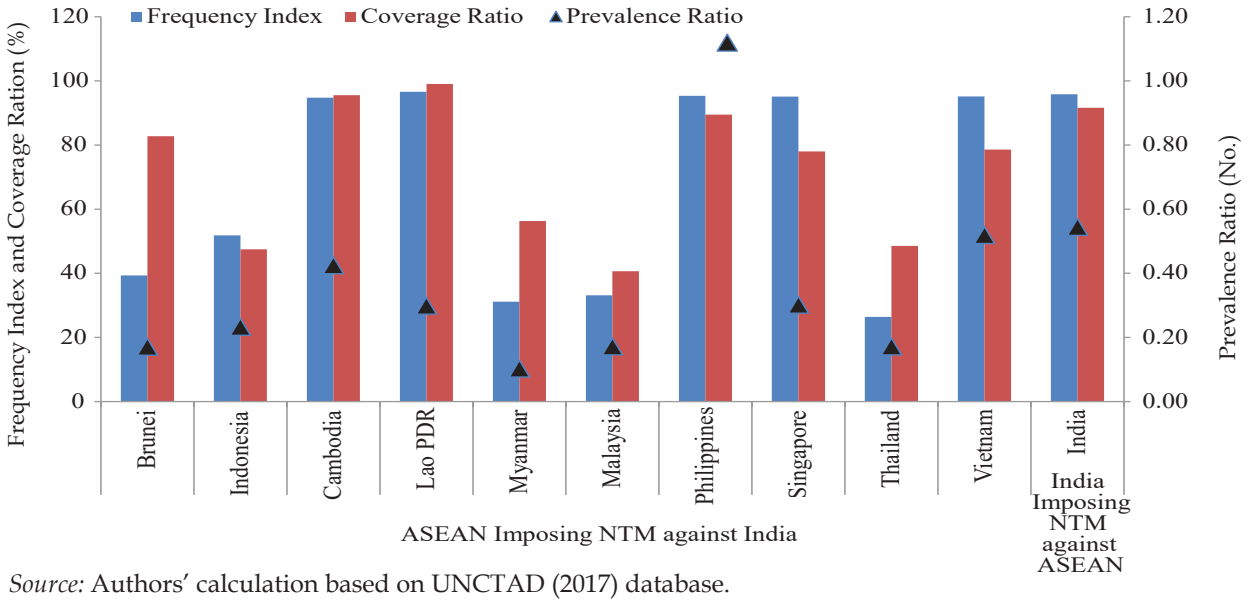
Prevalence Ratio indicates the average number of NTMs affecting imported product. It accounts whether more than one NTM is applied to the same product (which is not captured by frequency index and coverage ratio). The prevalence ratio (Pj) is given by:

$$P_j = \left[\frac{\sum N_i M_i}{\sum M_i}\right]$$

where Ni is the number of NTMs and Mi is as above.

Figure 4.1 shows country-wise incidence of NTMs imposed by ASEAN on imports from India and India on ASEAN. The measures of Frequency Index and Coverage Ratio are

Figure 4.1: Country-wise Incidences of NTMs between ASEAN and India



Source: Authors' calculation based on UNCTAD (2017) database.

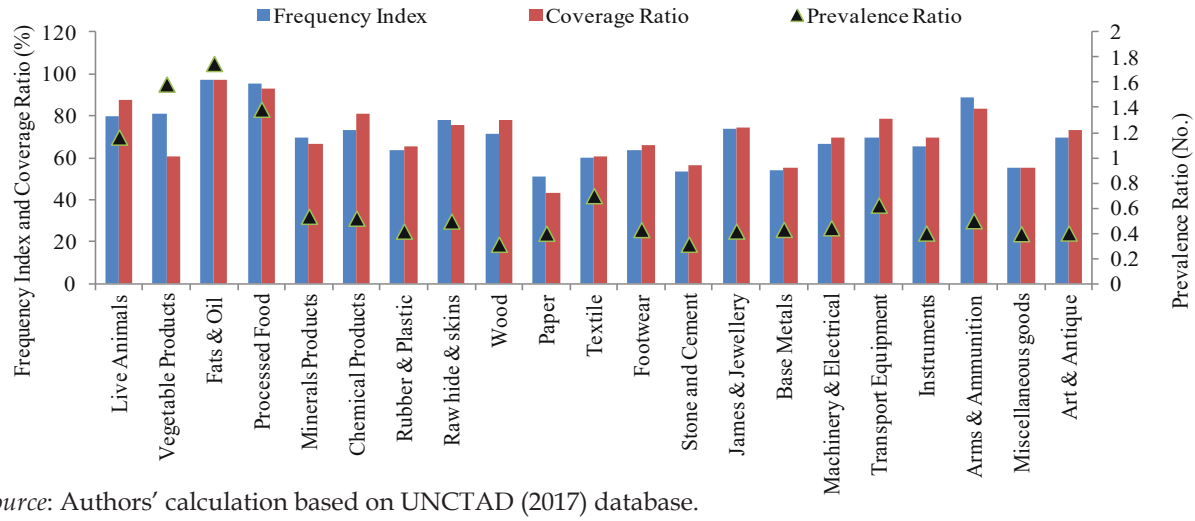
illustrated in blue and red bar, respectively. The indicator of Prevalence Ratio (i.e., average number of NTM types) is depicted in black triangle. On an average, both ASEAN and India apply some forms of NTMs for most of the products at HS 6-digit level. These statistics are simple averages across countries, and thus have to be interpreted as a representative of the use of NTMs imposed by ASEAN and India against each other.

Broadly, the incidence of NTMs varies considerably, not only across regions but also more so among countries. Among ASEAN countries, Cambodia, Lao PDR, the Philippines, Singapore and Vietnam scored almost close to 100 per cent of Frequency Index and Coverage Ratio. It means that the NTMs imposed by these countries affected India's export to ASEAN in almost all the products at HS 6-digit level, both in terms of volume and value of exports. Particularly, the Philippines imposed the highest number of NTMs at product level, compared to other ASEAN countries. For instance, on an average, the Philippines imposed 1.12 types of NTMs on imports from India, followed by Vietnam (0.53) and Cambodia (0.42).

In the case of India, 90 per cent of the products are covered by NTMs as their calculated Frequency Index and Coverage Ratio scores are very high. India imposed less number of NTMs against ASEAN, which was about 0.55. In terms of Frequency Index, Thailand, Malaysia, Myanmar, Brunei covered almost 60 per cent of the imported products facing NTMs when imported from India. However, in terms of coverage ratio, almost 80 per cent of imported goods from India were affected by NTMs in the ASEAN market.

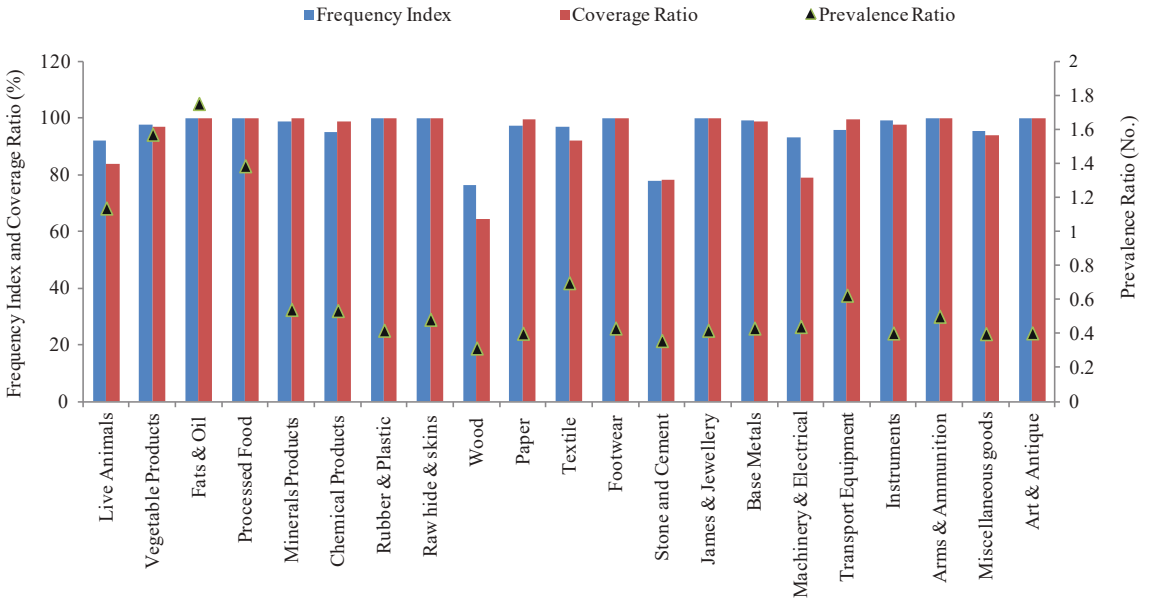
Figures 4.2 and 4.3 show sector-wise incidences of NTMs imposed by ASEAN and India against each other. The incidences of ASEAN imposing NTMs on India, represented by both FI and CR, varied widely across sectors. FI and CR for agricultural sector including live animals, fats and oil, processed foods were close to 100 per cent, suggesting that almost all the products exported by India were affected by NTMs in the ASEAN. In terms of types of NTMs imposed, agriculture products faced higher NTMs (about 1.8 times), compared to other sectors. In the case of India, barring a few, the coverage of FI and CR was close to 100 per cent for most of the sectors. The average number of NTM types imposed by India on imports from ASEAN was in the range of 1.2 to 1.8 for agricultural products, whereas, for the rest of the sectors, same was close to 0.4 per product.

Figure 4.2: Sector-wise Incidences of NTMs Imposed by ASEAN on India



Source: Authors' calculation based on UNCTAD (2017) database.

Figure 4.3: Sector-wise Incidences of NTMs Imposed by India on ASEAN

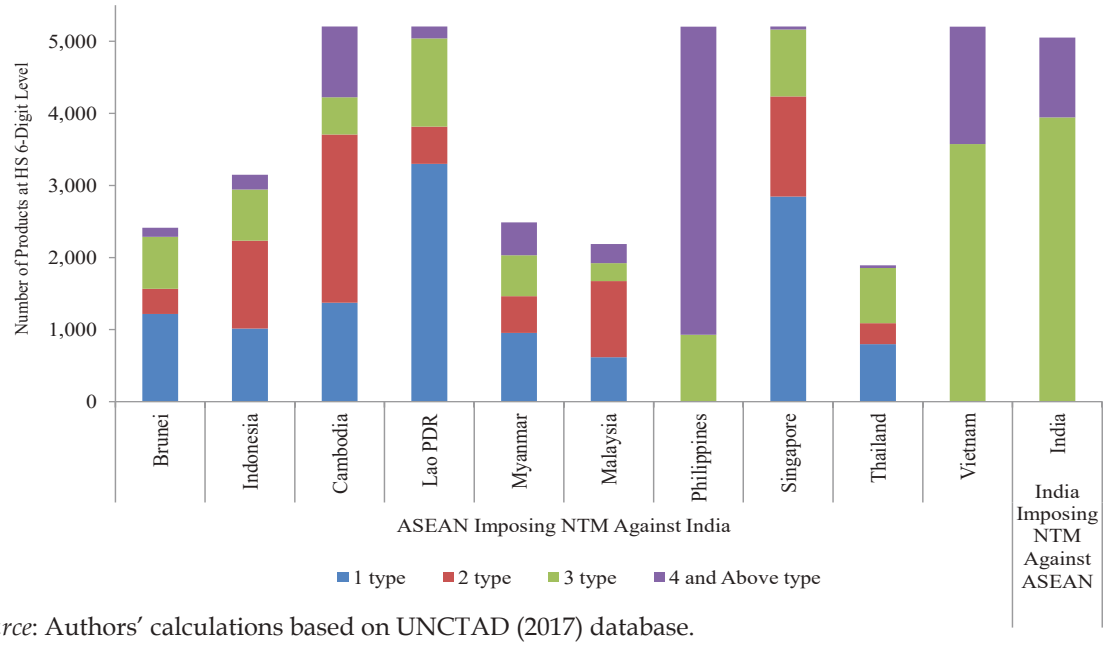


Source: Authors' calculation based on UNCTAD (2017) database.

Figure 4.4 shows average number of NTMs from different chapters affecting HS 6-digit products. Both the Philippines and Vietnam imposed more than 3 types of NTMs on a single product at HS 6-digit level. For instance, the Philippines imposed 3 types of NTMs to about 1000 products at HS 6-digit level and 4 types of NTMs to about 4000 products at HS 6-digit level. In case of Vietnam, 3 and 4 types of NTMs were imposed on about 3500 and 1500 products at HS 6-digit level, respectively.

Singapore imposed one type of NTM on 3000 imported products from India at HS 6-digit level, followed by 2 and 3 different types of NTMs against 1000 products, each at HS 6-digit level. Similarly, Lao PDR imposed one type of NTM on 3300 products and 3 different types of NTMs on 1200 products at HS 6-digit level. ASEAN countries like Brunei, Indonesia, Cambodia, Myanmar, Malaysia and Thailand imposed one type of NTM against about 1000 products imported from India at HS 6-digit

Figure 4.4: Number of Products Affected by NTM Chapters (at HS 6-digit Level)



Source: Authors' calculations based on UNCTAD (2017) database.

level. Cambodia imposed both 2 different types of NTMs on about 2000 products, followed by 3 different types of NTMs against about 1000 products at HS 6-digit level, respectively. Both Indonesia and Malaysia imposed 2 different types of NTMs on about 1000 products at HS 6-digit level, respectively. In sum, Vietnam, the Philippines, Singapore, Cambodia and Lao PDR imposed higher types of NTMs on imports from India, whereas, Brunei, Indonesia, Myanmar, Malaysia and Thailand imposed a fewer types on India.

On an average, 4000 products across chapters face 3 different types of NTMs imposed by India on ASEAN, and about 1000 products face more than 4 different types of NTMs by India against imports from ASEAN.

Overall, among ASEAN countries, Cambodia, Lao PDR, the Philippines, Singapore and Vietnam imposed more NTMs on India's export. Particularly, the Philippines have imposed highest number of NTMs at each of the product level, compared to other ASEAN countries. On the other hand, India's NTMs have been affecting exports of ASEAN countries like Thailand, Malaysia, Myanmar, Brunei, respectively. However, India imposes lesser number of NTMs against ASEAN. In terms of average number of different chapters of NTMs affecting importing country, there has been a variation among ASEAN countries in imposing different types of NTMs on India. Both ASEAN and India are highly restrictive. Most of the ASEAN countries imposed up to 3 different types of NTMs on imports from India, whereas, India imposed at least 3 different types of NTMs to almost all products on the imports from ASEAN countries.

4.4 Assessing the NTM Chapters and Its Effect on Trade between India and ASEAN

Table 4.1 shows types of NTMs imposed by ASEAN against India and their effect on India's exports. It shows that the average number of NTMs at HS 6-digit level imposed by ASEAN against India is on 3815 products, which together cover about 72 per cent of India's export to ASEAN.

In NTMs, SPS, TBT, QCM and PCM are the major measures imposed by ASEAN on the imports from India. For instance, on an average, ASEAN imposes 1178 number of SPS measures

Table 4.1: ASEAN Imposing NTMs on India's Export to ASEAN, 2017

1-Digit NTM	NTM Classification	Impact of ASEAN NTMs on India's Export		
		Average Number of NTMs (at HS-6 digit level)	India's Total Export to ASEAN affected by NTMs in 2017 (US$ Billion)	Share of India's Export to ASEAN affected by NTMs in India's Total Export to ASEAN (%)
Technical Measures				
A	Sanitary and Phytosanitary Measures (SPS)	1178.4	6.53	27.41
B	Technical Barriers to Trade (TBT)	2863.5	18.00	56.28
C	Pre-Shipment Inspection and other formalities (PSI)	961.3	5.69	25.82
Non Technical Measures				
D	Contingent Trade-Protective Measures	2.3	0.05	0.13
E	Non-Automatic Licensing, Quotas, Prohibitions and Quantity-Control Measures other than for SPS or TBT Reasons (QCM)	1047.5	4.20	25.69
F	Price-Control Measures, Including Additional Taxes and Charges (PCM)	2315.6	12.00	47.20
G	Finance Measures (FM)	524.8	1.25	8.95
H	Measures Affecting Competition	536	5.01	9.90
I	Trade-Related Investment Measures	0	0.00	0.00
J	Distribution Restrictions	7.7	0.03	0.07
Exports				
P	Export-Related Measures	2836.2	14.07	60.90
Total	NTM	3815.1	18.80	71.63

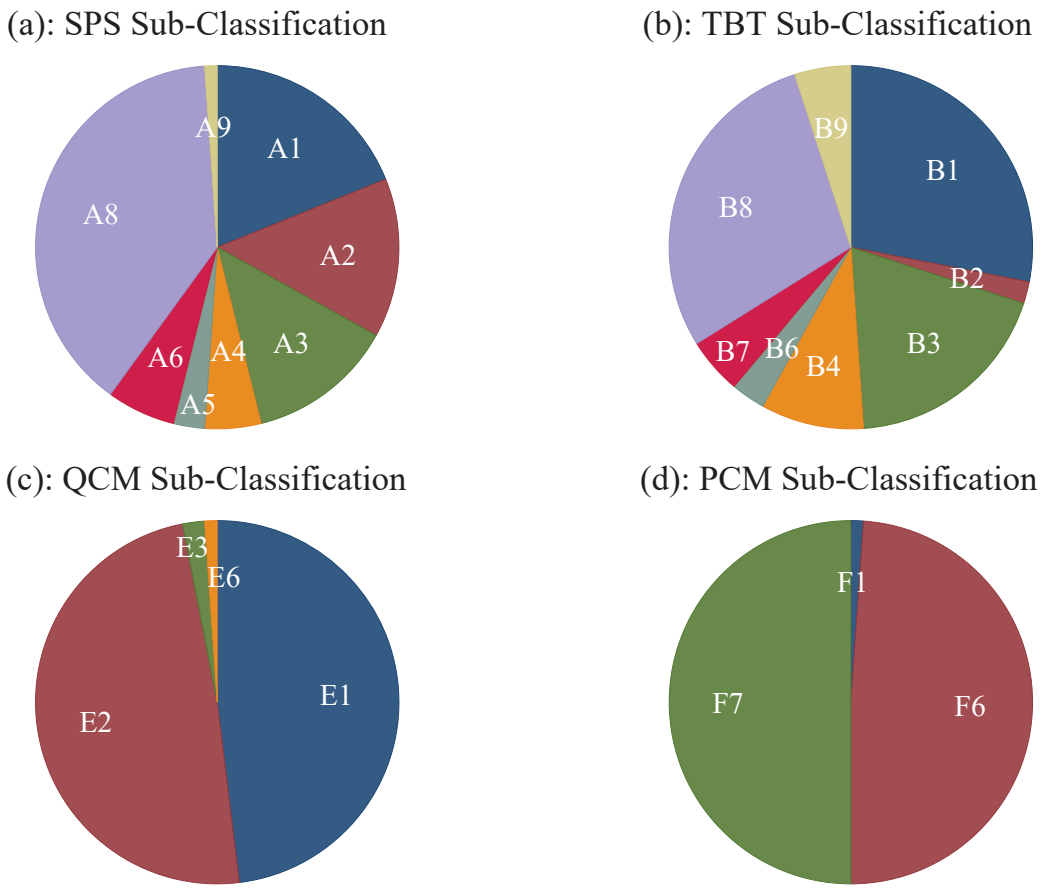
Source: Authors' calculation based on WITS and UNCTAD (2017) database.

at HS 6 digit level against India, which together affect India's export of about US$ 6.53 billion. In other words, about 27.41 per cent of India's export faces ASEAN's SPS measures. Figure 4.5(a) presents sub-classification-wise share of ASEAN NTMs on Indian exports. It shows that A8-Conformity assessment related to SPS (39 per cent), A1-Prohibitions/restrictions of imports for SPS reasons (19 per cent), A2-Tolerance limits for residues and restricted use of substances (14 per cent), A3- Labelling, marking and packaging requirements (16 per cent) were major SPS measures imposed by ASEAN on imports from India. At HS 3-digit sub-classification level, requirement for special authorisation for SPS reasons (A140), importers (A150), product registration (A180), certification requirement (A830) and treatment for elimination of plant and animal pests and disease-causing organisms in the final products, etc (A859) were the major SPS measures imposed by ASEAN on the imports from India (Table 4.2).

In the case of TBT measures, ASEAN imposed on an average 2864 measures at HS

Figure 4.5: Share of Selected NTMs Imposed by ASEAN on Imports from India

(%)



Notes: SPS sub-classification is defined as: A1- Prohibitions/restrictions of imports for SPS reasons, A2-Tolerance limits for residues and restricted use of substances, A3- Labelling, marking and packaging requirements, A4-Hygienic requirements, A5- Treatment for elimination of plant and animal pests and disease- causing organisms in the final product (e.g., post-harvest treatment), A6- Other requirements on production or post-production processes and A8- Conformity assessment related to SPS. TBT sub-classification is defined as: B1- Prohibitions/ restrictions of imports for objectives set out in the TBT agreement, B2- Tolerance limits for residues and restricted use of substances, B3- Labelling, marking and packaging requirements, B4- Production or post-production requirements, B6- Product identity requirement, B7- Product-quality or -performance requirement, B8-Conformity assessment and B9- Conformity assessment related to TBT. n.e.s.QCM sub-classification is defined as: E1- Non-automatic import-licensing procedures other than authorizations for SPS or TBT reasons, E2- Quotas, E3- Prohibitions other than for SPS and TBT reasons and E6- Tariff-rate quotas (TRQ).PCM sub-classification is defined as: F1- Administrative measures affecting customs value, F6- Additional taxes and charges levied in connection to services provided by the government and F7- Internal taxes and charges levied on imports.
Source: Based on UNCTAD (2017) database.

6-digit level, which was twice that of SPS measures. Taken together, these measures affected 56.28 per cent of India's export to ASEAN, which was about US$ 18 billion in 2016. Figure 4.5(b) shows that B8-Conformity assessment related to TBT (29 per cent), B1-Prohibitions/ restrictions of imports for objectives set out in the TBT agreement (28 per cent), B3-Labelling, marking and packaging requirements (19 per cent) were the major TBT measures imposed by ASEAN on imports from India. At HS 3-digit sub-classification level, prohibition for TBT reasons (B110); requirements of authorisation for TBT reasons (8140); labelling (B310); certification

Table 4.2: ASEAN's NTMs on India at 3-Digit Level

NTM Code	Sub-Classification Name
A	**Sanitary and Phytosanitary Measures (SPS)**
A140	Special authorization requirement for SPS reasons
A150	Registration requirements for importers
A810	Product registration requirement
A859	Treatment for elimination of plant and animal pests and disease-causing organisms in the final product, n.e.s.
A830	Certification requirement
B	**Technical Barriers to Trade (TBT)**
B110	Prohibition for TBT reasons
B140	Authorization requirement for TBT reasons
B310	Labelling requirements
B420	TBT regulations on transport and storage
B830	Certification requirement
E	**Quantity-Control Measures**
E111	Licensing procedure with no specific ex ante criteria
E112	Licensing for specified use
E113	Licensing linked with local production
E231	Global allocation
E230	Temporary
F	**Price Control Measures**
F610	Custom-inspection, -processing and -servicing fees
F620	Merchandise-handling or -storing fees
F710	Consumption taxes
F720	Excise taxes
F900	Price-control measures, n.e.s

Source: Based on UNCTAD (2017) database.

(B830) and TBT regulations on transport and storage (B420) were the major TBT measures imposed on India by ASEAN (Table 4.2).

In case of non-technical measures, QCM and PCM were the major NTMs that affected India's export to ASEAN. For instance, PCM alone affected about 47.10 per cent of India's export to ASEAN, followed by QCM, which affected 26 per cent of India's export to ASEAN. Some of the major non-technical measures of QCM (*see* Figure 4.5(c)) and PCMs were E1-Non-automatic import-licensing procedures other than authorizations for SPS or TBT reasons, E2- Quotas, F6- Additional taxes and charges levied in connection to services provided by the government and F7- Internal taxes and charges levied on imports (see Figure 4.5(d)). Besides, each of the financial measures and anti-competitive measures affected competition by about 10 per cent of India's export, respectively.

Table 4.3 shows the impact of various types of NTMs imposed by India on ASEAN's export. It shows that the average number of NTMs at HS 6-digit level imposed by India on imports from ASEAN was on 5052 products; together affecting about 91.60 per cent of ASEAN's

Table 4.3: India's NTMs on ASEAN's Export, 2017

	NTM Classification	Average Number of NTMs Imposed by India at HS 6-digit level	ASEAN's Total Export to India affected by NTMs in 2017 (US$ Billion)	Share of ASEAN's Export to India affected by NTMs in ASEAN's Total Export to India (%)
Technical Measures				
A	Sanitary and Phytosanitary Measures (SPS)	794	7.81	17.12
B	Technical Barriers to Trade (TBT)	5025	38.43	91.59
C	Pre-Shipment Inspection and other formalities (PSI)	75	0.59	4.48
Non Technical Measures				
D	Contingent Trade-Protective Measures	13.4	0.79	1.00
E	Non-Automatic Licensing, Quotas, Prohibitions and Quantity-Control Measures other than for SPS or TBT Reasons (QCM)	351	1.87	7.60
F	Price-Control Measures, Including Additional Taxes and Charges (PCM)	5052	38.43	91.60
G	Finance Measures (FM)	0	0.00	0.00
H	Measures Affecting Competition	76	1.27	3.06
I	Trade-Related Investment Measures (TRM)	5052	38.43	91.60
J	Distribution Restrictions	0	0.00	0.00
P	Export-Related Measures	110	6.60	13.08
Total	NTM	5052	38.43	91.60

Source: Authors' calculation based on WITS and UNCTAD (2017) database.

export to India. Relatively both ASEAN and India imposed almost equal number of NTMs against each other. However, in the case of India, TBTs, Price-control Measures (PCM) and Trade-related Investment (TRM) measures were imposed in almost all the products.

In case of technical measures, compare to ASEAN countries, India imposed selected SPS measures on imports from ASEAN, and its combined affected on ASEAN's export were about 17.12 per cent (US$ 7.81 billion) in 2016. Figure 4.6(a) shows that A3-Labelling, marking and packaging requirements (29 per cent), A2-Tolerance limits for residues and restricted use of substances (29 per cent), A1- Prohibitions/ restrictions of imports for SPS reasons (21 per cent) are the share of major SPS measures imposed by India on imports from ASEAN. In terms of NTMs at HS 3- digit level, the major SPS measures were requirements of importers registration (A150); Labelling (A310); Tolerance limits for residues (A210); Hygienic practices (A420) and Food and feed processing (A630), respectively, imposed on ASEAN's export (*see* Table 4.4).

India imposes TBT measures to almost all the products exported by ASEAN countries (about 5025 products) at HS 6-digit level, which affected about US$ 38.43 billion of ASEAN export (92 per cent of ASEAN export to India).

Figure 4.6: Share of Selected NTMs Imposed by India on Imports from ASEAN

(%)

Notes: SPS sub-classification are defined as: A1- Prohibitions/restrictions of imports for SPS reasons, A2-Tolerance limits for residues and restricted use of substances, A3- Labelling, marking and packaging requirements, A5-Treatment for elimination of plant and animal pests and disease- causing organisms in the final product (e.g. postharvest treatment) and A6- Other requirements on production or post-production processes. TBT sub-classification are defined as: B1- Prohibitions/restrictions of imports for objectives set out in the TBT agreement, B2- Tolerance limits for residues and restricted use of substances, B3- Labelling, marking and packaging requirements, B7- Product-quality or -performance requirement and B8- Conformity assessment related to TBT. PCM sub-classification are defined as: F4- Customs surcharges, F7- Internal taxes and charges levied on imports and F9- Price-control measures, n.e.s.TRM sub-classification is defined as: I1- Local content measures and I9-Trade-related investment measures, n.e.s.
Source: Based on UNCTAD (2017) database.

In particular, the manufacturing goods face general standard and technical regulations such as import certificate requirements, which every country has to meet before exporting to partner country. For instance, Figure 4.6(b) shows that B1-Prohibitions/restrictions of imports for objectives set out in the TBT agreement (52 per cent), B2-Tolerance limits for residues and restricted use of substances (17 per cent), B3-Labelling, marking and packaging requirements (16 per cent), B7-Product-quality or -performance requirement (8 per cent) are the major TBT measures imposed by India on imports from ASEAN. At HS 3-digit level, the major TBT measures include requirement for importers (B150); labelling (B310); certification (B830); product quality (B700) and restricted use of certain substances (B220), respectively (Table 4.4).

Table 4.4: India's NTMs on ASEAN's Export at HS 3-Digit Level

NTM Code	Sub-Classification
A	**Sanitary and Phytosanitary Measures (SPS)**
A150	Registration requirements for importers
A210	Tolerance limits for residues of or contamination by certain (non-microbiological) substances
A310	Labelling requirements
A520	Irradiation
A630	Food and feed processing
B	**Technical Barriers to Trade (TBT)**
B150	Registration requirement for importers for TBT reasons
B220	Restricted use of certain substances
B310	Labelling requirements
B700	Product-quality or -performance requirement
B830	Certification requirement
F	**Price Control Measures**
F400	Customs surcharges
F710	Consumption taxes
F720	Excise taxes
F790	Internal taxes and charges levied on imports, n.e.s.
F900	Price-control measures, n.e.s
I	**Trade-related investment measures**
I100	Local content measures
I900	Trade-related investment measures, n.e.s

Source: Based on UNCTAD (2017) database.

In case of non-technical measures, price control measures and trade-related measures are the major measures, which are imposed on the most of the products exported to India. Figure 4.6(c) shows that F4-Customs surcharges (92 per cent) and F7-Internal taxes (7 per cent) are the two most important PCMs imposed by India on imports from ASEAN. In the case of TRM, Figure 4.6(d) shows that I9-Trade-related investment measures have 95 per cent share in the TRM, imposed by India on the imports from ASEAN.

Relatively, ASEAN imposes higher number of quantity control measures of about 1048, which are three times higher than the quantity control measures imposed by India on imports from ASEAN. Similarly, India imposes fewer pre-shipment measures (PSI) (on an average 75 products at HS 6-digit level), which is about one-tenth of total PSIs imposed by ASEAN on India (*see* Table 4.1 and Table 4.4). ASEAN also imposes about 550 financial measures and anti-competitive measures at HS 6-digit level on India, and on the other, India imposes no such measures against ASEAN. In terms of export-related measures, which are against the respective country-level products in their own country, ASEAN imposed almost 2831 NTMs at HS 6-digit level, compared to India which imposed about 110 NTMs at HS 6-digit level on their own exports. Overall, it broadly appears that India imposes higher number of NTMs against ASEAN countries, as the total number of NTMs was about 5052 at HS 6-digit level, compared to ASEAN imposing a total 3815 NTMs on India. However, most of the NTMs imposed by India on imports from ASEAN were general standards such as import licensing requirements and other basic requirements for import custom regulations. Compared with India, ASEAN imposed several NTMs in both technical and non-technical measures.

In terms of sector-wise average number of NTMs imposed by India and ASEAN countries against each other at HS 6-digit level, vegetable products, chemical products, textiles, machinery and electrical and base metals attracted large number of NTMs, exceeding 300 products at HS 6-digit level (*see* Table 4.5). In particular, barring a few ASEAN countries, invariably both ASEAN and India imposed almost the same level of NTM in these sectors.

Table 4.5: Sector-wise Average Number of NTMs Imposed by ASEAN and India against Each Other (at HS 6-digit level)

Sector	ASEAN Imposing NTMs against India										India Imposing NTMs against ASEAN
	Brunei	Indonesia	Cambodia	Lao PDR	Myanmar	Malaysia	Philippines	Singapore	Thailand	Vietnam	
Live Animals											
Vegetable Products											
Fats & Oil											
Processed Food											
Minerals Products											
Chemical Products											
Rubber & Plastic											
Leather Products											
Wood											
Paper											
Textile											
Footwear											
Stone and Cement											
Base Metals											
Machinery & Electrical											
Transport Equipment											
Instruments											

Note: 0 – 75 75 – 150 150 – 300 300 and above.
Source: Authors' calculation based on UNCTAD (2017) database.

4.5 Impact of NTMs on Export Pattern between ASEAN and India

The export diversification patterns between ASEAN and India has been analysed here using the Revealed Comparative Advantage (RCA) index, which was developed by Balassa (1965) to understand the structure of commodity exports by identifying comparative advantage in specific sectors. We investigated how sector-wise export patterns shifted over time between ASEAN and India and also assessed the impact of NTM measures on shift in export competitiveness between ASEAN and India. We classified the sectors based on the Chapters 1 to 97 of HS classification, and confined the calculation of RCA with respect to ASEAN-India regional trade to assess the impact of NTMs imposed by ASEAN and India against each other on their export patterns at the sectoral level.

$$RCA_{cn} = \frac{X_j}{X_c} \Big/ \frac{X_{nj}}{X_{nc}} \qquad (1)$$

where X represents exports, j is the commodity, c is a set of all commodity exports and n is a set of countries (in our case it is regional trade between ASEAN and India). RCA_{cn} is the index for export patterns that measures a country's exports of commodity in a particular sector relative to its total exports and to the corresponding exports of ASEAN-India

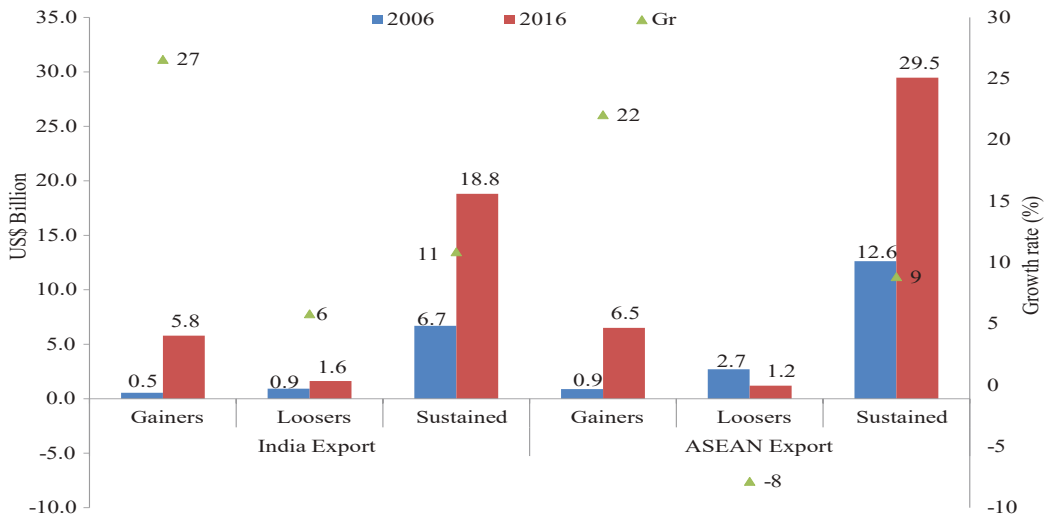
region. RCA indices were calculated using WITS database for two different periods. To neutralize annual variation, the RCA was calculated for the average trade data for the 2005 and 2006 and 2015 and 2016. For brevity, average trade data of 2005 and 2006 was considered as 2006 and of 2015 and 2016 as 2016.

Comparative advantage of a country can be revealed if RCA_{cn} is greater than 1 (RCA > 1), which implies country's core competency in producing the product. If RCA is less than (RCA < 1), the country is said to have a revealed comparative disadvantage in the commodity or in a particular sector. Therefore, we set the dummy variable as 1, if a country has an RCA>1 in 2006 and 2016, respectively. We calculated number of products with RCA > 1, compared to other products in the respective sectors. Further, we decomposed the RCA into three components' gainers of RCA, loosers of RCA and sustained RCA, respectively.

- "Gainers" of RCA: if RCA>1 in 2016 but not in 2006. It means how many of the products have gained revealed comparative advantage in 2016 over 2006.
- "Loosers" of RCA: if RCA>1 in 2006 but not in 2016. It means how many of the products have experienced revealed comparative advantage in 2006 but experienced revealed comparative disadvantage in 2016.
- "Sustained" RCA: it depicts the number of products witnessed RCA>1 in both the years (2006 and 2016).

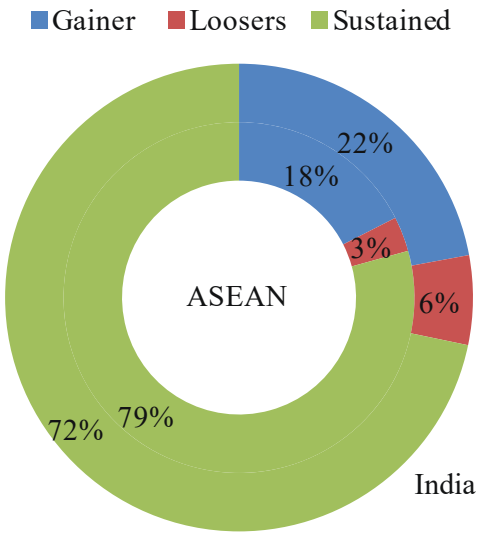
Figure 4.7 clearly shows that both ASEAN and India witnessed sustained RCAs of about 11 per cent between 2006 and 2016, respectively, in case of their respective bilateral exports. For instance, India's export to ASEAN increased from US$ 6.70 billion in 2006 to US$ 18.8 billion in 2016. Similarly, ASEAN's export to India rose to US$ 29.46 billion in 2016. In terms of gainers of RCA, both India's export to ASEAN and ASEAN's export to India grew up to 27 per cent and 22 per cent between 2006 and 2016, respectively. The loosers of RCA registered low growth rate and also low export value between India and ASEAN trade. For example, ASEAN's export to India witnessed negative growth of 8 per cent between 2006 and 2016, whereas, India's export to ASEAN achieved low growth of 6 per cent in the same period. Figure 4.8(a) shows that exports of both ASEAN and India to their respective partner countries revealed comparative advantage in almost 72 to 79 per cent of their respective exports. Compared to 2006, India revealed comparative disadvantage (Loosers of RCA) over 18 per cent of number of products in 2016 (*see* Figure 4.8(b)), which affected about 6 per cent of India's export to

Figure 4.7: RCA Decomposition: India's Export to ASEAN and ASEAN's Export to India



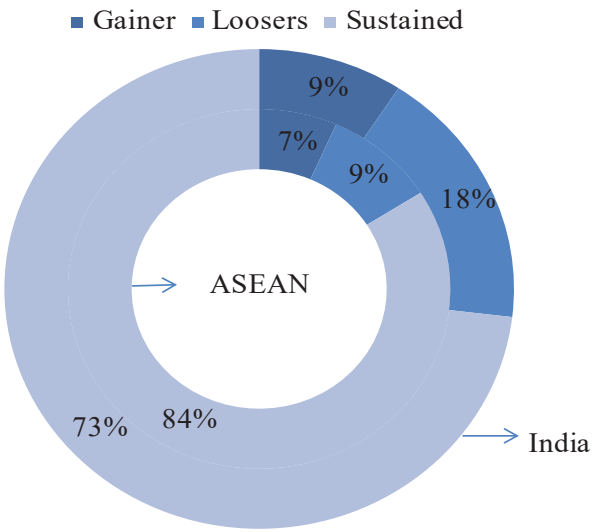
Source: Authors' calcuation based on WITS database.

Figure 4.8(a): Share of RCA Decomposition: Export Value on Total Exports between ASEAN and India



Source: Authors' calculation based on WITS database.

Figure 4.8(b): Share of RCA Decomposition: Number of Products Exported on Total Number of Products Exported between ASEAN and India

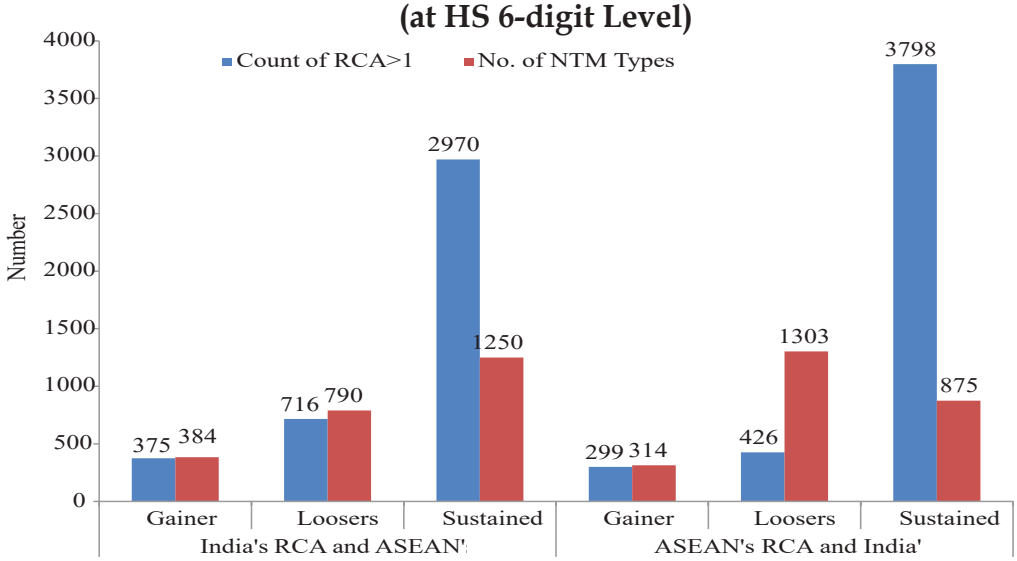


Source: Authors' calculation based on WITS database.

ASEAN in 2016 (*see* Figure 4.8(a)). In the case of ASEAN, about 9 per cent products experienced comparative disadvantage, which had about 3 per cent share of ASEAN's exports to India in 2016. Overall, both ASEAN and India revealed comparative disadvantage in several products, and the impact was much higher in the case of India's RCA.

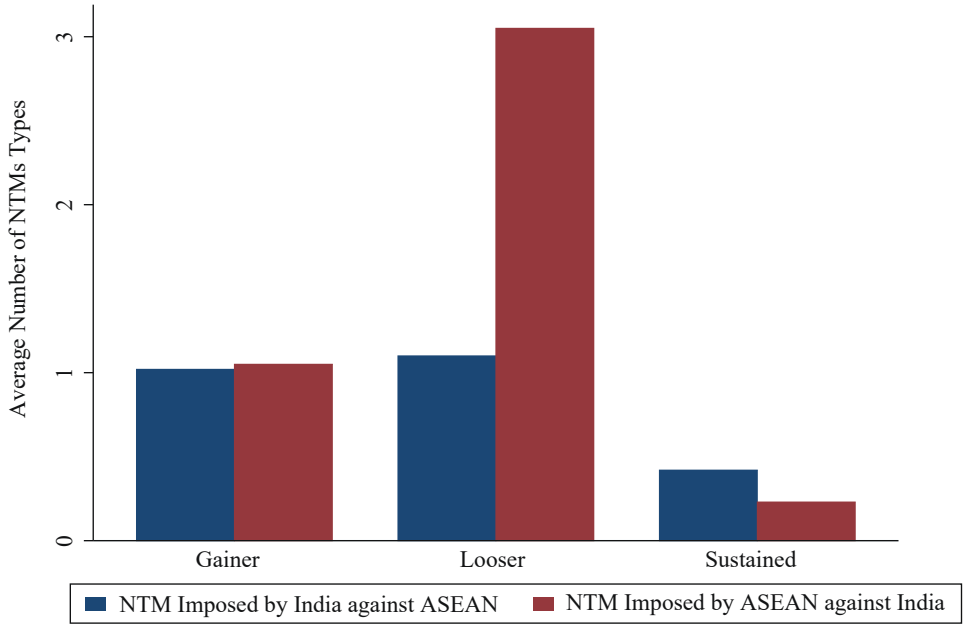
Figure 4.9 presents decomposition of RCAs in terms of number of products and NTM types at HS 6-digit level. It clearly expresses that there is relatively very few types of NTMs imposed at

Figure 4.9: RCA Decomposition: Number of Products and Number of NTM Types (at HS 6-digit Level)



Note: Count of RCA>1 and Number of NTM types are at HS 6 digit level.
Source: Authors' calculation based on WITS and UNCTAD (2017) database.

Figure 4.10: Average Number of NTMs Types on Each Product based on RCA Decomposition



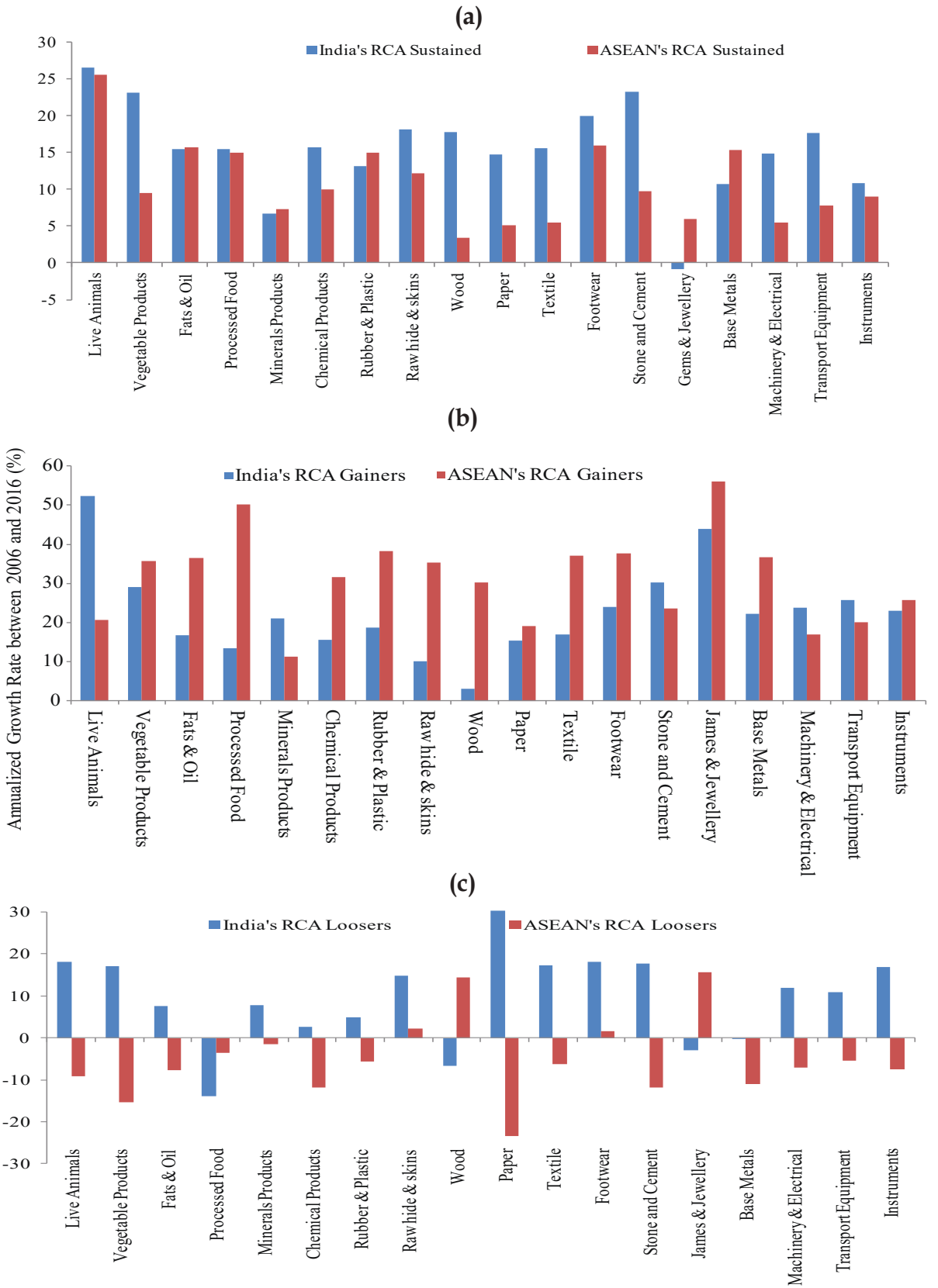
Source: Authors' calculation based on WITS and UNCTAD (2017) database.

the product level in both ASEAN and India for the number of products experiencing sustained RCA. Besides, for the products under sustained RCA, each export of ASEAN and India had faced NTM types of 0.42 and 0.23, respectively (Figure 4.10). In case of gainers of RCA, each export of ASEAN and India faced at least one NTM type (Figure 4.10). Figures 4.9 and 4.11(c) also clearly show that the number of NTM types was higher under loosers of RCA for export of both ASEAN and India. For instance, each export product of ASEAN faced about three NTM types and India's export faced one NTM type, which were imposed against each other. Both Figures 4.9 and 4.10 show the possibility of NTMs affecting export competitiveness of partner countries in those products that led to shift in the export patterns.

Figure 4.11 shows sector-wise annualized growth of India's export to ASEAN and ASEAN's export to India between 2006 and 2016 based on the RCA decomposition. In case of sustained RCA scores in Figure 4.11(a), ASEAN's export to India registered positive growth consistently across the sectors between 2006 and 2016, and India's export to ASEAN experienced positive growth in most of the sectors, except sectors like transport, machinery and electrical equipment, mineral products, where India registered negative growth. In case of gainers of RCA in Figure 4.11(b), both ASEAN and India experienced positive growth in terms of export diversification in some of the sectors. However, India's export to ASEAN grew significantly in the sectors related to export of raw materials or primary export products. On the other hand, ASEAN's export to India escalated considerably in the sectors like processed food, transport equipment, machinery, chemical products and textiles.

Figure 4.11(c) on looser of RCA shows that exports of ASEAN experienced negative growth between 2006 and 2016 in most of the sectors, compared to India's export to ASEAN. It indicates that ASEAN export to India experienced shift in their export patterns owing to comparative disadvantage in most of the products, whereas, in the case of India's exports, the shift in export patterns was visible in processed food, chemical products, rubber and plastic, jewellery products, respectively. Figures 4.12 and 4.13 show that export patterns of both ASEAN and India in

Figure 4.11: RCA Decomposition: Annualised Growth Rate of Exports between 2006 and 2016

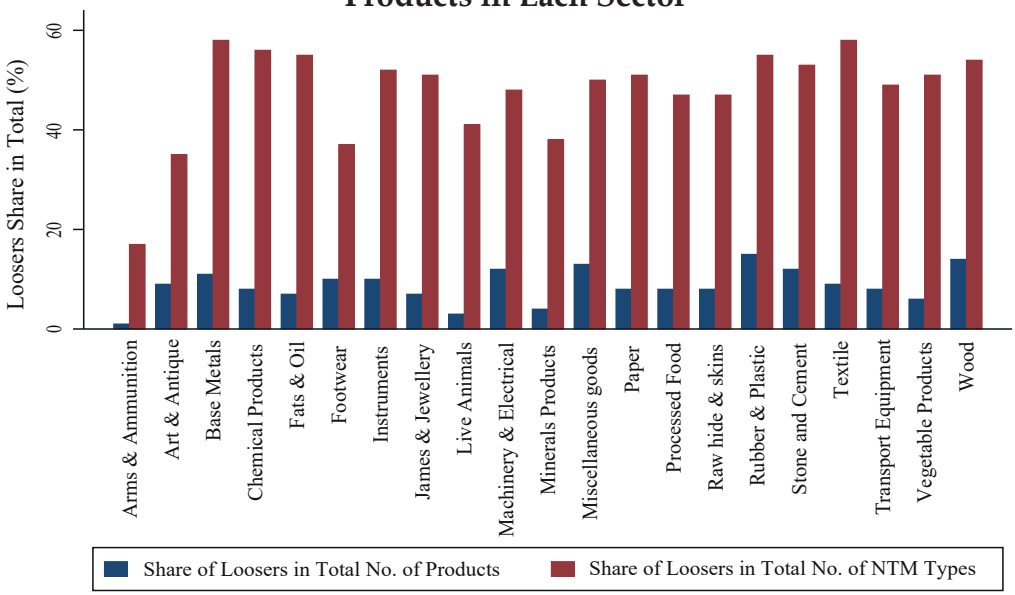


Source: Authors' calculation based on WITS database.

some products were affected owing to the presence of different types of NTMs imposed against each other's export. For instance, almost 50 to 60 per cent of India's different types of NTMs were imposed on imports from ASEAN, covering almost 7 to 15 per cent of number of products (*see* Figure 4.12).

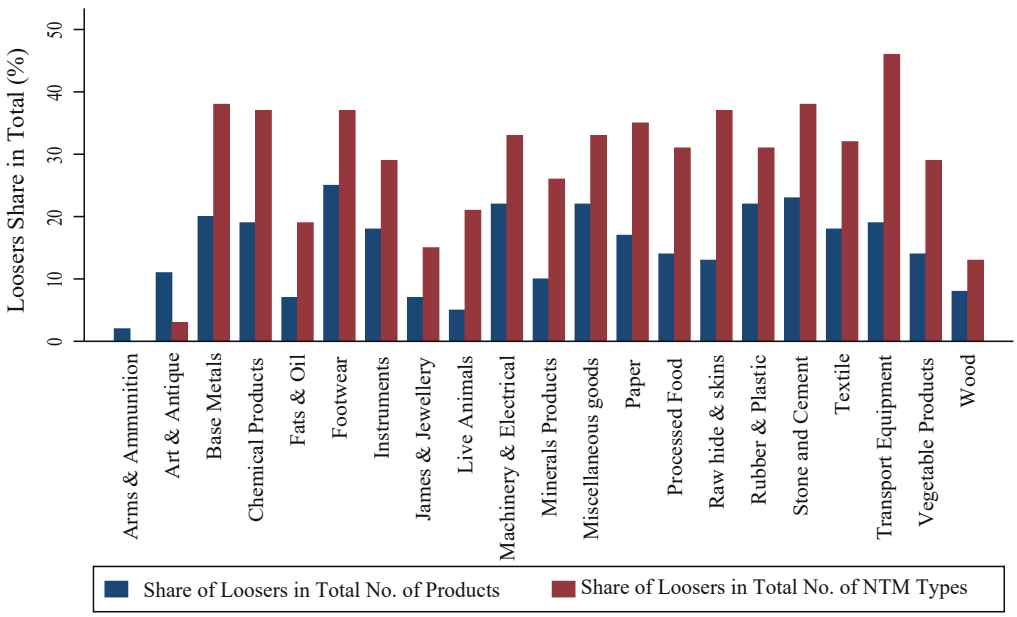
Similarly, ASEAN imposed different types of NTMs against India in the range of 25 to 38 per cent, which covered about 10 to 20 per cent

Figure 4.12: Sector-wise Share of Count of ASEAN's Loosers of RCA and India's Number of NTMs Imposed against ASEAN in Total Number of Products in Each Sector



Source: Authors' calculation based on WITS database.

Figure 4.13: Sector-wise Share of Count of India's Loosers of RCA and ASEAN's Number of NTMs Imposed against India in Total Number of Products in Each Sector



Source: Authors' calculation based on WITS database.

of the number of products exported by India to ASEAN countries (*see* Figure 4.13). However, there was a wide variation in the case of India, where about 40 per cent of the ASEAN's NTMs against India covered about 20 per cent of India's export products in the sectors like transport equipment, machinery and electrical, textiles, chemical products, food processing and base metals. It clearly shows the evidence of NTMs in shifting export patterns between ASEAN and India.

Overall, both ASEAN and India have experienced revealed comparative disadvantage in several products, whereas, the impact was much higher in the case of India's RCA. In terms of impact of NTMs on trade, the number of NTM types was higher for the products which are under loosers of RCA for both ASEAN and India. Thus, exports of ASEAN experienced negative growth between 2006 and 2016 in most of the sectors, and India's export to ASEAN experienced lower growth for most of the sectors. However, the impact of NTMs on ASEAN exports to India was much higher than India's export to ASEAN for the sectors like transport equipment, machinery and electrical, textiles, chemical products, food processing and base metals.

4.6 Conclusions

The major findings of this chapter are as follows.

- Relatively both ASEAN and India impose almost equal number of NTMs against each other. However, in the case of India, TBTs, PCMs and TRMs are imposed on almost all the products, whereas ASEAN imposes several types of NTMs in both technical and non-technical measures.
- About 27.41 per cent of India's export was affected by ASEAN's SPS measures in 2016. A8-Conformity assessment related to SPS, A1-Prohibitions/restrictions of imports for SPS reasons, A2-Tolerance limits for residues and restricted use of substances, A3- Labelling, marking and packaging requirements are the major SPS measures affecting India's export to ASEAN. On the other hand, about 56.28 per cent of India's export was affected by ASEAN's TBT measures in 2016. B8-Conformity assessment related to TBT, B1-Prohibitions/restrictions of imports for objectives set out in the TBT agreement, B3-Labelling, marking and packaging requirements are the share of major TBT measures affecting India's export to ASEAN.
- In terms of non-technical measures, majority of the ASEAN's quantity control measures and price control measures are: E1-Non-automatic import-licensing procedures other than authorizations for SPS or TBT reasons; E2- Quotas, F6-Additional taxes and charges levied in connection to services provided by the government; and F7- Internal taxes and charges levied on imports, respectively.
- India imposed only a few SPS measures on imports from ASEAN, which had affected about 17.12 per cent of ASEAN's export in 2016. A3-Labelling, marking and packaging requirements, A2-Tolerance limits for residues and restricted use of substances,A1- Prohibitions/restrictions of imports for SPS reasons are India's major SPS measures affecting ASEAN exports to India.
- India imposed TBT measures on imports from ASEAN to most of the products. Almost 92 per cent of ASEAN's export to India was affected by such measures in 2016. Major TBT measures are B1-Prohibitions/restrictions of imports for objectives set out in the TBT agreement, B2-Tolerance limits for residues and restricted use of substances, B3-Labelling, marking and packaging requirements, B7-Product-quality or performance requirement, respectively.
- Among the non-technical measures, price control measures and trade- related measures such as F4-Customs surcharges,

F7-Internal taxes and I9-Trade-related investment measures were the major NTMs affecting ASEAN's export to India.

- Barring a few ASEAN countries, both ASEAN and India imposed almost same level of NTMs in products like vegetables, chemical, textiles, machinery and electrical and base metals, respectively.
- Both ASEAN and India experiences revealed comparative disadvantage in several products, whereas, the impact was much higher in case of India's RCA.
- In terms of impact of NTMs on trade, the number of NTM types was higher for the products which were under Loosers of RCA for both ASEAN and India. Thereby, exports of ASEAN experienced negative growth between 2006 and 2016 in most of the sectors, and India's export to ASEAN experienced lower growth for most of the sectors.
- The impact of NTMs on ASEAN exports to India was much higher than India's export to ASEAN for the sectors like transport equipment, machinery and electrical, textiles, chemical products, food processing and base metals.

The above findings suggest that streamlining of NTMs is equally important for facilitating preferential market access between ASEAN and India to promote trade and investment activities. The study also found that the impact of NTMs on a particular product or a group of product was restricting market access specific at the sector/industry level between ASEAN and India. Specifically, given the numbers of national and international standards and technical regulations have grown across the sectors, and there is a need for bilateral and multilateral negotiations by creating and strengthening discipline around the sectoral mutual recognition agreements (MRAs), particularly, in dealing with the SPS and TBT measures. Especially, MRAs would lead to strengthen production networks across borders between ASEAN and India.

Chapter 5

Primary Survey on NTMs between ASEAN and India: Major Findings

5.1 Introduction

Unlike tariff measures, NTMs are complicated and specific to each product category in the importing country. Most often NTMs are less transparent and add to the cost of doing business in the importing country and also in the exporting country. Despite trade liberalisations through several bilateral, regional and multilateral trade agreements, the complexities as well as applications of NTMs are increasing over time (*see* Figures 3.3 and 3.4 in Chapter 3). Exporters often consider NTMs as barriers to trade since compliance to standards makes additional cost and time to export, which also affect negatively competitiveness of the products traded. For instance, before exporting, a firm requires to fulfil confirmatory assessment of its sample product by sending it to the testing laboratory, and it is also imperative for it to inspect their products prior to shipment. These procedures sometimes involve both cost and time factors in addition to procedural obstacles related to NTMs, such as cumbersome documentation requirements or lack of available information, etc. Therefore, understanding the impact of NTMs on exporting and importing firms is very important to promote trade among countries. In particular, it is essential to look at firms' perspective on the NTMs to identify and define the strategies that can address as well as overcome impediments to trade. Firms dealing with exports and imports have to deal with NTMs on a daily basis, and they also face several challenges and problems pertaining to specific NTMs. Therefore, understanding firms' concern and difficulties would help the government and other stakeholders to take necessary policy measures to reduce the size of the impact of NTMs on the trade. With this background, this chapter attempts to understand firms' perspectives and experiences on NTMs that are hindering trade between India and ASEAN based on the primary survey data.

5.2 Primary Data Collection and Sample Method

5.2.1 Questionnaire Design

This study designed a fairly detailed questionnaire to capture all possible issues related to NTMs in both ASEAN and India. The questionnaire was designed for four targeted respondents— (i) traders/companies, (ii) trade association/business chamber, (iii) government institution/regulatory authority and (iv) academic/research institution/think tank. The questionnaire was broadly classified into four sections. Section 1 covered general information about the respondents, Section 2 focused on awareness and perception on NTM- related issues, Section 3 included awareness regarding FTAs and trade facilitation measures related

issues, and Section 4 focused on NTM specific questions and regarding procedural obstacles. The questionnaire in Section 1 and Section 2 were common for all respondents, while Section 3 and Section 4 were intended for export and import firms to respond to the FTA and NTMs related issues. Section 3 included questions related to the involvement of the exporters and the importers on the utilization of bilateral and multilateral FTAs and regarding their challenges and benefits on the trade. Section 4 gave special focus on SPS and TBT specific questions pertaining to sub- classification of SPS and TBT related issues, standard and technical regulations, impact of SPS and TBT on the cost and time to trade, procedural obstacles, barriers and suggestions to ease NTM associated problems and to improve economic relations between ASEAN and India in future. Sample questionnaire is attached as Appendix 1.

5.2.2 Data Collection

In this study, an online survey based data collection approach was adopted[26]. The study followed two different modes to collect the survey data—First, request e-mails were sent to industry associations such as CII, FICCI and other institutions to forward online questionnaire to the respective members of the associations. Second, we used the database of firms[27], trade experts and associations through different internet sources and requested them to respond to the questions. One of the drawbacks of an online survey has been that responses were dependent upon the willingness of the respondents to volunteer for the survey, and led to low response rate. To increase the response rate of the survey, reminders were sent to the non-respondents every alternate day. The online survey was conducted during August, 2017 to January, 2018.

5.2.3 Methodology

To carry out the analysis on the primary survey, the study used descriptive statistics, frequency and distribution tables and distribution charts. Further, to check the consistency of the primary survey data, reliability analysis was conducted by employing the Coefficient Alpha statistical technique. The study employed statistical tests to check normality and homogeneity of variances in the data. For this, Shapiro Francia (W' test) test to check whether the data follows a normal distribution or not and Levene's test to check the homogeneity of variances were followed. The details of the diagnostic tests are in Appendix 2.

5.3 Profile of the Respondents

The total sample size for the survey was 239, out of which 141 respondents (60 per cent) in the sample were of export and import firms, followed by 44 academia/research institutions/

Table 5.1: List of Respondents

Total Respondents	Total	Share* (%)
Business – Export / Import Firm	141	59
Trade Association/ Business Chamber	12	5.02
Government Institution/ Regulatory Authority	29	12.13
Academic/Research Institutions/Think-Tank	44	18.41
Consultancy	13	5.44
Total	239	100

Note: *Share of the total respondents. Kruskal-Wallis one-way analysis of variances by ranks test (probability=0.0116) showed statistically significant difference among the six different groups of firm profile.
Source: Survey Data.

Table 5.2: Basic Profile of the Respondents

(%)

	Export and Import Firms	Other Respondents#	Total
Age			
Up to 20	0.00	1.02	0.42
21 to 30	17.73	9.18	14.23
31 to 40	33.33	24.49	29.71
41 to 50	29.08	27.55	28.45
51 and above	19.86	37.76	27.20
Total	100	100	100
Gender			
Male	92.75	64.52	81.39
Female	7.25	35.48	18.61
Education			
UG	31.65	8.16	21.94
PG	66.91	55.10	62.03
PhD	1.44	36.73	16.03
Total	100	100	100
Years of Experience			
Up to 5	19.15	10.42	15.61
6 to 10	19.15	12.50	16.46
11 to 15	21.28	16.67	19.41
16 to 20	12.77	16.67	14.35
21 to 25	14.89	11.46	13.50
26 and above	12.77	32.29	20.68
Total	100	100	100
Languages Known			
English	4.29	20.83	11.02
Hindi	64.29	26.04	48.73
ASEAN Languages	2.86	31.25	14.41
Other Languages than Hindi[$]	24.29	13.54	19.92
Other Foreign Languages[$$]	4.29	8.33	5.93
Total	100	100	100

Notes: #Other Respondents included Trade Association/ Business Chamber, Government Institution/ Regulatory Authority, Academia/Research Institutions/Think-Tanks and consultancy firms. $Other Languages than Hindi included Assamese, Bengali, Gujarati, Kannada, Marathi, Punjabi, Odiya, Telegu, Malayalam and Tamil. $$Other Foreign Languages included Arabic, French, Portuguese, Japanese, Nepalese, Sinhalese, Polish. 2. Shapiro–Francia test for normality demonstrates that age [(W'= 0.997) (P-value = 0.884)], education [(W'= 0.99993) (P-value = 1.00000)] and years of experience [(W'= 0.99143) (P-value = 0.15877)] are normally distributed and gender [(W'=1.000) (P-value = 0.00001)] and languages known [(W'=0.972) (P-value =0.00034)] are not normally distributed. 3. Levene's test shows homogeneity of variance for age, education and years of experience and unequal variances for gender and languages known.

Source: Survey Data.

Table 5.3: Location of Firms

	Export and Import Firms	Share (%)
A. India	108	96.43
Northern Region: Delhi, Haryana, Rajasthan, Punjab, Chandigarh (UT), Uttar Pradesh, Madhya Pradesh and Chhattisgarh	17	15.18
Southern Region: Tamil Nadu, Kerala, Andhra Pradesh, Karnataka and Puducherry (UT)	24	21.43
East and North-Eastern Region: West Bengal, Odisha and Assam	12	10.71
West Region: Maharashtra, Goa and Gujarat	55	49.11
B. Other Countries	4	3.57
Total	112	100

Note: Other countries include Dubai and Nepal; 2.Shapiro–Francia test for normality [(W'=0.96) (P-value =0.00)] demonstrates that firm location is not normally distributed.
Source: Survey Data.

think- tanks (accounting for 18.4 per cent of the sample) and the rest consisted of government institutions/regulatory authorities (12.13 per cent), trade associations (5 per cent) and other consultancy services (5.4 per cent), respectively (*see* Table 5.1).

Table 5.2 shows basic profile of the respondents such as age, gender, education, years of experience and languages known. Out of total 239 respondents, 30 per cent of each set of respondents were in the age group of 31-40, 41-50 and 51 and above, respectively. Among the respondents, most of the respondents were male (about 81 per cent). In terms of education, 21.94 per cent of the respondents were under-graduate, 62.03 per cent were post-graduate and 16.03 per cent were PhD. In terms of years of experience, about 20.68 per cent had 26 and above years of experience. Almost 50 per cent of respondents knew Hindi language, followed by English (11.02 per cent), some ASEAN languages (14.41 per cent), and other languages (19.92 per cent), respectively.

Majority of the respondents (96.43 per cent) from both the export and import firms were from India and the rest were from other countries (3.57 per cent) (*see* Table 5.3). Within India, the respondents of export and import firms were mostly from the western region (Maharashtra, Goa and Gujarat) and southern region (Andhra Pradesh, Telengana, Tamil Nadu, Kerala and Karnataka).

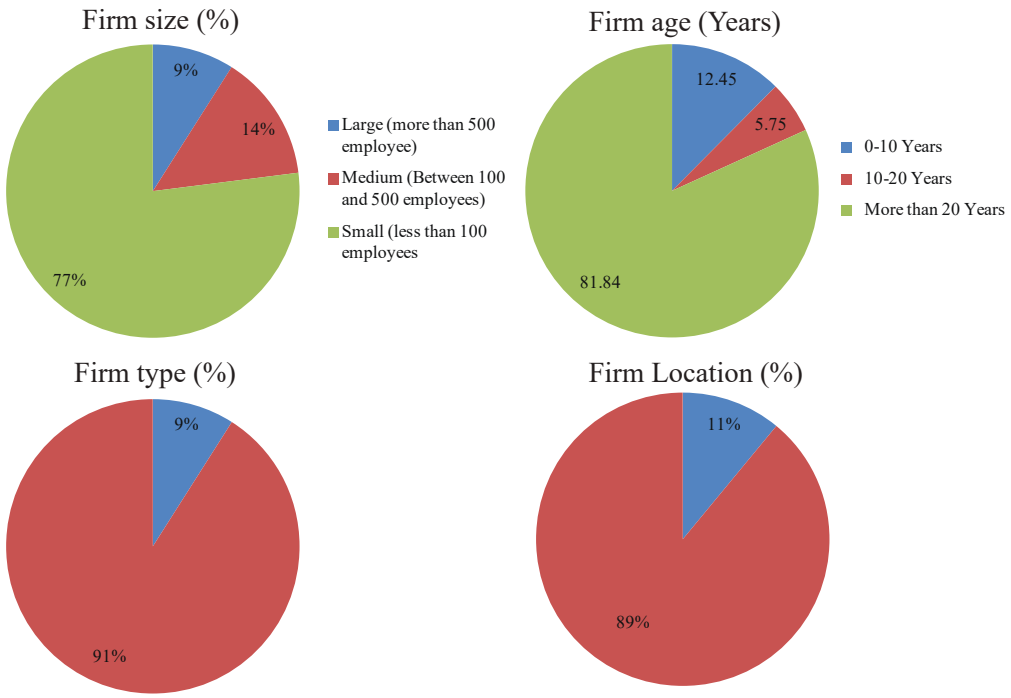
Table 5.4 shows years of experience of firms in exporting or importing business. Majority of the firms had 46.61 per cent years of experience in trade.

Table 5.4: Years of Experience of Firms in Trade

	Export and Import Firms	Share (%)
Up to 5 years	55	46.61
6 to 10	27	22.88
11 to 20	20	16.95
21 and above	16	13.56
Total	118	100

Note: Shapiro–Francia test for normality [(W'=0.99044) (P-value =0.50149)] demonstrates that year of experience of firms in exporting and importing is normally distributed.
Source: Survey Data.

Figure 5.1: Profile of Firms



Source: Survey Data.

Figure 5.1 presents the distribution of export and import firms' basic profile (firm size, firm age, firm type and firm location). About 77 per cent of the export and import firms were small size (less than 100 employees), and the rest 23 per cent of the firms were of medium size and large size. Similarly, 91 per cent of the export and import firms were domestic firms and the rest (9 per cent) were foreign firms. Nearly, 89 per cent of the firms' headquarters were in India and rest were in other countries. Majority of the firms were in operation for more than 20 years (81.84 per cent).

Current Status of Trading Patterns of Exporting and Importing Firms

To know the trading partners of the respondents of export and import firms, we asked the respondents to list out their multiple trading partners across the countries. Table 5.5 shows the share of export and import firm's trading destinations reported during the survey. Interestingly, ASEAN is the major partners reported by the firms, of which 71.13 percent of the firms exporting to ASEAN and 80.43 per cent of the firms importing from ASEAN. The major exporting partners among the ASEAN countries are Malaysia (13.39 per cent), Singapore (13.81 per cent), Thailand (11.30 per cent) and Vietnam (10.04 per cent), respectively. In the case of major importing partners, Indonesia (19.57 per cent), Thailand (17.39 per cent) and Vietnam (10.87 per cent) are reported by the respondents of export and import firms. Apart from ASEAN countries, the respondents reported that Africa, Central Asia and South Asia are the other major trading partners for both export and import destination. Table 5.5 clearly shows that most of the respondents of export and import firms choose ASEAN countries as the major trading destinations, compared to rest of the world.

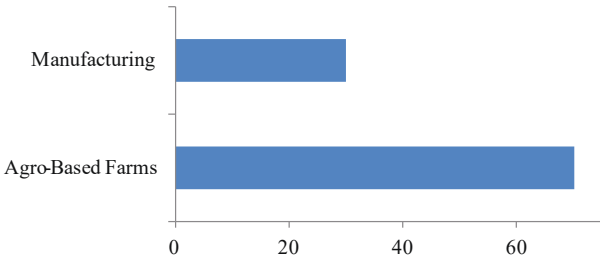
In terms of activities, almost 70 per cent of the respondents reported their involvement in the agro-based industries, and the remaining 30 per cent were engaged in manufacturing activities such as pharmaceuticals, telecommunications, electrical equipments, etc (*see* Figure 5.2)

Table 5.5: Share of Indian Firms Trading in Multiple Export and Import Destinations

Export/Import Destinations	Export Destination Share (%)	Import Destination Share (%)
ASEAN	71.13	80.43
Brunei	2.51	0.00
Cambodia	2.09	0.00
Indonesia	6.69	19.57
Lao PDR	0.00	0.00
Malaysia	13.39	21.74
Myanmar	4.18	4.35
Philippines	7.11	0.00
Singapore	13.81	6.52
Thailand	11.30	17.39
Vietnam	10.04	10.87
African countries	5.86	8.70
South Asian countries	3.77	2.17
Central Asian countries	9.62	4.35
Other export destinations	9.62	4.35
Total	100	100.00

Note: Other Export Destinations included Australia, Canada, Hong Kong, Latin America and West Indies
Source: Survey Data.

Figure 5.2: Broad Areas of Industrial Activities of Trading Firms (%)



Notes: Agro-based firms included foods, processed agricultural and marine products. Manufacturing industries included apparels and textile, timber and wood products, rubber and plastic, iron and steel, nonferrous metals and products, fabricated metal products, general machinery (including metal moulds and machine tools), electric and electronic parts and components, automobile and auto components, telecommunications and pharmaceuticals.
Source: Survey Data.

Respondents were asked to choose countries as potential markets for the next 10 years in the order of one to three (*see* Table 5.6). They were more optimistic and expressed their perception for ASEAN as the potential market for the next 10 years, consecutively in all the three choices. Table 5.7 presents 25 to 33 per cent of the respondents consistently reporting ASEAN. They identified Singapore, Malaysia, Thailand, Indonesia and Vietnam as the potential markets. The respondents also reported Europe, USA, Japan and South Asian countries as the other potential markets for the next 10 years. Table 5.6 clearly shows significance of Indian firms to have a trade relationship with ASEAN countries and their future potential.

4.3 Firms' Perception on Market Performance and Potential Markets

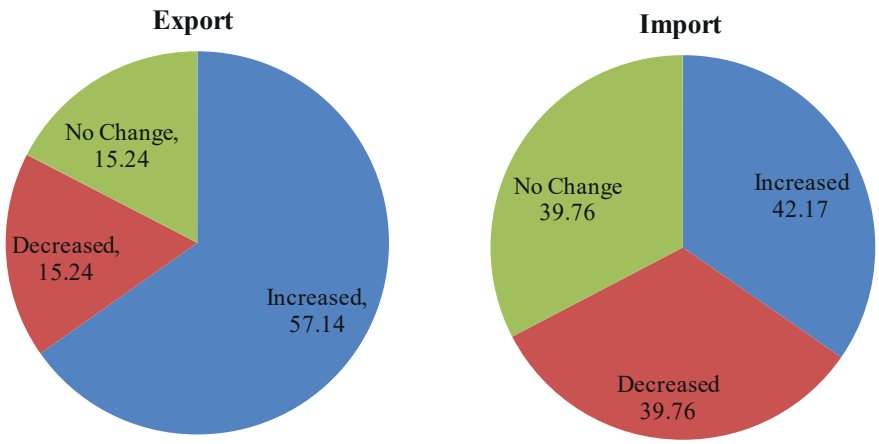
Respondents of export and import firms experienced a rise in trade performance during the last 3 years (*see* Figure 5.3). About 57.14 per cent of the firms reported rise in their exports. On the other, about 42.17 per cent of the firms had a rise in their imports.

Table 5.6: Potential Markets for Next 10 Years (2018 – 2028)

	Export and Import Firms	Share (%)	Export and Import Firms	Share (%)	Export and Import Firms	Share (%)
	First Choice		Second Choice		Third Choice	
Europe	28	27.18	21	21.43	11	15.07
ASEAN	26	25.24	33	33.67	25	34.25
USA	19	18.45	14	14.29	5	6.85
Other South Asian Countries (excluding India)	7	6.80	11	11.22	11	15.07
Japan	6	5.83	8	8.16	6	8.22
India	4	3.88	2	2.04	0	0.00
Australia	3	2.91	3	3.06	10	13.7
South Korea	2	1.94	3	3.06	1	1.37
Total	103	100	98	100	73	100

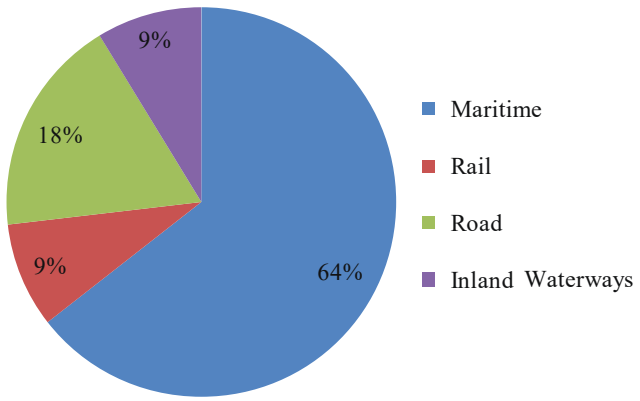
Note: Shapiro–Francia test for normality demonstrates that second choice [(W′= 0.98098) (P-value =0.14680)] is normally distributed and first [(W′=0.97454) (P-value =0.04343)] and third [(W′= 1.942) (P-value =0.09927)] choices are not normally distributed.
Source: Survey Data.

Figure 5.3: Firms' Overall Export and Import Performance with Partner Countries during Last Three Years (%)



Source: Survey Data.

Figure 5.4: Mode of Transportation in Export and Import (%)



Source: Survey Data.

About 64 per cent of firms chose maritime as the mode of transportation for the trading purpose and the remaining 36 per cent use other mentioned modes of transportation (*see* Figure 5.4). This clearly shows maritime is the principal mode of transportation.

5.4 Experiences with NTMs

Tariff and quota restrictions were some of the major obstacles to trade prior to the introduction of WTO and tariff liberalisation through MFN arrangement among the WTO member countries. However, the market access to trade was not easy due to other measures of non-tariff barriers, which had grown substantially in post-WTO[28]. Imposing NTBs could be justified to protect health, security, environment, and consumers. At the same time, it could also have adverse effects on trade and increase cost of doing business. There are over a dozen types of NTMs applied to tradable goods, which include sanitary and phytosanitary measures (SPS), technical barriers to trade (TBT), tariff rate quotas (TRQs), anti-competitive measures, import or export licenses, export restrictions, customs surcharges, financial measures, and anti-dumping measures and so on. Countries have gained market access only through compliance with trade regulatory measures that are beyond the realm of traditional trade policies.

In this context, we had asked export and import firms about the relative difference of market access in export to India and market access in export to ASEAN, compared to other countries (*see* Table 5.7). The respondents were asked to scale their choices for the relative market access from the much more difficulties to much less difficult. Table 5.7 shows that almost 50 per cent of the respondents reported difficulty in market access to both India and ASEAN countries, compared to other countries. About 23 per cent of the respondents declared that market access to ASEAN was somewhat less difficult, compared to other countries, and only14 per cent reported that market access in exports to India was less difficult compared to others. This shows that market access to both India and ASEAN experience difficulties in trading. The purpose of this Survey was to specifically focus on the impact of NTMs on the market access to both India and ASEAN and trade relationship.

In this Survey, almost 57 per cent of the firms experienced NTM-related issues in food processing agricultural and marine products (*see* Table 5.8(a)), followed by 14 per cent and 8 per cent in pharmaceutical and apparels industries, respectively.

Table 5.7: Market Access in Export to India and ASEAN, Compared to Other Countries

Category	Market Access in Export to India, Compared to Exporting to Other Countries	Market Access in Export to ASEAN, Compared to Exporting to Other Countries
	Export and Import Firm's Share (%)	Export and Import Firm's Share (%)
Much more difficult	17.39	12.37
Somewhat more difficult	15.22	12.37
Equally difficult	11.96	25.77
Somewhat less difficult	8.70	22.68
Much less difficult	6.52	5.15
Don't know	40.22	21.65
Total	100.00	100.00

Source: Survey Data.

Table 5.8(a): Industry-wise Firms Experience of NTM-related Issues (%)

Product Description	Share (%)
Foods, processed agricultural or marine products	56.92
Apparels and textile products	7.69
Pharmaceuticals	13.85
Other Products	7.69
NA or not using NTMs or exporting to ASEAN	13.85
Total	100

Note: Shapiro–Francia test for normality [(W'= 0.98513) (P-value = 0.53635)] demonstrates that firm's experience of NTM-related issues is normally distributed.
Source: Survey Data.

Table 5.8(b): Firms' Experience of NTM Related Issues in Importing Country (%)

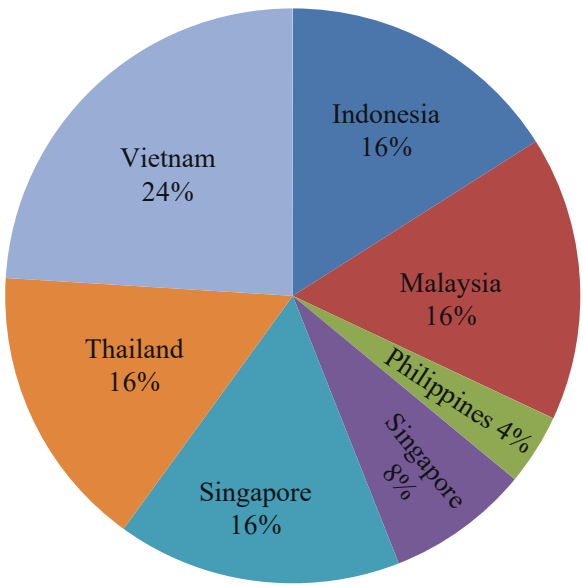
Country / Region	Share (%)
ASEAN (Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam)	34
China	6
Japan	4
South Korea	2
Europe	14
Australia	4
Other South Asian Countries (excluding India)	12
Middle East	4
India	10
NA	10
Total	100

Note: Shapiro–Francia test for normality [(W'= [(W'= 0.98513) (P-value = 0.53635)]) (P-value = 0.36969)] demonstrates that firm's experience of NTM-related issues in importing country is normally distributed.
Source: Survey Data.

Similarly, firms' experience of NTM-related issues in importing countries showed that about 34 per cent of the exporting and importing firms experienced NTM-related issues in ASEAN (Indonesia, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) countries and the remaining 66 per cent experienced NTM-related issues in Europe, China, Japan, Australia, Middle East, South Korea and other South Asian countries (*see* Table 5.8(b)). Among ASEAN countries, about 24 per cent of the Indian firms experienced NTM-related issues in Vietnam, followed by Indonesia (16 per cent), Malaysia (16 per cent), Thailand (16 per cent) and Singapore (16 per cent) and Myanmar (4 per cent), respectively (*see* Figure 5.5).

To know the perception of firms on different types of NTMs, we had asked the respondents to scale their choices on different types of NTMs from very difficult to very easy. Table 5.9 shows firms' perception of different types of NTMs. About 53 per cent firms found difficulties for SPS reasons and 41 per cent experienced difficulties for TBT reasons. Other than technical regulations, the firms experienced difficulties in non-technical regulations, such as financial measures (50 per cent), government assistance issues (41 per cent), border procedures (40 per

Figure 5.5: Distribution of Firms Experience of NTM Related Issues in ASEAN Countries



Source: Survey Data.

Table 5.9: Firms Perception of Different Types of NTMs

(%)

Category	Very Difficult	Difficult	Neutral	Easy	Very Easy	Not Applicable/ Don't Know	Total
Standards and technical regulations for Sanitary and Phytosanitary Measures (SPS)	18.75	35.94	12.5	7.81	3.13	21.88	100
Standards and technical regulations for Technical Barriers to Trade (TBT)	14.06	26.56	21.88	7.81	3.13	26.56	100
Border procedures (e.g., customs procedures, pre-shipment inspection and other formalities)	11.11	28.57	26.98	15.87	-	17.46	100
Price control measures (e.g., anti-dumping measures, countervailing measures)	6.35	22.22	28.57	15.87	-	26.98	100
Quantity control measures (e.g., quotas, prohibitions)	-	25.42	30.51	18.64	3.39	22.03	100
Distribution channels (e.g., seaport and airport regulations, secondary dealers)	3.17	23.81	30.16	14.29	4.76	23.81	100
Intellectual property rights (e.g., copyright, trademark, patents)	1.59	17.46	30.16	17.46	1.59	31.75	100
Government assistance issues (e.g., subsidies, export refunds)	16.39	24.59	26.23	8.2		24.59	100
Public procurement issues (e.g., legal framework, contract conditions)	8.33	21.67	28.33	11.67	3.33	26.67	100
Financial measures (e.g., advance payments, multiple exchange rates)	20.97	30.65	20.97	8.06	1.61	17.74	100
Para-tariff measures (e.g., customs surcharge, additional charges, internal taxes and charges on imports)	15.63	28.13	20.31	7.81	6.25	21.88	100
Other non-tariff measures	11.48	16.39	21.31	9.84		40.98	100

Notes: 1. Cronbach's Coefficient Alpha reliability test (alpha=0.9393) indicates high level of internal consistency among the factors determining firm's perception of different types of NTMs. 2. Kruskal-Wallis one-way analysis of variances by ranks test shows statistically significant difference between the firms perception of different types of NTMs.
Source: Survey Data.

cent), public procurement issues (29 per cent), price control measures (27 per cent), distribution channels (27 per cent), quantity control measures (25 per cent) and intellectual property rights (19 per cent), respectively. Only 15 per cent of the firms did not find difficulties with different types of NTMs. Overall, as Table 5.11 suggests, about 50 per cent of the firms were either neutral about different NTMs or had no knowledge about them. While, among the remaining 50 per cent of the respondents, 36 per cent found difficulties with NTMs and 14 per cent did not find difficulties with NTMs.

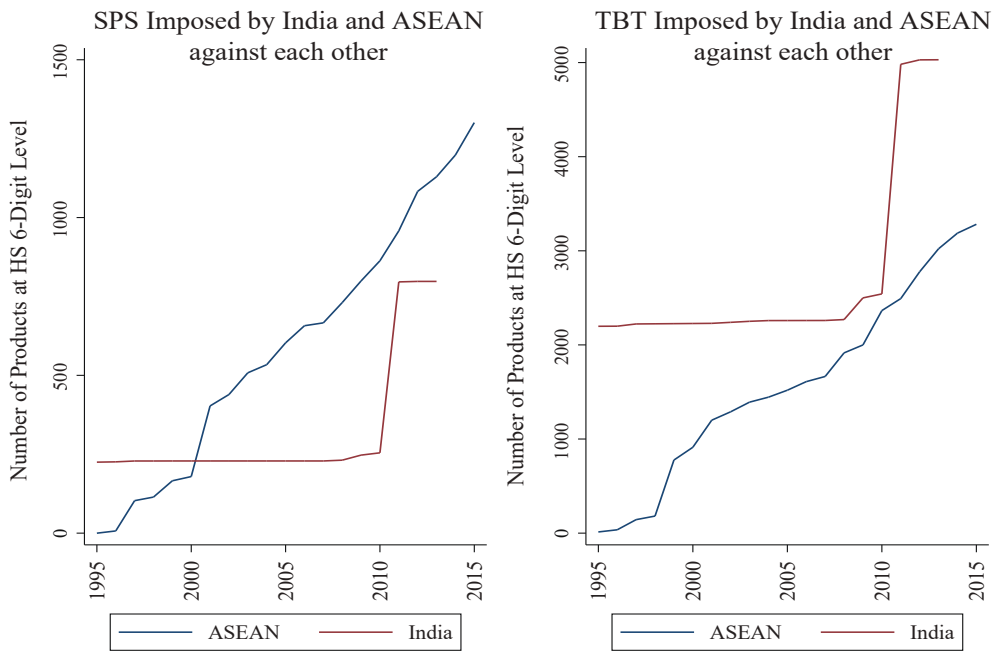
5.5 Experience and Perception on SPS and TBT Measures

The most common form of NTMs are SPS and TBT, which have consequences to trade because exporters seeking market access for their products have to have compliance with the requirements imposed by several regulatory agencies. Lack of essential knowledge in fulfilling compliance and the cost of compliance are major impediments for trade, if different standards are to be maintained between countries such as lack of transparency, complex regulatory measures, discrimination among country's trading partners, protecting domestic industries, etc. The rise in significance in technical measures such as SPS and TBT have grown over period (*see* Figure 5.6).

Figure 5.6 shows the average number of SPS and TBT measures imposed by ASEAN and India against each other over time. The trend depicted that the cumulative number of products affected by SPS, imposed by ASEAN countries, were higher than SPS imposed by India. Moreover, the figure also shows that the number of SPS measures imposed by ASEAN witnessed an increasing trend from 2000 onwards and continued to 2015. On the other hand, average number of SPS measures imposed by India against ASEAN remained stable till 2010, and the trend increased to around 800 numbers of products at HS 6-digit level. Figure 5.6 also depicts that the imposition of TBT by India was higher than the TBT imposed by ASEAN countries since 1995. In addition, the trend shows that the number of TBTs imposed by India against ASEAN experienced a sharp rise since 2010. However, Figure 5.6 also shows that the imposition of TBT by both ASEAN and India showed an increasing trend 1999 onwards.

Given the increasing trend of both SPS and TBT, the primary survey raised several pertinent questions to the respondents focusing on SPS and TBT measures and their hindrance to trade. The broad classification of NTM and its sub-classification especially for SPS and TBT is given in details in Chapter 2. The questionnaires on the perception of different types of NTMs were asked to the respondents about their experiences with types of NTMs and SPS and

Figure 5.6: Trend of Average Number of SPS and TBT Imposed by ASEAN against India and India against ASEAN (at HS 6-digit Level)



Source: Authors' calculation based on UNCTAD (2017) database.

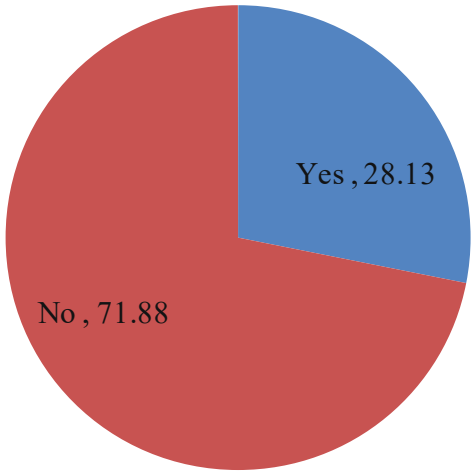
TBT in particular. Besides, the respondents were asked questions on difficulties and challenges in handling SPS and TBT related issues, such as experiences in executing standard and technical regulations pertaining to SPS and TBT, for example, confirmatory assessment on meeting certification, quarantine, licensing, marketing, labelling requirements, etc.

5.5.1 Experiences with SPS

In the survey, about 28 per cent of the Indian firms responded that they experienced SPS-related issues in the importing countries, especially in ASEAN (Figure 5.7). The respondents were also asked to share their perception on different types of SPS in terms of

Figure 5.7: Exporters' Experience in SPS-related Issues in Importing Country

(%)



Source: Survey Data.

Table 5.10: Experience of Export and Import Firms in Different Types of SPS

(%)

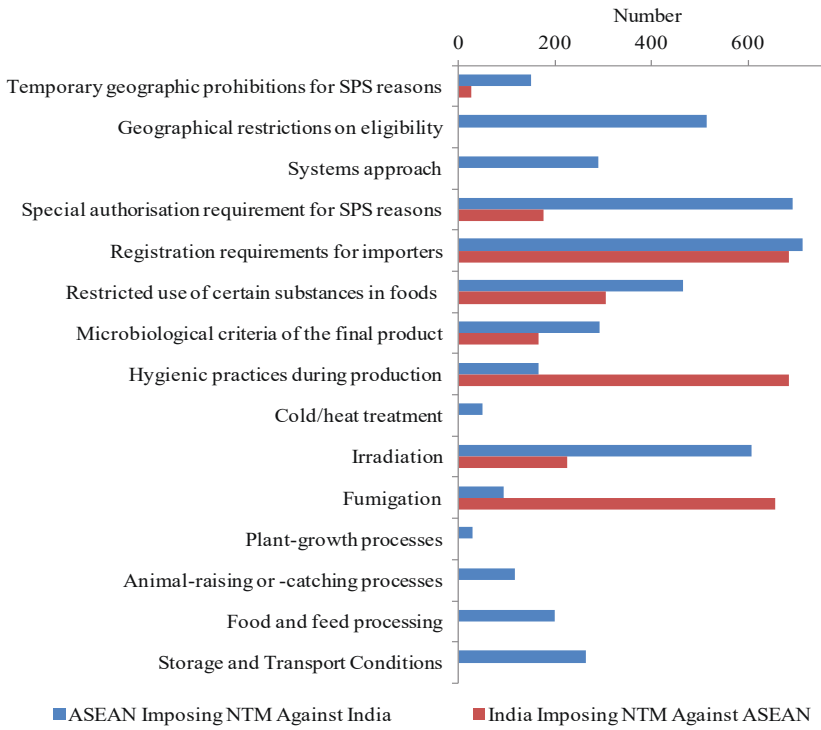
Category	Very Difficult	Difficult	Neutral	Easy	Very Easy	Not Applicable/ Don't Know	Total
Temporary geographic prohibitions for SPS reasons	13.33	40	40	6.67			100
Geographical restrictions on eligibility	6.25	50	31.25	6.25		6.25	100
Systems approach	6.67	60	33.33				100
Special authorization requirement for SPS reasons	14.29	57.14	28.57				100
Registration requirements for importers	18.75	50	6.25	18.75		6.25	100
Restricted use of certain substances in foods and feeds and their contact	31.25	37.5	12.5		6.25	12.5	100
Microbiological criteria of the final product	42.86	14.29	35.71		7.14		100
Hygienic practices during production	7.14	50	28.57		7.14	7.14	100
Cold/heat treatment	14.29	42.86	28.57		7.14	7.14	100
Irradiation	20	33.33	26.67		6.67	13.33	100
Fumigation	25	25	18.75	12.5	6.25	12.5	100
Plant-growth processes	12.5	37.5	18.75	6.25	12.5	12.5	100
Animal-raising or -catching processes	7.14	35.71	7.14	7.14	7.14	35.71	100
Food and feed processing	12.5	37.5	6.25	18.75	6.25	18.75	100
Storage and transport conditions	23.08	23.08	23.08	15.38	7.69	7.69	100

Notes: 1. Cronbach's Coefficient Alpha reliability test (alpha=0.848) indicates high level internal consistency among the factors that shows experience of exporter and importer firms in different types of SPS. 2. Kruskal-Wallis one-way analysis of variances by ranks test shows statistically significant difference for the exporter and importer firms in different types of SPS.

a five-point scale of very difficult to very easy (Table 5.10). Almost 50 to 70 per cent of them reported difficulties in most of the SPS types, such as temporary geographic prohibitions for SPS reasons, geographical restrictions on eligibility, systems approach, special authorisation requirement for SPS reasons, registration requirements for importers, restricted use of certain substances in foods and feeds and their contact, microbiological criteria of the final product, hygienic practices during production, cold/heat treatment, irradiation, fumigation, plant-growth processes, and food and feed processing. About 20 to 30 per cent of the respondents were neutral in terms of different types of SPS, and only 7 per cent found different types of SPS as very easy. Table 5.10 suggests that the SPS requirements acted as an obstacle to trade. This shows that Indian firms are experiencing serious difficulties in meeting SPS requirements. Since, most of the sample size consists of SMEs, this Survey has indicated that they need proper support and assistance from the government to facilitate compliance with SPS imposed by partner countries. Because, both medium- and small- sized firms faced difficulties in complying with the stringent requirements from the partner countries.

For instance, Indian firms faced several SPS requirements imposed by ASEAN countries, compared to India, which had been imposing SPS on imports from ASEAN. Figure 5.8 shows the average number of SPS-sub classification imposed by ASEAN and India against each other at HS 6-digit product level. Figure 5.8 clearly shows that ASEAN is imposing several SPS measures on imports from India, compared to India imposing on ASEAN. The major SPS measures from the ASEAN countries were temporary geographic prohibitions for SPS reasons, geographical restrictions, special authorisation requirement for SPS reasons, irradiation, food and feed processing, and storage and transport conditions. Both ASEAN and India almost equally imposed registration requirement for importers, which were general

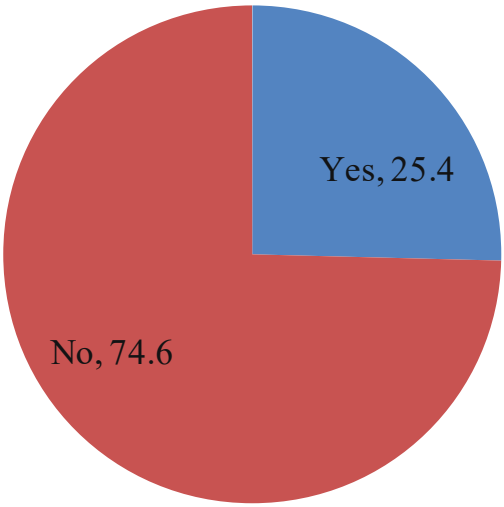
Figure 5.8: Average Number of Some of the SPS Measures Imposed by ASEAN and India against Each Other (at HS 6-digit Level)



Source: Authors' calculation based on UNCTAD (2017) database.

regulations common for all HS codes. Some of the SPS measures, such as hygienic practices during production and fumigation were where India imposed relatively higher against ASEAN countries. This also shows that on an average, some of the products faced more than one SPS measure imposed by both ASEAN and India.

Figure 5.9: Exporters Experience in TBT-related Issues in Importing Country (%)

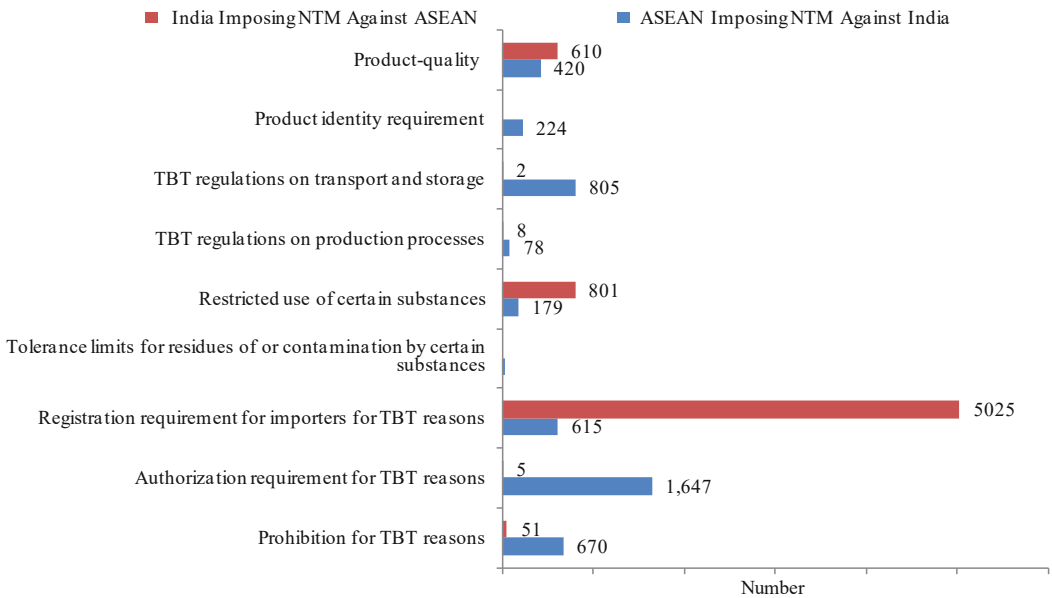


Source: Survey Data.

5.5.2 Experiences with TBT

In the Survey, about 25 per cent of respondents declared that they experienced TBT-related issues in importing country, while the rest of the 75 per cent said that they did not experience TBT-related issues in importing country (Figure 5.9). In addition, the respondents were asked to scale different types of TBT requirements from very difficult to very easy. Table 5.11 shows the experience of the export and import firms in different types of TBT. About 60 per cent of the firms found most difficulties in trade owing to authorization requirement for TBT reasons. In addition, more than 50 per cent of the respondents pointed out that TBT requirements such as tolerance limits for residues of or contamination by certain substances, registration requirement for importers, product identity requirement, regulations on production processes etc. created difficulties in trade. Similarly, only 19 per cent of the firms, on an average, did not find difficulties with TBT-related requirements. On an average, about 15 per cent of the firms had neutral perception about TBT requirements. And about

Figure 5.10: Average Number of Some of the TBT Measures Imposed by India and ASEAN against Each Other (at HS 6-digit Level)



Source: Authors' calculation based on UNCTAD (2017) database.

Table 5.11: Experience of Export and Import Firms in Different Types of TBT

(%)

Particulars	Very Difficult	Difficult	Neutral	Easy	Very Easy	Not Applicable/ Don't Know	Total
Prohibition for TBT reasons	30	20	20			30	100
Authorization requirement for TBT reasons	30	30	20			20	100
Registration requirement for importers for TBT reasons	36.36	27.27	9.09			27.27	100
Tolerance limits for residues of or contamination by certain substances	30	30	10		10	20	100
Restricted use of certain substances	30	10	20	10	10	20	100
TBT regulations on production processes	27.27	27.27	9.09		9.09	27.27	100
TBT regulations on transport and storage	20	30	10		10	30	100
Product identity requirement	36.36	18.18	9.09	9.09	9.09	18.18	100
Product-quality or performance requirement	18.18	18.18	27.27	9.09	9.09	18.18	100

Notes: 1. Cronbach's Coefficient Alpha reliability test (alpha=0.941) indicates high level internal consistency among the factors that show experience of exporter and importer firms in different types of TBT. 2. Kruskal-Wallis one-way analysis of variances by ranks test shows statistically significant difference for the exporter and importer firms in different types of TBT.
Source: Survey Data.

23.4 per cent of the firms, on an average, had no knowledge about TBT regulations. Table 5.13 illustrates that more than 50 per cent of the respondents found TBT regulations as obstacle to trade.

Figure 5.10 shows the average number of TBT-sub classification imposed by ASEAN and India against each other at HS 6-digit level. Figure 5.8 shows the major TBT measures imposed by ASEAN against India are prohibition for TBT reasons, authorization requirement for TBT reasons, TBT regulation on transport and storage. On the other, India imposed TBT measures like registration requirement for importers for TBT reasons (which is a general regulations imposed for all the products at HS code), restricted use of certain substances and product-quality. Figure 5.10 also clearly illustrates the intensity of TBTs imposed by both India and ASEAN against each other.

The trends of SPS and TBT measures between ASEAN and India also show the growing significance of technical measures and their impact on the trade between the countries. The Survey results also expressed respondents' concern on several SPS and TBT requirements (*see* Tables 5.10 and 5.11). This shows that both ASEAN and India have been applying standards and technical regulations to safeguard against health and environmental risks and to prevent deceptive practices, to protect consumers, etc. In addition, countries also use technical measures such as standard and technical regulations as a tool to protect domestic industries from foreign counterparts, which create barriers to trade. Therefore, it is imperative to understand the

Table 5.12: Firms' Perception on Level of Standard and Technical Regulations in SPS and TBT Issues

(%)

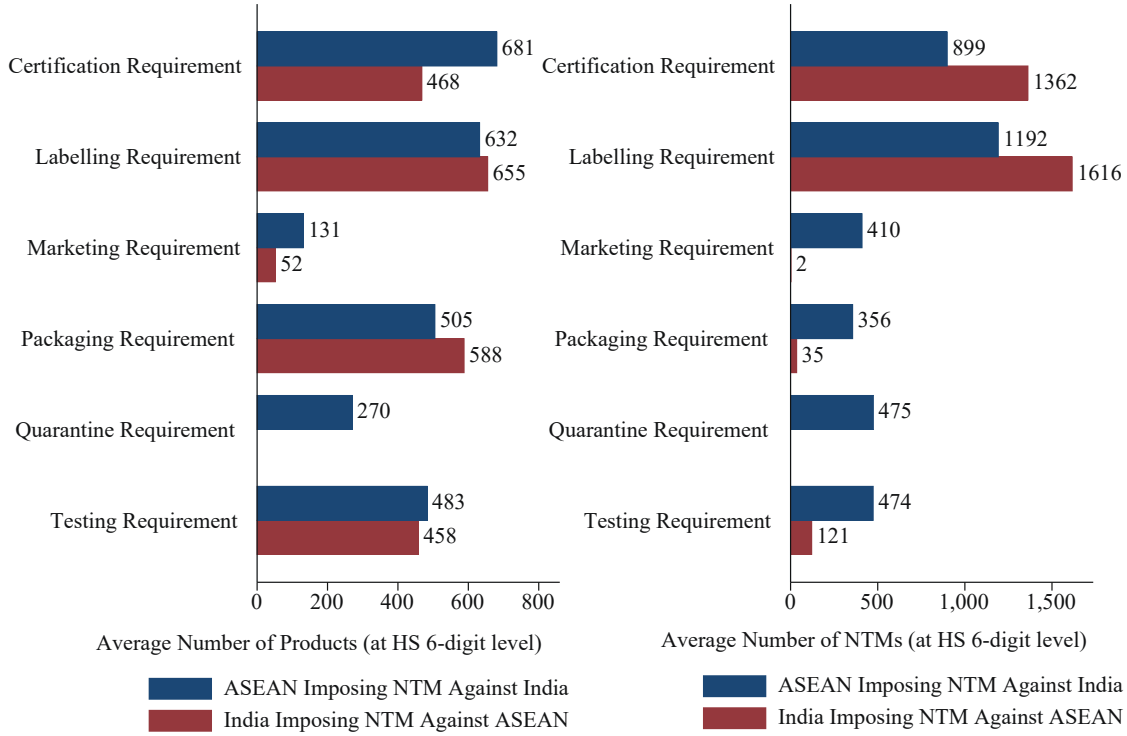
Standard and Technical Requirements	Very Difficult	Difficult	Neutral	Easy	Very Easy	Not Applicable/ Don't Know	Total
SPS-related							
Certification Requirement	25	43.75	12.5	12.5	-	6.25	100
Quarantine Requirement	35.71	14.29	35.71	7.14	-	7.14	100
Licensing Requirement	13.33	33.33	33.33	13.33	-	6.67	100
Testing Requirement	13.33	46.67	26.67	-	6.67	6.67	100
Packaging Requirement	-	33.33	40	13.33	-	13.33	100
Labelling Requirement	7.69	30.77	30.77	-	23.08	7.69	100
Marketing Requirement	7.14	35.71	42.86	-	7.14	7.14	100
Pre-shipment Certification	13.33	26.67	40	13.33	-	6.67	100
TBT-related							
Certification Requirement	27.27	27.27	27.27	9.09	-	9.09	100
Quarantine Requirement	30	20	40	-	-	10	100
Licensing Requirement	45.45	9.09	27.27	9.09	-	9.09	100
Testing Requirement	10	30	40	10	-	10	100
Packaging Requirement	10	10	50	20	-	10	100
Labelling Requirement	18.18	18.18	36.36	18.18	-	9.09	100
Marketing Requirement	20	10	50	10	-	10	100
Pre-shipment Certification	20	30	30	10	-	10	100

Notes: 1. Cronbach's Coefficient Alpha reliability test indicates high level internal consistency among the factors that shows firm's perception on the level of standard and technical regulations in SPS (alpha=0.890) and TBT (alpha=0.936) issues. 2. Kruskal-Wallis one-way analysis of variances by ranks test shows statistically significant difference in firm's perception on the level of standard and technical regulations for both SPS and TBT issues.
Source: Survey Data.

perception of export and import firms on the level of standard and technical regulations in SPS and TBT issues. In the Survey, the respondents were asked to scale the standard and technical regulations using five-point scale (very difficult to very easy).

Table 5.12 shows perception of firms' on the level of standard and technical regulations in SPS and TBT issues. About 68.57 per cent of the firms found certification requirement as the most difficult standard and technical regulation in SPS. In addition, about 45 per cent responded that standard and technical regulations such as testing requirement, quarantine requirement and licensing requirement created difficulties in trade. Similarly, 54.14 per cent of the firms found each licensing requirement and certification requirement as the most difficult standard and technical regulation in TBT. In addition, about 40 per cent of the firms responded that standard and technical regulations such as quarantine requirement, pre-shipment certification, testing requirement, etc. created difficulties in trade. On an average, more than 30 per cent of the firms were neutral about standard and technical regulations in SPS and TBT issues. Only about 10 per cent of the firms did not have knowledge about the standard and technical regulations in SPS and

Figure 5.11: Average Number of Standards and Technical Regulations for SPS and TBT Measures Imposed by ASEAN and India against Each Other (at HS 6-digit Level) S&T for SPS Measures and S&T for TBT Measures



Source: Authors' calculation based on UNCTAD (2017) database.

TBT. Table 5.12 suggests that respondents found difficulties with majority of the standard and technical regulations in SPS and TBT.

Figure 5.11 shows average number of Standard and Technical (S&T) Regulations for SPS and TBT measures imposed by ASEAN and India against each other. In the case of S&T for SPS measures, both ASEAN and India imposed equally under all measures, whereas, in the case of S&T for TBT measures, India imposed relatively higher number of labelling and certification requirement on imports from ASEAN. However, ASEAN imposed almost all the S&T regulations on imports from India.

Table 5.13 shows the perception on the impact of S&T regulations on time and cost. In terms of delaying entry of exports, 81.25 per cent and 100 per cent of respondents opined that regulations of SPS and TBT measures delayed entry of exports. In addition, 94 per cent and 100 per cent of the respondents informed that S&T regulations of SPS and TBT measures affected cost of shipment. And similarly about 82 per cent of the respondents reported that S&T regulations of both the measures affected production cost. This clearly indicates that S&T regulations of SPS and TBT measures delay exports and incur additional trade costs. About 36 to 42 per cent of the respondents reported that the S&T regulations of both the measures increased the cost per unit up to 10 per cent, whereas about 50 to 55 per cent of the respondents reported more than 10 per cent increased cost per unit.

Overall, firms believe that S&T regulations do increase trade-related costs, affecting their product competitiveness in the destination market. In cases where an NTM is used for protectionist reason, the associated cost is even higher. The increase in cost resulting from applying an NTM penalizes not only producers in the exporting country but also businesses and final consumers in the importing country.

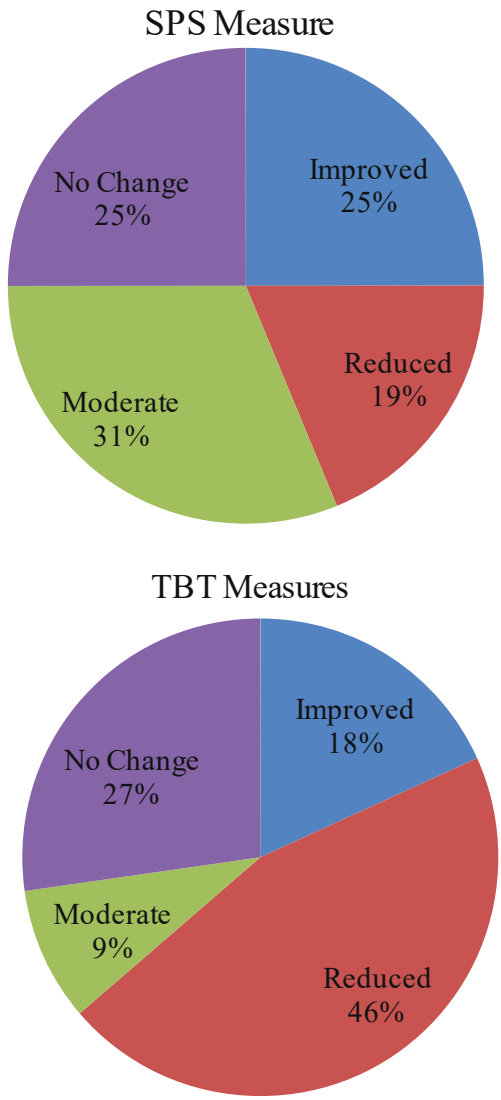
Table 5.13: Perception on the Impact of Standard and Technical Regulation on Time and Costs

(%)

	SPS	TBT
A. Delaying Entry of Exports#		
Yes	81.25	100
No	12.5	0
Don't Know	6.25	0
Total	100	100
B. Affecting Cost of Shipment		
Yes	93.75	100
No	6.25	0
Total	100	100
C. Affecting Cost of Production		
Yes	81.25	81.82
No	18.75	9.09
Don't Know	0	9.09
Total	100	100
D. Increase in Costs Per Unit due to Standard and Technical Regulations		
0 – 1%	6.25	0
1-5 %	12.5	18.18
5 – 10%	25	18.18
10- 15%	12.5	27.27
15 – 20%	18.75	9.09
More than 20%	18.75	18.18
Don't Know	6.25	9.09
Total	100	100

Note: #Shapiro–Francia test for normality demonstrates that impact of standards and technical regulations in delaying entry of exports , cost of shipment, cost of production and increases the cost per unit for SPS and TBT measures are normally distributed.
Source: Survey Data.

Figure 5.12: Impact of SPS and TBT Measures on Export Performance



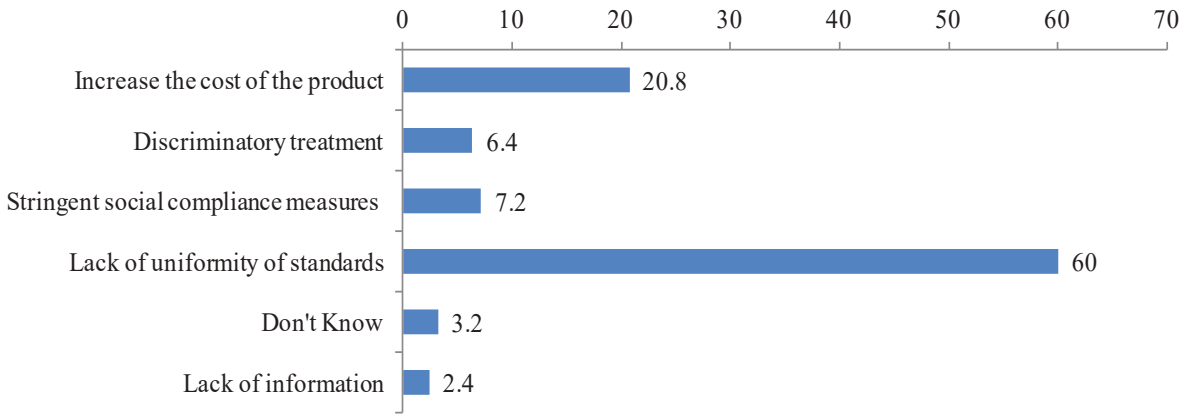
Note: Shapiro–Francia test for normality demonstrates that impact of SPS/TBT measure [(W' = 0.99447) (p=0.99989)]/ [(W' = 0.97608) (p= 0.93260)] on export performance is normally distributed.
Source: Survey Data.

Technical regulations and product standards increase costs of compliance. For instance, due to imposing specific standards and regulations applied by the importing countries, the exporters had to incur additional fixed costs. In addition, conformity assessment procedures, such as testing and inspection may also induce additional costs.

Overall, only about 25 and 18 per cent of the respondents reported improvement in the export performance due to SPS and TBT (Figure 5.12). On the other hand, about 19 and 45 per cent of them experienced reduction in export performance due to SPS and TBT,

Figure 5.13: Reasons for the Difficulties to Comply with Standard and Technical Regulations

(%)



Source: Survey Data.

respectively. While 31.25 per cent of the respondents were of the view that SPS measures impacted moderately export performance, TBT measures too impacted negatively firms' export performance as compared to SPS measures. This can be seen in Figure 5.12, which clearly shows that TBT measures reduced export performance as compared to SPS measures. In contrast, SPS measures moderately affected export performance compared to TBT measures.

Figure 5.13 presents the list of reasons for the difficulties to comply with S&T regulations. About 60 per cent of the respondents reported lack of uniformity of standards as the major constraint to comply with S&T regulations. On the other, higher cost of product (21 per cent); stringent social compliance measures (7 per cent) and discriminatory treatment (6 per cent) were some other reasons reported by the respondents. This shows that S&T regulations of SPS and TBT measures are often very different across countries, and, therefore, harmonization of standards remains a priority, and they based on the commonly agreed international

Table 5.14: Perception on Easing of the Problems / Challenges in Meeting SPS and TBT Measures

(%)

	SPS	TBT
Use of international standards	16.67	22.58
Mutual recognition of conformity assessment procedures	22.22	22.58
Harmonisation/convergence of rules and regulations	11.11	12.90
Suppliers' declaration of conformity	5.56	12.90
Common positive and negative list of additives	16.67	12.90
Periodically arrange stakeholders consultation with business chambers, custom and concern departmental representatives	13.89	12.90
I don't know	8.33	0.00
Others	5.56	3.23
Total	100.00	100.00

Source: Survey Data.

standards should facilitate trade by harmonizing production process across countries. In practice, harmonization of the standards should remove many of the restrictions to trade as production processes do not need to be customized to meet requirements particular to each export market. Harmonization may help the producer to reduce information costs and may allow producer for easier adaption of the conformity assessment. Besides, it may also help eliminate the discriminatory treatment among importing countries and bring transparency to promote trade between ASEAN and India.

In this regard, the respondents were asked to list out the ways to easing problems/challenges in SPS and TBT measures. Table 5.14 shows the perception of firms on easing of the problems/challenges in meeting SPS and TBT measures. Majority of the respondents responded that for both SPS and TBT measures, mutual recognition of conformity assessment procedures (23 per cent), use of international standards (about 17 per cent for SPS measures and 23 per cent for TBT measures), harmonization/convergence of rules and regulations (about 12 per cent), common positive and negative list of additives (about 13 per cent) and stakeholder consultation (about 13 per cent) would ease mostly the problems/challenges in meeting SPS and TBT measures.

Table 5.14 shows that about 23 per cent of the respondents were of the opinion that MRA would ease problems in SPS and TBT measures. MRA on conformity assessment system between one or more countries, such as mutual acceptance of test reports which tested equipments from another country would eliminate cost of re-testing and re-certification, reduce time-to-market for manufacturers and exporters of products, maximize export opportunities and benefit consumers from lower costs and quicker availability. Thus, the respondents were asked whether MRA on the products they traded between India and importing country would help promoting trade (Table 5.15). About 25 per cent of the respondents informed that MRAs on SPS and TBT measures would promote trade. And 25 per cent were of the opinion that MRAs on SPS and TBT measures would not promote trade. More than half of the respondents had no knowledge about MRAs. This clearly shows that the respondents lacked knowledge on MRAs and also believed that in addition to MRA there were other pertinent issues needing addressal to promote trade between ASEAN and India.

Table 5.15: Perception on Distribution of Mutual Recognition Agreement between India and Importing Country for SPS & TBT Measures

(%)

	SPS	TBT
Yes	25	27.27
No	25	18.18
Don't Know	50	54.55
Total	100	100

Note: Shapiro–Francia test for normality demonstrates that distribution of mutual recognition agreement between India and importing country for SPS [(W' = 0.99773) (p=1.00000)] & [(W' = 0.99689) (p= 1.00000)] TBT measures is normally distributed.
Source: Survey Data.

5.6 Experience of FTAs

India has signed free trade agreements (FTAs) both at bilateral and regional levels with most of the South and Southeast Asian countries in the Asia-Pacific region; of which India's FTA with ASEAN is the major one. Several studies suggest that FTAs promote trade and generate welfare. From our Survey, we could understand to what extent the Indian firms were able to utilize existing FTAs and the challenges associated with them. Almost 56 per cent of the firms didn't utilise any existing bilateral or regional FTAs; only 18 per cent of the firms utilized existing bilateral or regional FTAs (*see* Table 5.16). Table 5.16 also shows that about 22 per cent of the firms had no knowledge regarding existing FTAs. Therefore, the poor knowledge about the utilisation of FTAs among Indian firms was quite explicit. Out of 18 per cent of the firms utilising the existing FTAs,

Table 5.16: Experience of Firms Participation and Utilization of FTAs

	Firms' Opinion (%)
A. Does your company currently use any existing bilateral or regional FTAs for import or export?	
Yes	17.92
No	55.66
Considering to use FTA route	4.72
No Knowledge about FTA	21.7
Total	100
B. If yes, what are the FTA routes have you used to trade between Southeast and East Asia countries and India?	
Asia-Pacific Trade Agreement (APTA)	21.88
India-ASEAN FTA (AIFTA)	21.88
India-Singapore Comprehensive Economic Cooperation Agreement (CECA)	9.38
India-Malaysia Comprehensive Economic Cooperation Agreement (CECA)	15.63
India- South Korea Comprehensive Economic Partnership Agreement (CEPA)	9.38
India-Japan Comprehensive Economic Partnership Agreement (CEPA)	15.63
Others	6.25
Total	100.00

Source: Survey Data.

about 22 per cent of the firms e used APTA and AIFTA routes, followed by Singapore-India CEPA and Japan-India CEPA, and utilized at 16 per cent each, respectively. This confirmed low utilisation of ASEAN-India FTAs, and also indicated firms used other FTA routes to trade with ASEAN countries. In the Indian firms share in export to ASEAN using FTA route, only 30 per cent of the firms utilised up to 10 per cent of share of export to ASEAN countries, followed by 23 per cent of the firms utilizing between 10 to 20 per cent of the share of export to ASEAN countries (*see* Table 5.17). Almost 40 per cent of the firms had no knowledge about the utilisation of ASEAN-India FTAs.

About 18 per cent of respondents informed low customs tariff; obstacles due to rules of origin; high costs and procedural delays as the major difficulties experienced by firms leading to low utilisation of ASEAN-India FTAs (*see* Table 5.18). Besides, problems in obtaining necessary documentation and certification, lack of harmonisation of FTAs, etc., were other factors causing low utilization of AI-FTA. This clearly shows that firms experienced several challenges in utilising the ASEAN-India FTA. This calls for the attention of the governments of India and ASEAN countries and other stakeholders to address issues pertaining to ASEAN-India

Table 5.17: Utilization of ASEAN-India FTA in Current Years

	Firms' Opinion (%)
Upto 10%	30.77
11% - 20%	23.08
21% - 30%	7.69
Don't know	38.46
Total	100

Note: Shapiro–Francia test for normality [(W'= 0.98) (P-value = 0.99)] demonstratesthat utilization of ASEAN-India FTA in current years is normally distributed.
Source: Survey Data.

Table 5.18: Experience of Firms in Utilizing ASEAN-India FTA

	Firms' Perception (%)
General custom tariffs are low, so an FTA provides no advantages	17.86
There is a reduction or exemption of custom tariffs at the export destination, so an FTA provides no advantages	3.57
Rules of Origin create too many obstacles	17.86
Cost of checking and issuing a certificate of origin is high	17.86
Procedures for obtaining a certificate of origin are complicated	10.71
Suppliers do not know the FTA/EPA system and cannot obtain the necessary documentation	10.71
Complexity arising because existing FTA/EPA regulations vary in different Rules of Origin	3.57
No FTA/ EPA exists with the export/import destinations	7.14
Lack of harmonization of NTMs (especially SPS and TBT)	7.14
There are no specific problems	3.57
Total	100.00

Note: Shapiro–Francia test for normality [(W'= 0.95518) (P-value = 0.00196)] demonstrates that experience of firm's participation in FTAs is not normally distributed.
Source: Survey Data.

FTAs, such as disseminating AIFTA among the small and medium firms across all the sectors and simplifying procedures and documentation for the firms to channel their trade through AIFTA route.

5.7 Concluding Remarks

NTMs cannot be eliminated fully since some of them have been used for legitimate reasons, particularly to protect human, animals and environment. However, it is necessary to ensure transparency, reduction of compliance cost, scientific approach in imposing such NTMs to promote trade among countries. In this regard, this Survey attempted to identify issues and challenges dealing with NTMs experienced by different stakeholders, without questioning legitimacy of the NTMs as such. Particularly, the Survey has given special focus on the issues dealing with SPS and TBT measures between ASEAN and India and their likely impact on trade. The purpose of this Survey was to investigate reasons for the difficulties with NTMs and to find a way to address the difficulties faced by the exporters with the partner countries. The survey also looked into the existing trade agreements and their effective utilisation by exporting and importing firms in trade between ASEAN and India. To ensure the reliability and consistency of the primary survey, the Study followed several diagnostic tests. The Study broadly used descriptive statistics, cross tables, frequency calculations, graphs to present.

The Study had collected total 239 samples, of which 60 per cent were trading firms and the rest were other stakeholders such as academia, think-tanks, government institutions, regulatory authorities, trade associations and other consultancy services. Due to difficulties in data collection, majority of the respondents were from India and a few were from ASEAN. The respondents of the exporting and importing firms were majorly from domestically owned small enterprises concerned with agro-based industries, pharmaceutical, apparels, telecommunications and electrical equipment industries mostly trading with ASEAN countries.

The major findings of this Chapter are as follows:

- The respondents were more optimistic, and are of the opinion that ASEAN is a potential market for the next 10 years.
- Export and import firms experienced difficulties in market access in both India and ASEAN countries.
- Almost 57 per cent of the firms experienced NTMs in food processing agricultural and marine products, followed by about 14 per cent and 8 per cent in pharmaceutical and apparels industries, respectively.
- About 34 per cent of the exporting and importing firms experienced NTMs in ASEAN countries such as Vietnam, Indonesia, Malaysia, Myanmar, the Philippines, Singapore and Thailand.
- About 53 per cent of the firms found difficulties with SPS and 41 per cent of the firms with TBT.
- Almost 50 to 70 per cent of the respondents reported difficulties in most of the SPS types such as temporary geographic prohibitions for SPS reasons, geographical restrictions on eligibility, systems approach, special authorisation requirement for SPS reasons, registration requirements for importers, restricted use of certain substances in foods and feeds and their contact, microbiological criteria of the final product, hygienic practices during production, cold/heat treatment, irradiation, fumigation, plant-growth processes, and food and feed processing. This shows that Indian firms are experiencing serious difficulties in meeting SPS requirements.
- About 60 per cent of the firms found most difficulties in trade due to authorization requirement for TBT reasons. In addition more than 50 per cent of the respondents indicated TBT requirements such as tolerance limits for residues of or contamination by certain substances, registration requirement for importers, product identity requirement, regulations on production processes, etc.
- About 19 and 45 per cent of the respondents reported reduction in export performance due to SPS and TBT measures, respectively.
- Respondents were of the opinion that mutual recognition, international standards, harmonization, common positive and negative list of additives and stakeholder consultation would majorly ease problems/challenges in meeting SPS and TBT measures and promoting trade between ASEAN and India.
- Standard and technical regulations for SPS and TBT measures hindered entry of exports to a large extent, in addition to decrease in export performance owing to increased per unit cost.
- Exporting and importing firms had poor knowledge and utilisation of FTAs between ASEAN and India. Firms used other FTAs route to trade with ASEAN countries such as APTA, India-Singapore CEPA, and India-Malaysia CEPA. As a result, only 30 per cent of the firms could utilise up to 10 per cent of the share of export to ASEAN countries as was reported in the Survey.
- Majority of export and import firms were of the opinion that low general custom tariff; obstacles due to rules of origin and costs and procedural delays were some major reasons for low utilisation of ASEAN-India FTAs.

Chapter 6

Perception on Regulatory Environment in ASEAN and India

6.1 Introduction

Countries have increasingly imposed stricter technical regulations not only to maintain product standards but also to restrict trade. If the standards and technical regulations vary from country to country and requirement of conformity assessment procedures becomes burdensome, it leads to technical barriers in both domestic market and importing countries. Lack of standardization can create barriers to trade instead of removing them. It may also lead to inadequate support for regulation.[29]

In this regard, institutional framework for quality infrastructure is a must for global trade, and has a great social concern regarding consumers and environmental protection. Quality is the result of the integration and coordination of a series of activities in several interrelated subjects of quality infrastructure, such as standardization, metrology, conformity assessment, and accreditation (*see* Table 6.1). It ensures predefined specification in products and processes in all the countries and also helps ensuring compliance with regulations or international requirements. The production system constantly needs to adapt processes, inputs, technologies and the design of products to meet foreign/international standards and regulations to have access to external markets.[30]

This chapter presents the current regulatory environment in both ASEAN and India. Besides, based on the primary survey, the chapter explores how the stakeholders have perceived the NTM regulations in both ASEAN and India. The chapter also describes problems and procedural obstacles associated with NTMs and also benefits of NTMs in general and harmonisation of standards and regulations in particular. The chapter has also carried out an econometric analysis to investigate the scope and the potential of ASEAN-India future trade and future course of action.

6.2 Regulatory Environment on NTMs in ASEAN and India

Here, we present a brief overview of NTM regulations in ASEAN and India. Both ASEAN and India have taken series of measures and initiations to harmonize standards and technical regulations at the sectoral level and country level. The section discusses summary of mutual recognition agreements (MRAs) in both ASEAN and India initiated with other countries and the progress of ongoing regulative measures.

6.2.1 NTM Regulations in ASEAN

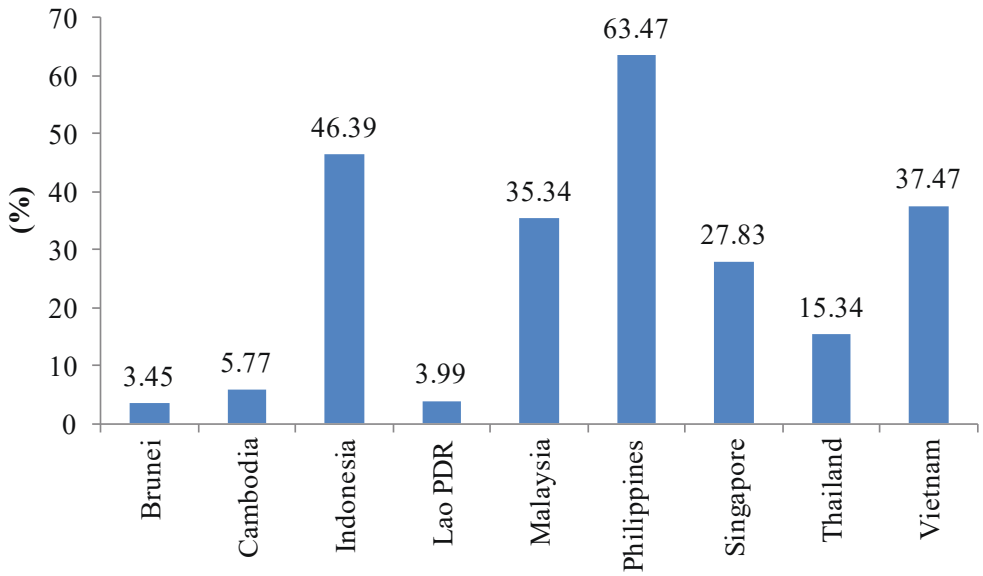
The number of notifications on regulations related to NTMs reported to the WTO varies across the ASEAN countries. For instance, in terms of share of reported number of regulations/ number of NTMs, Brunei, Cambodia, Lao PDR

Table 6.1: Impact Expected from Quality Infrastructure Services

Quality Infrastructure	Activity	Main Functions	Main Beneficiaries	Main Impacts
Standardization	Formulation of standards and technical regulations	Knowledge exchange Coordination Harmonization of products and procedures	Manufacturers Consumers	Economies of scale Economies of learning Innovation Diffusion of technology Competition Lower market prices Consumers and environment protection
Metrology	Establish measurement procedures and ensure calibration of measurement instruments	Traceability Comparability Uncertainty reduction	Manufactures Industry Government Consumers	Efficiently of R&D Access to foreign markets Integration in global value chains Consumer protection
Conformity Assessment	Assess whether management procedures or services conform with established standards	Conformity Confidence Reliability	Manufacturers Consumers	Reduction of Information asymmetry Innovation premium
Accreditation	Formal recognition that an organization or person is competent to carry out specific tasks	Competence Traceability Transparency	Quality Infrastructure as a whole	Economic integration in international markets and value chains Provide information to quality services about better practices

Source: CII (2016).

Figure 6.1: Share of Notifications on Regulations Related to NTMs Reported to WTO



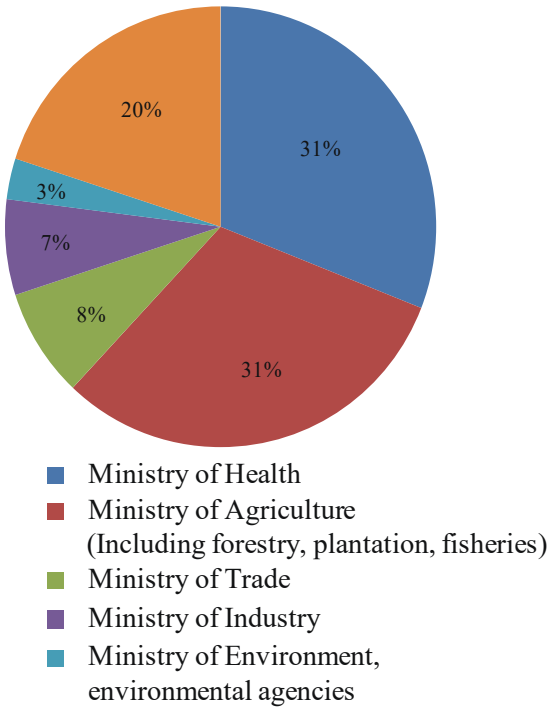
Source: Authors' calculation based on Ing (2016).

and Myanmar reported less than 5 per cent (*see* Figure 6.1). It indicates most of the notifications on regulations are given in the respective country sources in their own languages and only a few in English. The legal systems in the 10 ASEAN countries are not equally developed. In case of Myanmar, for example, the country is currently in the process of revision and reconstruction of its whole legal system.

Higher number of regulations collected from respective countries, were from Thailand, Indonesia, the Philippines, Vietnam and Singapore. The case of other ASEAN countries, were in the range of 50 to 100. Figure 6.2 illustrates responsible institutions issuing NTMs. The Ministry of Health and Ministry of Environment together accounted for 64 per cent of all NTMs, and the Ministry of Trade and Ministry of Industry accounted for less than 15 per cent of measures.

In some countries, a general regulation can be governed further by a few implementing

Figure 6.2: NTM Imposing Institutions in ASEAN



Source: Authors' calculation based on Ing (2016).

Table 6.2: Number of Regulations and Institutions Imposing NTMs in ASEAN

Comprehensiveness	Total number of coded regulations collected from the respective country sources	Total number of coded regulations reported to the WTO	Total number of coded NTMs	Total Number of Coded NTMs reported to the WTO	Total number of issuing institutions	Products Affected
Brunei	58	2	516	-	29	5613
Cambodia	52	3	243	-	14	9558
Indonesia	199	-	638	296	14	6466
Lao PDR	70	-	301	12	14	9558
Malaysia	64	-	713	252	13	5127
Myanmar	36	0	172	-	8	4663
Philippines	295	-	854	542	37	9820
Singapore	115	32	529	-	25	9,558
Thailand	425	-	1630	250	26	9558
Vietnam	121	-	379	142	15	9558

Notes: Brunei, Cambodia, Thailand and Vietnam: One product may be affected by more than one measure, but the same HS-coded product is counted as one product, e.g., HS 840731 has three NTMs, so it is counted as one affected product'. Indonesia, Malaysia, Myanmar, the Philippines, Lao PDR and Singapore: Authors' calculations based on the newly constructed ASEAN-ERIA-UNCTAD database on NTM for the year 2015.
Source: Authors' compilation from Ing (2016).

regulations, which may not be readily available in the public domain or may not available to the public at all.[31] This situation implies difficulties in collecting NTM data. The numbers of coded NTMs are on the higher side in Thailand (1630), the Philippines (834), Malaysia (713), Indonesia (638) and Singapore (529), respectively. In terms of number of issuing institutions, the Philippines, Brunei, Thailand and Singapore have higher number of institutions (*see* Table 6.2).

6.2.1.1 ASEAN Work Programme on NTMs

- ASEAN has initiated several work programmes for NTMs.
- ASEAN has adopted WTO Agreement on Import Licensing Procedures, and developed national guidelines that are compatible with the WTO Licensing Agreement.
- ASEAN has initiated to collect the NTM database in terms of compilation, identification and verification of NTMs by ASEAN member countries. UNCTAD, I-TIP and ERIA are the international institutions responsible to build comprehensive NTM database for 10 ASEAN countries. This database of NTMs is now available at the ASEAN website.
- As part of the NTB work programme, ASEAN member countries have agreed to phase out a few of the NTMs identified as NTBs.
- ASEAN has the Coordinating Committee for ATIGA (CCA)[32] to deal with the trade-related issues, particularly responsible for collecting and identifying NTBs from the database of NTMs.
- ASEAN Secretariat constituted a body on ASEAN Consultative Committee on Standards and Quality (ACCSQ) to undertake harmonisation process and to implement mutual recognition agreement (MRAs) with international bodies. Its major objective is to harmonise national standards with international standards and practices, develop and harmonize technical regulations, and to create an efficient and non-duplicative conformity assessment procedures (*see* Box 6.1).
- ACCSQ Prepared Foodstuff Products Working Group (ACCSQPFPWG) is the main body currently engaged in regulatory harmonization and convergence in relation to the food sector, its priority areas include: transparency of prepared foodstuffs regulatory regime among ASEAN member countries; MRAs; technical infrastructure for prepared foodstuffs; and food safety standards for prepared foodstuffs (*see* Box 6.1).

6.2.1.2 MRAs in ASEAN

The ASEAN initiation of in the region harmonization and standardization of the NTMs has brought major improvement in several sectors and moved towards eliminating NTBs. Table 6.3 presents a brief overview of MRAs in ASEAN. It shows that ASEAN has signed 4 MRAs which are being implemented in the region(*see* Table 6.3).

The MRA for electrical electronic equipment, which provides for the acceptance of test reports and certification, was signed in 2000 and was implemented in 2004. The ASEAN MRA on Good Manufacturing Practice (GMP) for pharmaceuticals was signed in 2009. This MRA provides for inspection to be carried by local inspection bodies. The ASEAN cosmetic directive harmonized technical requirements including definitions for cosmetics, allowable ingredients, etc. was implemented in 2008. The ASEAN Harmonized Regulatory Regime for Electrical and Electronic Equipment (AHEEER), which has been working for harmonization of technical regulations and conformity assessment procedures, was signed in 2005.

6.2.2 NTM Regulations in India

In India, the product standards are being managed by the Bureau of Indian Standards (BIS), a National Standards Body of India,

Box 6.1: ASEAN Consultative Committee on Standards and Quality (ACCSQ)

The ASEAN Consultative Committee on Standards and Quality, ACCSQ was established in 1992 with the aim to facilitate the removal of Technical Barriers to Trade (TBT) among ASEAN member countries to expand intra- and extra- ASEAN trade. It is the key body responsible for coordinating work on standards and mutual recognition, accreditation and conformity assessment and sector-specific harmonisation efforts. ACCSQ is supported by three working groups and eight product working groups (*see* Table 1). The eight product working groups have priority sectors for integration, namely: automotive products, electronics, healthcare, rubber-based products, prepared food stuffs.

Table 1: Working Groups and Committees and ACCSQ

Sl No.	Working Groups Assisting ACCSQ
1	WG1-Working Group on Standards and MRAs
2	WG2-Working Group on Accreditation and Conformity Assessment
3	WG3-Working Group on Legal Metrology
	Product Working Groups (PWGs)
4	JSC EE MRA – Joint Sectoral Committee for ASEAN Sectoral MRA for Electrical and Electronic Equipment
5	ACC – ASEAN Cosmetic Committee
6	PPWG – Pharmaceutical Product Working Group
7	PFPWG – Prepared Foodstuff Product Working Group
8	APWG – Automotive Product Working Group
9	TMHSPWG – Traditional Medicines and Health Supplements Product Working Group
10	MDPWG – Medical Device Product Working Group
11	WBPWG – Wood-Based Product Working Group
12	RBPWG – Rubber-Based Product Working Group

Notes: MRAs - Mutual Recognition Agreements; GRP - Good Regulatory Practice; ISO - International Standards Organization; IEC - International Electro-technical Commission; ASEM - Asia-Europe Meeting; UNECE - UN Economic Commission for Europe.
Source: www.asean.org

ASEAN Harmonisation of Standards: ACCSQ WG3 was set up in 1998 for harmonization of standards within the region. The main recommendation is to harmonizing National Standards to International Standards for priority products in order to enable the elimination of trade barriers arising from differences in National Standards. It covered 20 priority products covering 58 International Standards for harmonization. Table 2 gives the list of the 20 products. Later, ACCSQ WG3 covered harmonization of 72 Safety and 10 EMC Standards.

Table 2: Priority Sectors under ACCSQ WG3

Air-conditioners	Loudspeakers	Parts of TV and Radio	Cathode Ray Tubes
Refrigerators	Video Apparatus	Capacitors	Diodes
Monitors & Keyboard	Telephones	Resistors	Mounted Piezo-electric crystal
Motors & Generators	Radio	Printed Circuits	Rubber condoms
Inductors	Television	Switches	Medical Gloves

Source: Based on ASEAN Secretariat.

Table 6.3: Mutual Recognition Agreements (MRAs) in ASEAN

MRA	Description	Status
MRA for electrical equipment	- Acceptance of test reports based on APLAC MRA and IECEE Certification Body (CB) Scheme; - Acceptance of certification based on PAC MRA and IECEE CB; - Supports implementation of AHEER	Signed in 2000 and implemented in 2004
ASEAN Harmonized Regulatory Regime for Electrical and Electronic Equipment (AHEEER)	- Harmonized technical regulations based on essential safety requirements for electrical and electronic equipment (EEE); - Listed standards deemed to meet essential requirements (based on IEC standards); - Harmonized conformity assessment procedures (based on ISO/IEC guides 53, 67, & 28); - Registration of EEE and designation of conformity assessment bodies (CABs)	Signed in December 2005; ASEAN members are in the process of transposing national legislation to implement AHEEER
ASEAN Harmonized Cosmetic Regulatory Scheme	- Harmonized technical requirements, including definitions for cosmetics, permitted ingredients and preservatives;	Implemented in January 2008
Pharmaceutical Good Manufacturing Practice (GMP)	- Adopts GMP inspection of manufacturers of medicinal products based on PIC/S; - Inspection can be carried out by competent local inspection bodies; - Mutual recognition of inspection	Signed in 2009

Notes: APLAC - Asia Pacific Laboratory Accreditation Cooperation is a cooperation of accreditation bodies in Asia Pacific that accredit laboratories, inspection bodies and reference material producers; IECEE - International Electro-technical Commission (IEC) system for conformity testing and certification of electrotechnical equipment and components; PAC - Pacific Accreditation Cooperation; PIC/S Scheme - Pharmaceutical Inspection Convention and Pharmaceutical Inspection Cooperation Scheme. PIC is a cooperative arrangement between government health authorities, a more formal counterpart of PIC Scheme. PIC main purpose is for the mutual recognition of inspections, and it was established *via* treaty.
Source: Based on ASEAN Secretariat.

established under an Act of Parliament.[33] BIS is the sole entity responsible for development and formulation of standards for 14 industries and also has the status of Indian Standards. BIS is also the member body to International Organization for Standardization (ISO) and International Electro-technical Commission (IEC). The BIS follows the Code of Good Practice for the preparation, adoption and application of standards.

BIS has been designated by India as the WTO-TBT Enquiry Point, while the Department of Commerce in the Ministry of Commerce and Industry is responsible for implementing and administering WTO Agreement on Technical Barriers to Trade. Table 6.4 presents the Indian ecosystem of standards and technical regulations for regulatory bodies and voluntary bodies. It shows that many standard bodies under several ministries and departments are involved in policy making related to standard and technical regulations and other NTMs.

A product certification scheme under the Bureau of Indian Standards Act (1986) and its accompanying regulations and rules are operated by the BIS. Products meeting the requirements of relevant Indian standards are granted by the Bureau of Indian Standard Mark (ISI). ISI

Table 6.4: Ecosystem of Standards and Technical Regulations in India Ecosystem for Regulatory and Voluntary Sector

Sector	Administrative or Related Ministry / Department	Standards	Conformity Assessment	International Linkages
Regulatory Sector		National Cadet Corps (NCC)		
	Ministry of Health and Family Welfare (MOHFW)	Food Safety and Standards Authority of India (FSSAI)		Codex Alimentarius Commission
		Department of Animal Husbandry Dairy and Fisheries		
	Ministry of Agriculture and Agro-based Industry (MOA)	Department of Agriculture and Cooperation		World Organisation for Animal Health (OIE)
		Directorate of Legal Metrology		International Plant Protection Convention (IPPC)
	Ministry of Consumer Affairs (MOCA)	Petroleum and Natural Gas Regulatory Board (PNGRB)		International Organization of Legal Metrology (OIML)
	Ministry of Petroleum and Natural Gas (MOPNG)		Quality Council of India (QCI)	
	Ministry of Commerce and Industry		National Accreditation Board for Certification Bodies (NABCB)	
	Department of Industry Policy and Promotion (DIPP)		National Registration Board for Personnel and Training (NRBPT)	Provincial Armed Constabulary (PAC)
			National Accreditation Board for Hospitals & Healthcare Providers (NABH)	In-Patient Consultants (IPC)
			National Accreditation Board for Testing and Calibration Laboratories (NABL)	International Society for Quality in Health Care (ISQUA)
	Department of Science & Technology (DST)			Asia Pacific Laboratory Accreditation Cooperation (APLAC)

Table 6.4 contd...

Table 6.4 contd...

Sector	Administrative or Related Ministry / Department	Standards	Conformity Assessment	International Linkages
Voluntary Sector	Ministry of Consumer Affairs (MOCA)	Bureau of Indian Standards (BIS)		International Organization for Standardization (ISO)
				International Electrotechnical Commission (IEC)
				World Trade Organization (WTO)
	Ministry of Telecommunication Information Technology (MoTIT)	Department of Telecommunications (DoT)		Asia-Pacific Telecommunity (APT)
				International Telecommunication Union (ITU)
	Department of Science & Technology (DST)	National Physical Laboratory of India (NPL)		Association of Proposal Management Professionals (APMP)
				Bureau International des Poids et Measures (BIPM)
	Ministry of Commerce and Industry		Export Inspection Council of India (EIC)	World Trade Organization (WTO)
	Ministry of Agriculture		Directorate of Marketing & Inspection (AGMARK)	
	Ministry of Consumer Affairs		Bureau of India Standards	
			(STQC)	
	Ministry of Power		Bureau of Energy Efficiency	
	Ministry of Health and Family Welfare		Department of Ayush	

Source: CII (2016).

certification is voluntary on most of the products, but is mandatory for 66 products related to health and consumer safety. Both imported and domestically produced goods on this list must conform to certification requirements. The BIS also operates other certification schemes such as the Hazard Analysis and Critical Control Points (HACCP), the Environmental Management Systems (EMS), the Food Safety Management System (FSMS), certification of Public Service Organizations for Service Delivery, according to IS 15700:2005.

In March 2016, the Government of India had passed a revised bill to replace 30 year-old BIS Act. The bill established BIS as a national body and empowered the Centre to authorize

any other agency having necessary accreditation for the purpose of conformity assessment against Indian standards.

In India, voluntary standards are exclusively developed by the national standards body. Besides development and formulation of Indian Standards, BIS is involved with product certification, quality system certifications and testing, and consumer affairs. BIS is the only organization in India authorized operating quality certification plans under the Act of parliament.

BIS comprises representatives of industry, consumer organizations, scientific and research bodies, professional organizations, technical institutions, ministries, and members of parliament. Presently, BIS has more than 800 technical committees and involved more than 14000 experts and stakeholders engaged in standards formulation. BIS has so far developed more than 19000 standards. Apart from BIS, there are other Standards Developing Organizations (SDOs) in the country, which formulate standards in specific sectors. There are some SDOs in the country that develop standards in their specific domain without any overlap with standardization work carried out by BIS. Such sectors include railways, roads and bridges, drugs and pharmaceuticals. However, there are other sectors where BIS and other SDOs carry out standardization work in parallel. These include Directorate of Marketing & Inspection (Agmark), Food Safety & Standards Authority of India (FSSAI), Automotive Research Association of India (ARAI), etc.

To consolidate and unify legal regime pertaining to the regulation of food safety and standards, the Food Safety and Standards Authority of India (FSSAI) was established under the Food Safety and Standards Act in 2006 as a statutory body for laying down standards for articles of food and regulating manufacturing, processing, distribution, sale and import of food.[34]

FSSAI is the nodal point for WTO-SPS Enquiry Point in India. In India, SPS standards are also governed and enforced through a number of laws and agencies. The Prevention of Food Adulteration Act (1954) is the main law on food safety and quality. Imports and quarantine are regulated through additional legislation, such as the Livestock Importation Act (1898), which was most amended recently ;in 2001; the import of plants and plant materials is regulated under the provisions of the Plant Quarantine (Regulation of Import into India) Order 2003, issued under the Destructive Insects and Pests Act (1914). Implementation of these Acts and subordinate legislation has been carried out by different central government ministries, making the system relatively complex.

Table 6.4 presents the list of various organising bodies engaged in imposing and policy-making related issues with respect to NTMs in India.

6.2.2.1 Compliance and Accreditation in India

Indian government and country's regulators are increasingly seeking accreditation as a means of checking compliance regulations through third party conformity assessment bodies. The Quality Council of India (QCI) was set up as a non-profit autonomous society, registered under the Societies Registration Act XXI of 1860 to establish an accreditation structure in the country (*see* Box 6.2). QCI has also established National Accreditation Board for Testing and Calibration Laboratories (NABL) to involve in third-party assessment of the technical competence of testing including medical and calibration laboratories, proficiency testing providers and reference material producers (*see* Box 6.3). The Petroleum and Natural Gas Regulatory Board (PNGRB) was the first regulator to rely on accredited inspection bodies, and uses NABCB accredited inspection bodies to check compliance with its regulatory framework; the Food Safety and Standards Authority of India (FSSAI), the food regulator, has notified NABCB accredited bodies to verify

Box 6.2: Quality Council of India

Quality Council of India (QCI) was set up as a non-profit autonomous society registered under Societies Registration Act XXI of 1860 to establish an accreditation structure in the country. QCI is governed by a Council comprising 38 members and has an equal representation of Government, Industry and other Stakeholders. The Council is the apex level body responsible for formulating the strategy, general policy, constitution and monitoring of various components of QCI including the accreditation boards with objective to ensure transparent and credible accreditation system. QCI's main function is to develop, establish & operate National Accreditation programmes for various service sectors such as education, healthcare, environment protection, governance, social sectors, infrastructure sector, vocational training etc., in accordance with the relevant international standards & guides for the conformity assessment bodies certifying products, personnel, management systems, carrying out inspection and for the laboratories undertaking testing & calibration and such other areas of organized activities that have significant bearing in improving the quality of life and well being of the citizens of India. It also develop accreditation standards to support accreditation programmes where such standards are not available at the national/international level.

QCI has four Accreditation Boards involved in accreditation programmes. Each board is functionally independent and works within its core area of expertise.

1. National Accreditation Board for Certification Bodies (NABCB)
2. National Accreditation Board for Testing and Calibration Laboratories (NABL)
3. National Accreditation Board for Hospitals and Healthcare Providers (NABH)
4. National Accreditation Board for Education and Training (NABET)

Source: Quality Council of India.

compliance to its regulatory requirements of GMP/GHP. Accreditation represents an excellent option to regulators to rely on the third party verification of compliance to their regulations and supplements their efforts.

Many voluntary schemes also utilize/ prescribe NABCB accredited certification/ inspection bodies. The Department of AYUSH, Ministry of Health and Family Welfare jointly with QCI has launched a voluntary certification scheme for AYUSH products, which prescribes that AYUSH products should be certified by NABCB accredited product certification bodies. The National Medicinal Plants Board has launched a similar scheme jointly with QCI for certifying medicinal plants based on good agricultural and collection practices, which would use NABCB accredited product certification bodies. The QCI Ready Mixed Concrete (RMC) Plant Certification Scheme, launched jointly with the Ready Mix Concrete Manufacturers Association (RMCMA), also rely on NABCB accredited bodies.

6.2.2.2 MRAs in India

Indian government has entered into several mutual recognition agreements (MRAs) at multilateral and bilateral levels. At the multilateral level, India has signed MRAs such as Asia-Pacific Laboratory Accreditation Cooperation (APLAC), International Laboratory Accreditation Cooperation (ILAC)[35] and Pacific Accreditation Cooperation (PAC). These MRAs primarily deal with laboratory accreditation (*see* Box 6.3). At the bilateral level, India's MRAs include those with Singapore and Sri Lanka, where the parties have agreed to facilitate bilateral trade in select commodities, such as telecom equipment, agricultural goods,

Box 6.3: National Accreditation Board for Testing and Calibration Laboratories (NABL)

NABL is a Constituent Board of Quality Council of India. NABL has been established with the objective of providing Government, Industry Associations and Industry in general with a scheme of Conformity Assessment Body's accreditation which involves third-party assessment of the technical competence of testing including medical and calibration laboratories, proficiency testing providers and reference material producers.

The laboratory accreditation services to testing and calibration laboratories are provided in accordance with ISO/ IEC 17025: 2005 'General Requirements for the Competence of Testing and Calibration Laboratories' and ISO 15189: 2012 'Medical laboratories — Requirements for quality and competence'. The accreditation to Proficiency testing providers is based on ISO/IEC 17043: 2010 "Conformity assessment — General requirements for proficiency testing" and to reference material producers based on ISO Guide 34:2009 "General requirements for the competence of reference material producers".

NABL offers accreditation services in a non-discriminatory manner. NABL has established its accreditation system in accordance with ISO/ IEC 17011: 2004 "Conformity Assessment – General requirements for Accreditation bodies accrediting conformity assessment bodies". NABL accreditation system also takes note of requirements of Mutual Recognition Arrangements (MRAs) of which NABL is a member.

NABL went a step further in removing technical barriers to trade and achieved the status of signatory to Asia Pacific Laboratory Accreditation Cooperation (APLAC) Mutual Recognition Arrangement (MRA) and International Laboratory Accreditation Cooperation (ILAC) Arrangement based on a peer evaluation by APLAC in 2000. This was a major step towards mutual acceptance of test results and measurement data across Indian borders. NABL went through the peer APLAC evaluation in 2004, 2008, 2012 & 2016 and reaffirmed its APLAC / ILAC signatory status with extension of scope for Proficiency testing providers (PTP) as per the standard ISO/IEC 17043:2010 & Reference materials producers (RMP) as per the standard ISO Guide 34. Today, the test results and measurement data produced by Indian accredited CABs are acceptable amongst economies which MRA partners represent.

NABL provides accreditation in all major fields of Science and Engineering such as Biological, Chemical, Electrical, Electronics, Mechanical, Fluid-Flow, Non-Destructive, Photometry, Radiological, Thermal & Forensics under testing facilities and Electro-Technical, Mechanical, Fluid Flow, Thermal, Optical & Radiological under Calibration facilities. NABL also provides accreditation for medical testing laboratories. In addition, NABL also offers accreditation for Proficiency testing providers & Reference Material producers and is now signatory to APLAC MRA for both.

Source: NABL.

electrical and electronic equipments, steel and steel products and pharmaceutical products, etc.

6.2.2.3 Customs Reform

The Single Window system is a crucial implementation of trade facilitation measure for goods clearance at the country's points of entry and exit. As part of the "Ease of Doing Business" initiatives, the Central Board of Excise & Customs, Government of India, has taken up implementation of the Customs Single Window project to facilitate the "Trading across Borders" in India. The Single Window allows importers and exporters, the facility to lodge their clearance documents online at a single point only. Required permissions, if any, from other regulatory agencies are obtained online without the trader having to approach these agencies. The Single Window Interface for Trade (SWIFT) reduces interface with Governmental agencies, and dwell time and cost of doing business. CBEC had already executed major projects to automate customs

clearance processes and provide electronic data interchange (EDI) with all agencies.

The major import regulatory agencies in India are involved in issuing clearances or "No Objection Certificates" (NoC) for live consignments.[36] These agencies, namely, Food Safety (FSSAI), Drug Controller, Plant Quarantine, Animal Quarantine, Textile Committee and Wild Life Crime Control Bureau, are concerned with the vast majority of cases, where the NoCs are required for Customs' clearance.

By requiring all participating government agencies to publish standard operating procedures and timelines, the Committee of Secretaries, headed by the Cabinet Secretary, has set benchmarks and goals for all related regulatory agencies. To work collaboratively with agencies and industry stakeholders, port and central level Customs' Clearance Facilitation Committees (CCFCs) have been established to simplify and streamline their interagency procedures and documentary requirements for import and export of cargo. Later, as signatory of the WTO's Trade Facilitation Agreement, National Trade Facilitation Committee (NTFC) was set up.

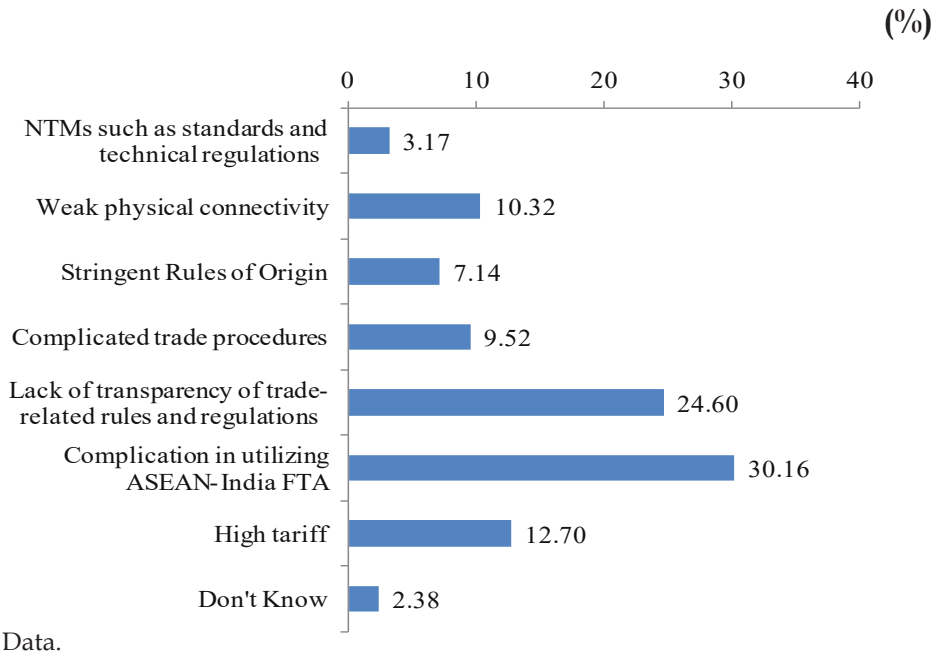
6.3 Primary Survey on Perception of Regulatory Environment

In this section, we have presented primary survey results to examine how several stakeholders perceive understanding of NTM regulations and institutional set-up in both ASEAN and India.

6.3.1 Major Trade Barriers

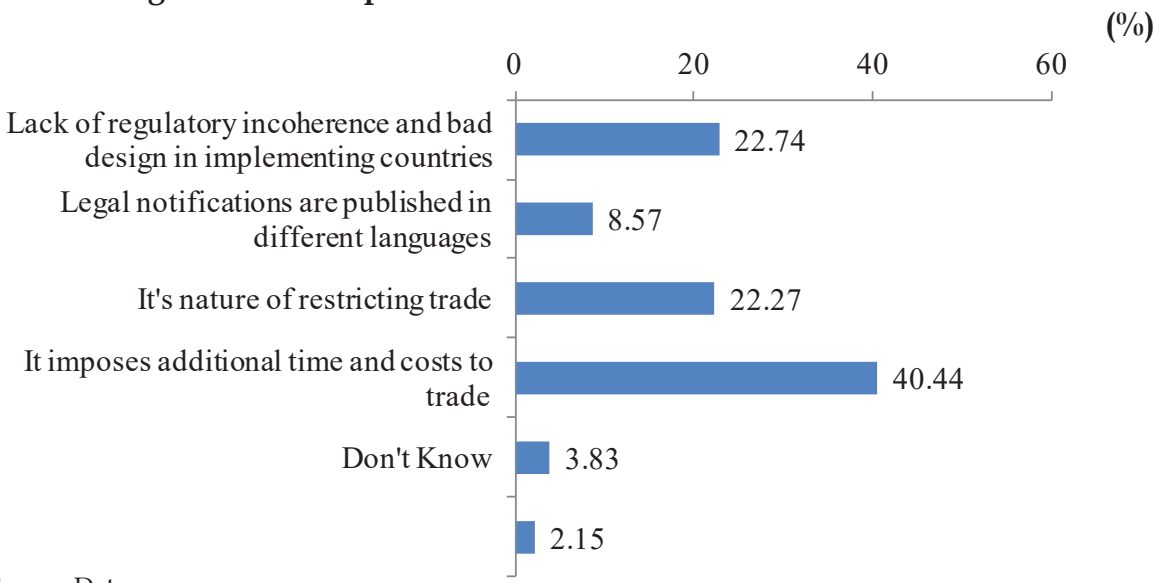
It is evident from the perception (Figure 6.3) that in addition to NTM- related issues, there are other trade barriers, which are restricting the trade between ASEAN and India. For instance, almost 30 per cent of the respondents reported complication in utilizing ASEAN-India FTA, and this is a major concern. In the survey, 25 per cent of the respondents reported lack of transparency of trade-related rules and regulations as major barriers to trade. About 10 per cent each of the respondents reported weak physical connectivity, stringent rules of origin and high

Figure 6.3: Perception on Major Barriers to Trade between ASEAN and India



Source: Survey Data.

Figure 6.4: Perception on the Problems related to NTMs



Source: Survey Data.

tariff as the major barriers to trade. Only about 3 per cent of the respondents informed that NTMs such as standard and technical regulations were barriers to trade between ASEAN and India.

6.3.2 Problems Associated with NTMs

Figure 6.4 shows the perception of respondents whether or not NTMs are problematic. Almost 40.4 per cent of the respondents reported that NTM measures led to incur additional time and cost to trade. Similarly, about 23 per cent of the respondents opined lack of regulatory incoherence and bad design in implementing countries and its nature of restricting trade as the problems in NTMs measures. In addition, close to 9 per cent of the respondents believed that the legal notifications related to NTMs published in different languages were the major problems. On the contrary, very few respondents, about 2 per cent of the respondents, were of the opinion that the lack of transparency proved to be another problem of NTMs.

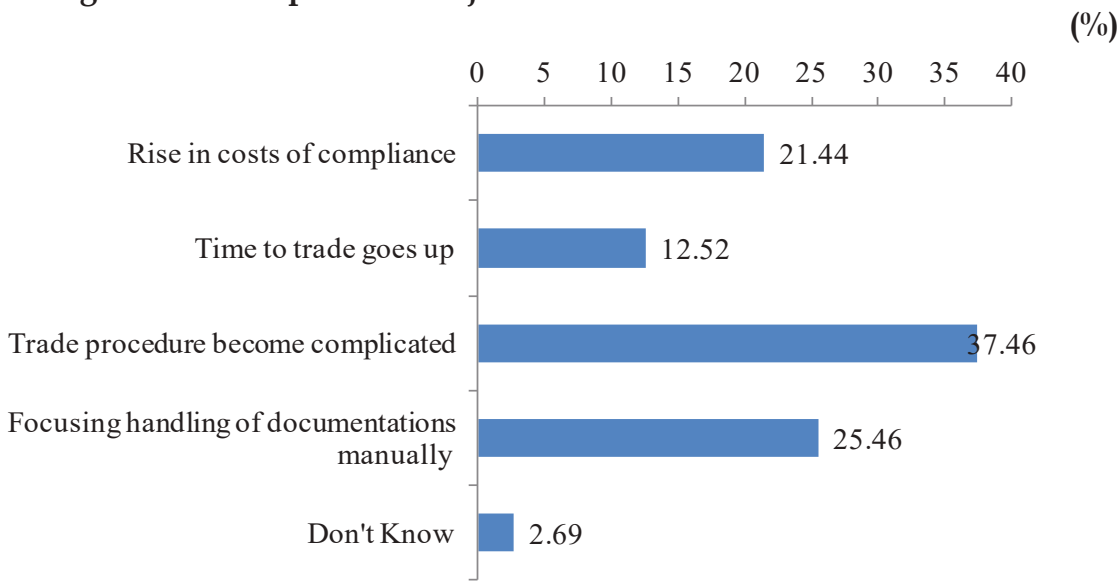
6.3.3 Major Obstacles of NTMs on Trade

Figure 6.5 illustrates respondents' perception on the major obstacles of NTMs on trade. About 37 per cent of them were of the opinion that complicated trade procedures were major obstacles of NTMs, followed by handling of documents manually (25 per cent), rise in cost of compliance (21 per cent) and increase in time to trade (13 per cent) respectively. Overall, the complexity in trade procedures involving several departments and documentations to be filled manually, lack of digitalisation, incurring additional cost and delaying in trade due to the requirement of testing and certifications were major obstacles of NTMs hindering trade between ASEAN and India. Figure 6.3 also indicates that digitalisation of border customs, single window system to follow-up the procedures related to NTMs, harmonisation of standard and technical regulations between ASEAN and India to reduce cost of compliance would lessen hindrance and enhance trade.

6.3.4 Procedural Obstacles in NTMs

Figures 6.3 to 6.5 show that the NTMs alone are not problematic for firms; often the procedures to follow the measures hinder the trade because of procedural obstacles. For instance, the way the rules are implemented may create obstacles such as multiple documentations, discriminatory treatment, lack

Figure 6.5: Perception on Major Obstacles of NTMs on Trade



Source: Survey Data.

of information portal, etc. These procedural obstacles are often informal practices, followed due to lack of training and infrastructure facilities. Therefore, firms on a day to day basis experience several procedural obstacles, which are broadly classified by the UNCTAD as procedural obstacles for NTMs. Each of the procedural problems can be associated with one or multiple types of NTMs. For instance, obstacles in getting certification for testing, such as incurring high cost or delay in obtaining certificate can be considered as "procedural obstacle" for NTMs. Procedural obstacles affect cost of entry and trading in importing country.

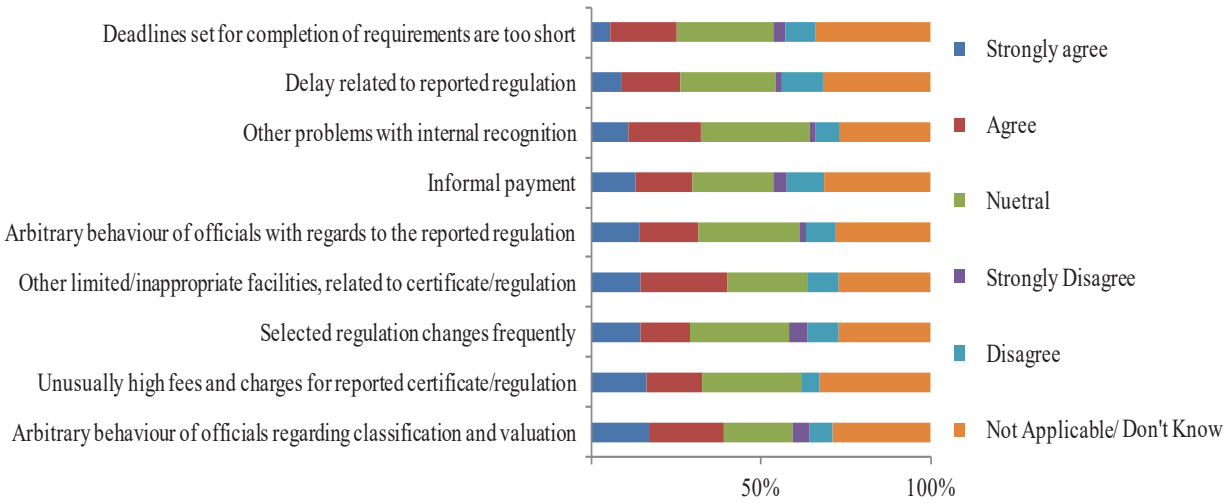
To know how the firms experience in various NTMs and the procedural obstacles, the firms were asked about the perception of experiencing procedural obstacles and their effect on trade between ASEAN and India. The questionnaire included broad classification of procedural obstacles and respondents were asked to scale their opinion by five-point scale from strongly agree to strongly disagree. For brevity, we classified the procedural obstacles into four broad groups based on the problems associated while dealing with the NTMs such as procedural obstacles associated with (i) regulatory barriers, (ii) logistic obstacles, (iii) information availability, and (iv) documentation difficulties.

Figure 6.6 shows firms' perception on the procedural obstacles on NTMs and their impact on export and import ability. Regulatory barriers are perceived to hinder firm's ability to trade and almost 20 to 40 per cent of the firms agreed/strongly agreed that frequent changes in selected regulation, arbitrary behaviour of officials regarding classification and valuation of the reported product, informal payment, short deadlines set for completion of requirements, other problems with internal recognition, unusually high fees and charges for reported certificate/regulation, delay related to reported regulation, arbitrary behaviour of officials with regards to the reported regulation and other limited/inappropriate facilities, related to certificate/regulation were regulatory barriers hindering their trade ability. Among the above mentioned regulatory obstacles, 40 per cent of the respondents strongly agreed that other limited/inappropriate facilities related to certificate/regulation was the major regulatory barrier that hindered firm's ability to export and import.

Logistics facility is another procedural obstacle of NTMs that can hinder firm's ability

Figure 6.6: Procedural Obstacles Associated with Regulatory Barriers

(%)



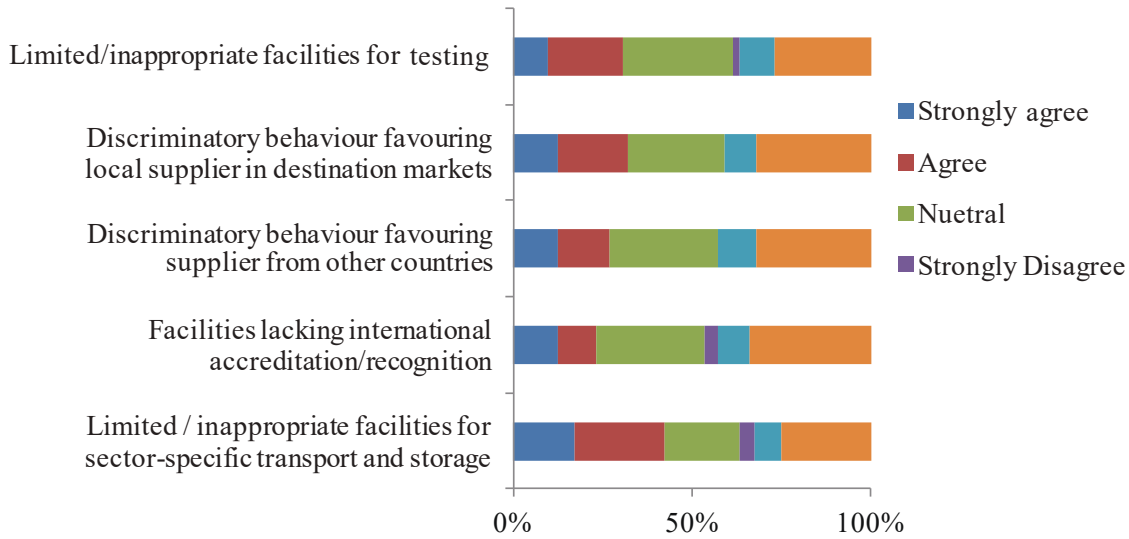
Source: Survey Data.

to trade (*see* Figure 6.7). About 25 to 45 per cent of the firms were of the view that logistics obstacles such as limited/inappropriate facilities for sector-specific transport and storage, facilities lacking international accreditation/recognition, limited/inappropriate facilities for testing, discriminatory behaviour favouring supplier from other countries and discriminatory behaviour favouring local supplier in destination markets acted as a barrier in their ability to export and import. Almost 43 per cent of the respondents strongly agreed that a limited/inappropriate facility for sector-specific transport and storage was the major logistic obstacle affecting their ability to trade.

Inadequate dissemination of the information regarding rules and certification/regulation affected firm's ability to export and import.

Figure 6.7: Procedural Obstacles associated with Logistics Obstacles

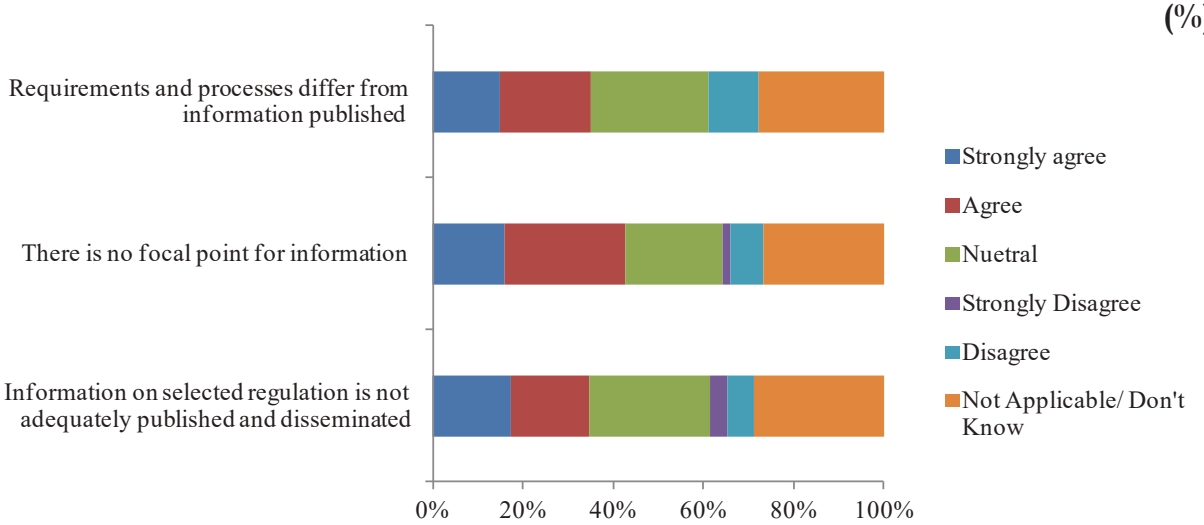
(%)



Source: Survey Data.

Figure 6.8: Procedural Obstacles Associated with Information Availability

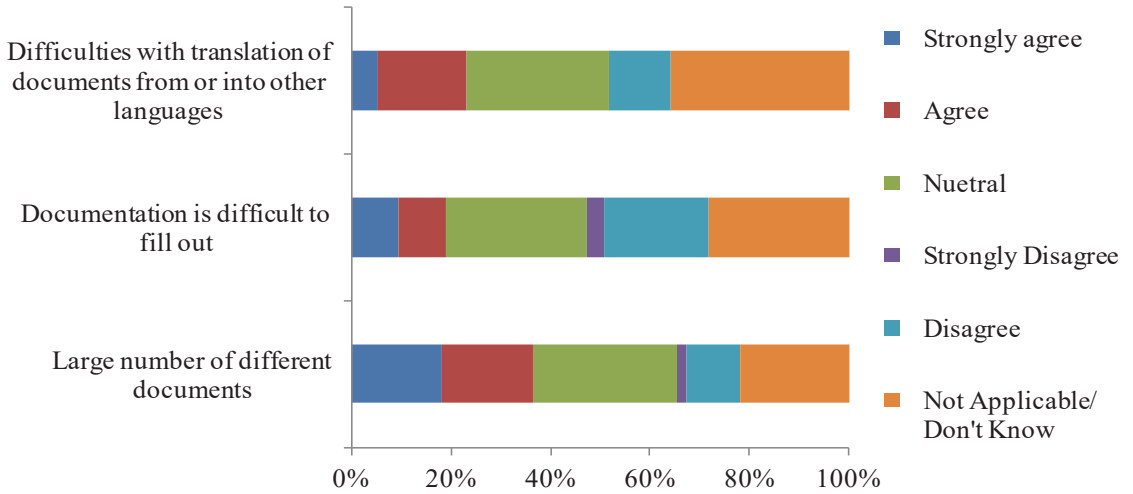
(%)



Source: Survey Data.

Figure 6.9: Procedural Obstacles Associated with Documentation Obstacles

(%)

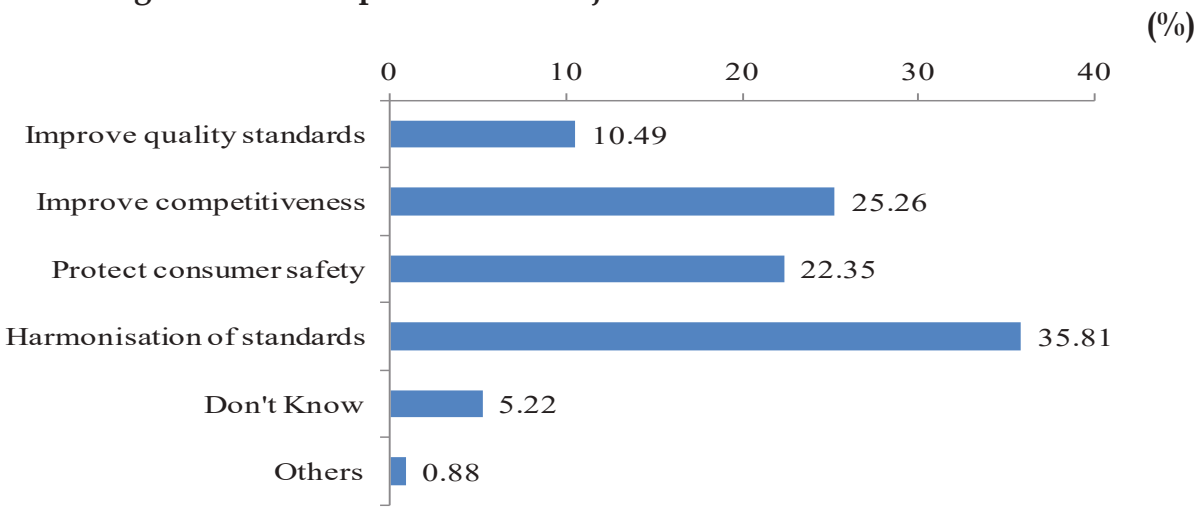


Source: Survey Data.

Figure 6.10 clearly shows that more than 35 per cent of the respondents perceived that procedural obstacles of NTMs such as information on selected regulation not adequately published and disseminated no focal point for information, requirements and processes differing from published information were information obstacles affecting strongly their ability to trade. About 36 per cent of the firms agreed that information on selected regulation which is not adequately published and disseminated was the major information obstacle hindering trade.

Figure 6.9 shows that almost 20 to 36 per cent of the respondents strongly agreed that procedural obstacles of NTMs such as difficulty in filling out documents, large number of different documents and difficulties with translation of documents from or into other languages were the documentation obstacles adversely impacting trading firms' ability to export or import. Among

Figure 6.10: Perception on the Major Benefits of NTMs on Trade



Source: Survey Data.

all the documentation obstacles, 36 per cent of respondents viewed large number of different documents as the major documentation obstacle hindering firms' ability. Overall, on an average, more than 30 per cent of the respondents strongly agreed that procedural obstacles of NTMs in the form of regulatory barriers, information obstacles, documentation obstacles and logistics obstacles hindered firm's ability to export and import in general.

6.3.5 Major Benefits of NTMs on Trade

To know how the respondents have perceived about the benefits of NTMs on trade, questions on the major benefits were asked to them (*see* Figure 6.10). It shows that about 36 per cent of the respondents were of the view that NTMs led to harmonization of standards. In addition, about 25 per cent and 22 per cent of the respondents reported that NTMs would improve competitiveness and protects consumer safety, respectively. About 10 per cent of the respondents were of the opinion that NTMs improved quality standards. Despite various challenges and obstacles in NTMs, it is, however, widely acknowledged that NTMs would lead to harmonize standards, protect environment, benefit consumer safety, and improve quality of products.

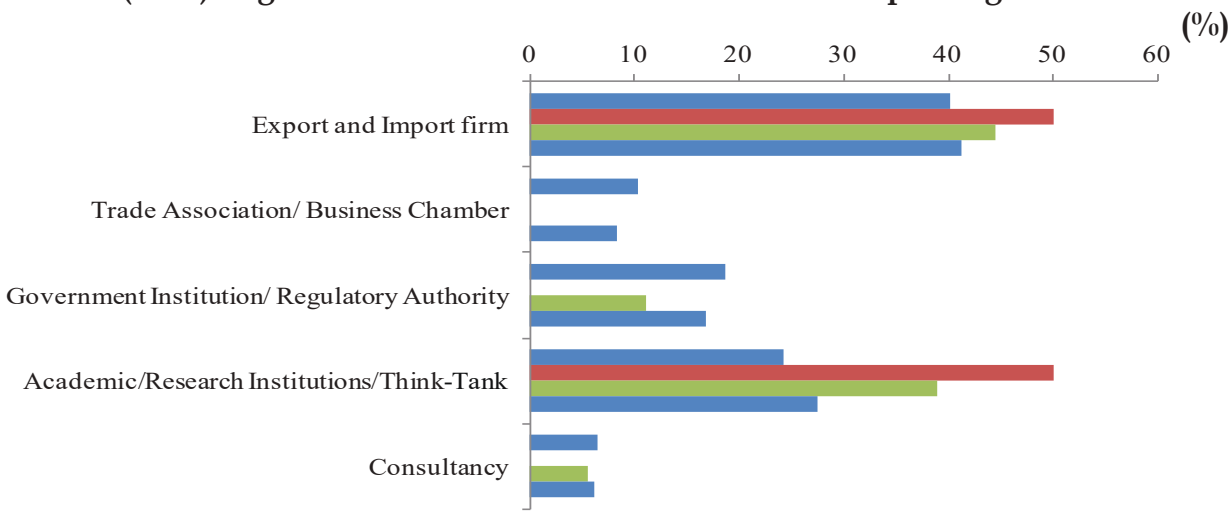
6.3.6 Harmonisation of S&T Regulations between ASEAN and India

As is evident from Figure 6.11, about 41 per cent of the export and import firms responded that harmonization of standard and technical regulations between ASEAN and India would improve trade. Opinions of other stakeholders such as academia/research institutions/think tanks (27 per cent), government institution/ regulatory authority (17 percent), trade association/business chamber (8 per cent) and other consultancy (6.54 per cent) indicated that harmonisation of the standards and technical regulations between ASEAN and India would be improving trade. Business firms were more affirmative towards believing that harmonisation of the standards and technical regulations would improve the trade between ASEAN and India.

6.3.7 Financing and Foreign Exchange Barriers on Trade

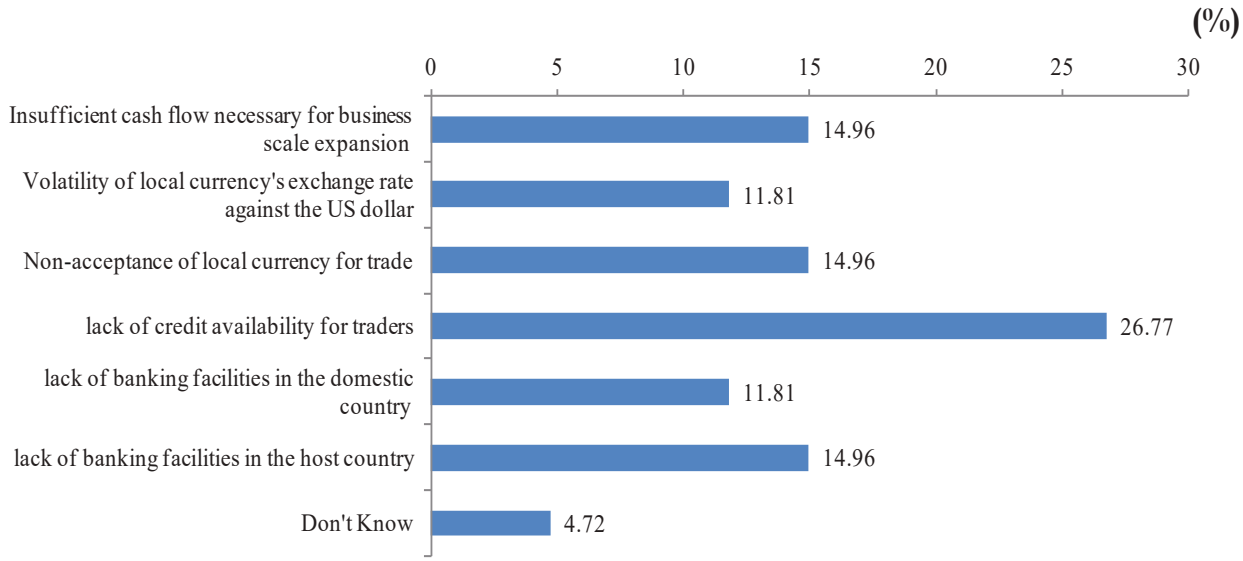
One of the important factors to promote ASEAN-India trade was perceived through improving financial development, enabling access to finance for traders, promoting financial cooperation for currency swapping arrangements, regulating exchange rate volatilities, easing cross-border financial transactions. In this regard, to

Figure 6.11: Perception on the Impact of Harmonization of Standard and Technical (S&T) Regulations between ASEAN and India in Improving Trade



Source: Survey Data.

Figure 6.12: Perception on Financing or Foreign Exchange Problems Restricting Trade between India and ASEAN



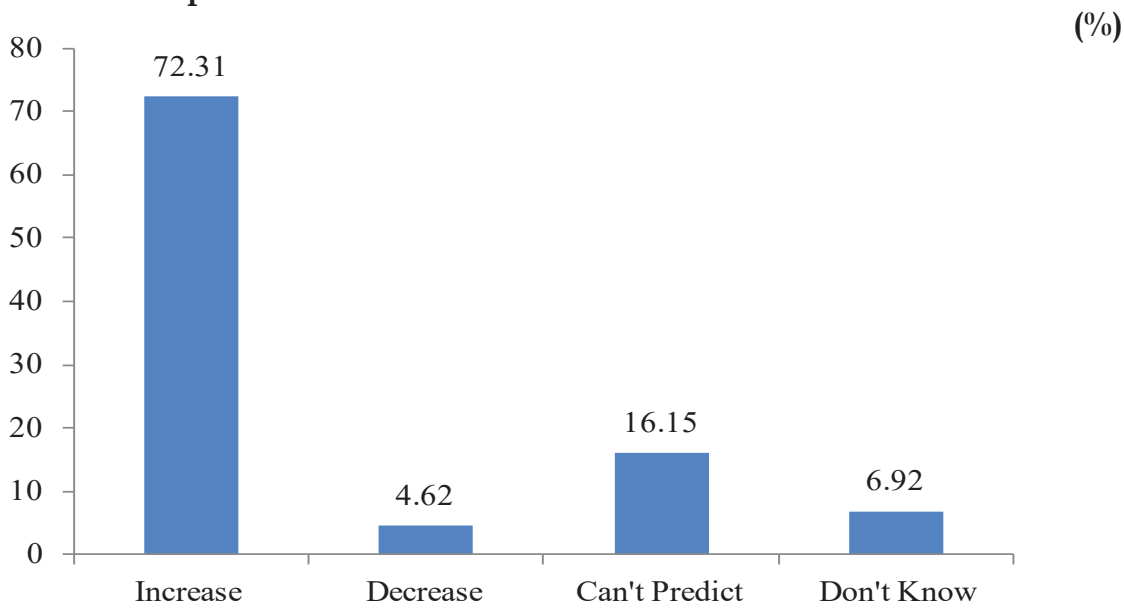
Source: Survey Data

know the perception of the respondents, the survey listed out major problems of financing and foreign exchange related issues restricting the trade (*see* Figure 6.12). Almost 27 per cent of the respondents reported that lack of credit availability for traders was the major problems restricting trade. Next, about 12 to 15 per cent of the respondents indicated insufficient cash flow for business expansion, exchange rate volatility, non-acceptance of local currency trade, lack of banking facility in both host and domestic country were restricting the trade.

6.3.8 Trade between ASEAN and India: Challenges and Future Expectations

Figure 6.13 illustrates respondents' opinion on future trade between ASEAN and India. About 72 per cent of the respondents were of the opinion that the trade between

Figure 6.13: Perception on Future of ASEAN and India Trade in Next 20 Years



Source: Survey Data.

ASEAN and India in the next 20 years would increase (*see* Figure 6.13). About 16 per cent of the respondents informed that they cannot predict future trade between ASEAN and India, and only about 5 per cent of the respondents reported that the trade between ASEAN and India would decrease in future. This shows that the respondents were more optimistic about the future trade between ASEAN and India, despite several difficulties and challenges with respect to NTMs, standards and technical regulations, utilisation of FTAs, infrastructure connectivity, trade facilitations, and so on.

6.3.9 Awareness and Knowledge Sharing on NTMs

Table 6.5 shows respondents involvement in organizing or participating in programmes on NTM issues. Only about 19 per cent of the export and import firms participated in the programmes on NTMs. Compared to export and import firms, about 45 to 65 per cent of other stakeholders such as trade associations, business chambers, government institutions, regulatory authorities, think tanks, research institutions, etc., attended programmes like workshops, seminars and conferences on NTMs. In particular, about 66.67 per cent of the respondents belonging to academia/research institutions/think tanks organized or participated in programmes on NTM issues at the regional/national level, followed by consultancy (50 per cent), trade association/business chamber (45.45 per cent) and government institution/regulatory authority (42.86 per cent), respectively.

Table 6.5 also shows the number of programmes organised/participated in the events like workshops, seminars and conferences on NTM issues during 2016 and 2017. Out of 18 per cent of the export and import firms which participated, 75 per cent of the respondents attended once in 2016 and in 2017, followed by 17 per cent of them organised/participated twice in 2016 and in 2017. About 30 to 40 per cent of other stakeholders like trade associations, government institutions, think tanks and research institutes organised / participated in NTMs in 2016 and in 2017, and 60 per cent of the other stakeholders attended more than twice during 2016 and 2017.

Table 6.5: Respondents Involvement in Organizing or Participating in Programme on NTM Issues

(%)

	Export & Import firm	Trade Association/ Business Chamber	Government Institution/ Regulatory Authority	Academic/ Research Institutions/ Think-Tank	Consultancy	Total
Have you organised or participated in programme on NTM issues at regional / national level?						
Yes	18.52	45.45	42.86	66.67	50	39.84
No	81.48	54.55	57.14	33.33	50	60.16
Total	100	100	100	100	100	100
B. If yes, how many have you organised/participated in 2016 and 2017?						
1	75	40	30	34.78	25	42.59
2	16.67	0	20	39.13	25	25.93
3	0	20	30	8.7	0	11.11
4	8.33	20	20	0	25	9.26
5 and above	0	20	0	17.39	25	11.11
Total	100	100	100	100	100	100

Source: Survey Data.

6.4 Empirical Analysis on the Perception of Future Trade between ASEAN and India

The primary survey indicated that firms experienced several difficulties and challenges with respect to NTMs, particularly SPS and TBT measures, market access to ASEAN countries, procedural obstacles associated with NTMs, complication in utilising AIFTA. However, respondents were also of the opinion that ASEAN is the potential market and they are more optimistic about the rise in ASEAN-India trade in future. In this context, this Section attempted to examine factors determining respondents' perception of future trade between ASEAN and India based on the primary survey data. We carried out the analysis for both overall sample and firm-level perception on future trade between ASEAN and India.

6.4.1 Empirical Model for Overall Respondent's Perception on Future Trade

Given the opinion of the stakeholders, the study captured factors determining respondents' perception on expected increase or decrease in trade relations between ASEAN and India. The empirical model for the study is defined as follows.

$$Y = a + \beta X' + \gamma Z' + \delta W + \varepsilon \qquad (1)$$

where Y is the dependent variable to explore respondents' perception on ASEAN-India future trade with the value of 1 meaning increase in future trade and 0 otherwise.

X' is the vector of individual characteristics which includes level of education and years of work experience of the respondents. The level of education is measured in three categories, with the value 1 for undergraduate, 2 for post-graduate, 3 for PhD. Similarly, the years of

experience is measured in six categories, with the value 1 for up to 5, 2 for 6 to 10, 3 for 11 to 15, 4 for 16 to 20, 5 for 21 to 25 and 6 for above 26 years of experience, respectively. Both the levels of education and years of experience of the respondents are expected to have ambiguous relation with the perception on ASEAN-India future trade.

Z' is the vector of core variables which influence respondent's perception on increase or decrease in future trade between ASEAN and India. We generated a series of indices based on the survey questionnaire pertaining to problems related to NTMs, benefits pertaining to NTMs, issues related to standard and technical regulation, procedural obstacles related to NTMs, obstacles in finance and foreign exchange related issues. The detailed methodology on deriving index for the survey questions are given in Appendix 3.

Index for problems associated with NTMs are created from Figure 6.4 using lack of regulatory incoherence and bad design in implementing countries, published legal notifications in different languages, NTMs' nature of restricting trade, NTM imposing additional time and costs to trade, not knowing and lack of transparency. Any problems associated with NTMs would hinder trade between India and ASEAN, and, thus, it is expected to have a negative impact on the perception of future trade.

Index for benefits associated with NTMs has been created from Table 6.10 using survey questions, namely, NTMs improve quality standards, NTMs improve competitiveness, NTMs protect consumer safety and NTMs harmonize standards. Respondents' perception on the benefit pertaining to NTMs exhibited the positive aspect of promoting trade. It is expected to have a positive impact on the perception of future trade between India and ASEAN.

Index for obstacles associated with NTMs is created based on costs of compliance, time to trade, trade procedure, handling of documentations, etc. Procedural and administrative obstacles associated with NTMs can restrict trade, and, therefore, it is expected to have a negative impact on the perception of the future trade between India and ASEAN.

Index for standard and technical regulation is captured using reasons for the difficulties to comply with standard and technical regulations such as increase of the cost of the product, discriminatory treatment, stringent social compliance measures (e.g. insistence on specific code of conduct regarding respective countries social preferences), lack of uniformity of standards and lack of information (*see* Figure 5.14 in Chapter 5). Difficulties in complying with standards and technical regulations would have an adverse affect on the trade, and therefore, it is expected to have a negative impact on the perception of the future trade.

Index for problems on finance and foreign exchange related issues is created based on cash flow for business scale expansion, volatility of local currency's exchange rate against the US dollar, acceptability of local currency for trade, credit availability for traders, banking facilities in the domestic country and banking facilities in the host country. Problems associated with financing related issues affected negatively ASEAN-India trade, and, therefore, it is expected to have a negative impact on the perception of the future trade.

W represents categorical variable for harmonization of standard and technical regulations between India and ASEAN with the value of 1 for yes, 2 for no and 3 for do not know (*see* Figure 5.11 in Chapter 5). Harmonization of products standards between the countries or regions by following international standards would reduce trade costs and time, and, may have a positive impact of promoting trade. Therefore, it is expected to have a positive impact on the perception of the future trade between India and ASEAN.

6.4.2 Results and Discussion

Given that Y is a dichotomous variable and if the respondent responded perception of the future trade between India and ASEAN to be 1 if increased or 0 if decreased; the study employed

Table 6.6: Probit Analysis for All Samples

	Model 1	Model 2	Model 3	Model 4
Education	0.120***	0.108***	0.114***	0.114***
	(3.28)	(2.60)	(2.70)	(2.99)
Years of Experience	0.029***	0.025***	0.025***	0.020***
	(4.65)	(4.69)	(3.75)	(3.52)
Harmonization of S&T promote Trade between ASEAN and India	0.241	0.377***	0.365***	
	(1.61)	(2.87)	(2.71)	
Index for Problems relate to NTMs	-0.140***			-0.159***
	(4.60)			(5.14)
Index for Benefits associated with NTMs	0.009*			0.019*
	(1.92)			(1.62)
Index for Obstacles associated with NTMs		-0.041**		
		(2.00)		
Index for Compliance with Standard and Technical Regulation			-0.039*	
			(1.81)	
Index for Finance or Foreign Exchange Problems				-0.085**
				(2.16)
Observations	99	99	99	99
Psuedo R-squared	0.47	0.34	0.33	0.49

Notes: parentheses' shows z-statistic. ***, ** and * indicate 1 percent, 5 percent and 10 percent significance level respectively.
Source: Authors' calculation.

probit model for analysis (*see* Appendix 4 for detailed methodology). We employed probit model for all samples, including respondents from exporting and importing firms, trade association/business chambers, government institutions/regulatory authorities, academia/ research institutions/think-tanks and consultancy organisations. Table 6.6 reports marginal effects of probit model.[37] The marginal effects explain the direction (the sign of the marginal effect) and the strength (the absolute value of the marginal effect) for each of the explanatory variable effects on the respondent's perception on increase or decrease in the future trade probability. Due to high correlation among the independent variables, we followed a step-wise probit regression analysis. The correlation coefficient of the variables is reported in Appendix 6. Given the limited sample size, the diagnostic test of Pseudo R-squared suggests that goodness of fit is close to 50 per cent.

The marginal effects of respondents' level of education and years of experience are significant in all the models and suggest that respondents with higher level of education and years of experience were optimistic regarding future trade between India and ASEAN in models (1) to (4). These results imply that according to qualified and experienced respondents, trade between India and ASEAN would rise eventually in future.

The marginal effects of the perception on harmonization of S&T promoting trade between ASEAN and India in models (1)-(4) showed that 24 to 46 per cent of the respondents (mainly export and import firms and research institutions/think tanks and government institutions) believed that harmonization

of standard and technical regulation would significantly increase future trade between ASEAN and India. Several studies[38] indicated that harmonization of standards and production process across countries would remove trade barriers, and thus have a positive impact on trade.

The marginal effect of index for problems related to NTMs (such as additional time and costs to trade, lack of regulatory incoherence and bad design in implementing countries and NTMs nature of restricting trade) indicates that the problems associated with NTMs would decrease future trade between India and ASEAN by 15 per cent in models (1) and (4).

The estimates of index for benefits associated with NTMs (such as harmonization of standards, improve competitiveness and protects consumer safety) show that respondents perceived that benefits would increase future trade between India and ASEAN marginally by 1 to 2 per cent in models (1) and (4).

The estimates of index for obstacles associated with NTMs (such as complicated trade procedures, handling of documents manually (25 per cent), rise in cost of compliance and increase in time to trade) show that obstacles associated with NTMs on trade would increase trade in future by 4 per cent in model (2) between India and ASEAN.

The estimates of index for compliance with standard and technical regulations (such as lack of uniformity of standards, increase in the cost of the product and stringent compliance cost) show the respondents perception that difficulties to comply with standard and technical regulations would decrease trade in future between ASEAN and India by 3 per cent in model (4).

The estimates of index for financing and foreign exchange problems (such as lack of credit availability for traders, insufficient cash flow for business expansion, exchange rate volatility, non-acceptance of local currency trade, lack of banking facility in both host and domestic country) show financing and foreign exchange problems would decrease trade in future by 8 per cent in model (5).

6.4.3 Empirical Model for Firms' Perception on Future Trade

We examined further what the export and import firms perceived about the future trade between ASEAN and India by considering firm specific characteristics along with NTMs imposed by importing countries and difficulties in market access between ASEAN and India in the equation (1). The empirical model for the firm specific analysis is as follows.

$$Y = a + \beta X' + \gamma Z' + \mu V' + \delta W + \varepsilon \qquad (2)$$

where Y is the future trade which is a dichotomous variable and takes the value of 1 if the respondent responded that the future trade between India and ASEAN would increase and 0 for decrease. X' is the vector of individual characteristics, which includes education and years of experience of the respondents. The firm's experience in exporting and importing is expected to have an ambiguous effect on the perception of the future trade.

V' is the vector of firm specific characteristics, which includes export and import experience of business firms, trading destinations in ASEAN and market access in ASEAN. Further, the model also incorporates total number of trading destinations in ASEAN, which is expected have a positive impact on the perception of future trade. Market access in export to ASEAN, compared to other exporting destinations is also taken in the model, which is expected to have either positive or negative impact on the future trade. The interpretation and signs of independent variables common in both equations are the same.

Z' is the vector of indexes, which includes variables such as reasons index, benefits index, NTM import index and finance and foreign exchange index. W represents harmonization variable. In addition, Z' vector also includes the index of firm's perception on different types of NTMs. The respondents were provided with 12 options under this question, which including quantity control measures (e.g. quotas, prohibitions), intellectual property rights (e.g. copyright, trademark, patents), distribution

channels (e.g. seaport and airport regulations, secondary dealers), price control measures (e.g. anti-dumping measures, countervailing measures), public procurement issues (e.g. legal framework, contract conditions), border procedures (e.g. customs procedures, pre-shipment inspection and other formalities), other non-tariff measures, standards and technical regulations for Technical Barriers to Trade (TBT) reasons, para-tariff measures (e.g. customs surcharge, additional charges, internal taxes and charges on imports), government assistance issues (e.g., subsidies, export refunds), standards and technical regulations for Sanitary and Phytosanitary Measures (SPS) reasons and financial measures (e.g. advance payments, multiple exchange rates). Any restriction imposed by countries in the form of NTMs is expected to have a negative impact on the future trade between India and ASEAN.

6.4.4 Results and Discussion

The marginal effect in Table 6.7 shows that the respondents with one more year of education and years of experience, then the probability

Table 6.7: Probit Analysis for Firms

Future Trade	Model 1	Model 2	Model 3	Model 4
	Marginal Effects	*Marginal Effects*	*Marginal Effects*	*Marginal Effects*
Education	0.365***	0.398***	0.406***	0.348***
	(3.36)	(3.50)	(4.34)	(3.01)
Years of Experience	0.017	0.040	0.031	0.023
	(0.55)	(1.36)	(1.19)	(0.77)
Index on India's Rank for Firms preferred trade Destination	0.114	0.119	0.109	0.131
	(1.23)	(1.07)	(1.15)	(1.12)
Dummy for Potential Trade in Next 10 years (1 for ASEAN and 0 otherwise)	0.083***	0.067***	0.071***	0.066***
	(3.32)	(3.10)	(4.38)	(3.07)
Dummy for Difficulties in Market Access in ASEAN (1 for Yes and 0 otherwise)	-0.016	-0.006	-0.001	-0.008
	(0.46)	(0.18)	(0.04)	(0.23)
Index for Problems relate to NTMs	-0.219	-0.190	-0.247	
	(1.49)	(1.29)	(1.46)	
Index for Benefits associated with NTMs	0.240**	0.280***	0.155	
	(2.26)	(2.86)	(1.29)	
Harmonization of S&T	-0.097			
	(1.34)			
Index for Different Types of NTMs			-0.003***	
			(3.75)	
Index for Finance or Foreign Exchange Problems				-0.220*
				(1.71)
Observations	47	48	48	48
Pseudo R-squared	0.36	0.31	0.45	0.26

Notes: parentheses' shows z-statistic. ***, ** and * indicate 1 percent, 5 percent and 10 percent significance level respectively.
Source: Authors' calculation.

of respondents who would choose increase in future trade between India and ASEAN would increase by 35 to 42 per cent and 6.5 to 8 per cent. It implies that respondents working in firms having more education and work experiences are optimistic about the future trade. The results also show that older firms were less optimistic about the future trade. This may be owing to the fact that distribution of sample is skewed towards small size firms, compared to large and medium firm, who face several challenges in trading with foreign countries.

The estimate of index for ASEAN rank shows that the probability of export and import firms' rise in future trade between India and ASEAN would increase by 13 to 14 per cent. If the respondents perceive that ASEAN is a potential market for the next 10 years, the probability of export and import firms choosing increase in future trade would increase by 6 to 7 per cent in models (1) to (4). Given the present trading patterns of the export and import firms, ASEAN countries are the major export and import destinations of the Indian firms. This is simply captured in the analysis. The marginal effects for market access in ASEAN are negative and insignificant in models (1) to (4). The negative sign depicts that difficulties associated with market access in export to ASEAN negatively affect the trade potential of export and import firms. However, this result shows that market access in export to ASEAN, compared to export to other countries, is not likely to have any significant effect on the future trade, according to the perception of export and import firms.

The estimates of index for problems related to NTMs (such as additional time and cost to trade, lack of regulatory incoherence and bad design in implementing countries and NTMs nature of restricting trade) show that problems associated NTMs would decrease future trade between India and ASEAN by about 25 per cent in models (1) and (3). However, the estimates came out to be negative and insignificant in model (2). The estimates of index for benefits associated with NTMs (such as harmonization of standards, improve competitiveness and protects consumer safety) show that the respondents, exporting and importing firms, perceived that benefits would increase future trade by about 25 to 32 per cent in models (1)-(3).

The estimates of index for financing and foreign exchange problems (such as lack of credit availability for traders, insufficient cash flow for business expansion, exchange rate volatility, non-acceptance of local currency trade, lack of banking facility in both host and domestic country) show that according to the export and import firm respondents perception, there would be decrease in future trade by 0.4 per cent in model (5).

The estimate of harmonization of S&T in model (1) is positive and significant, which shows that exporting and importing firms view that harmonization of standards and technical regulations have significant role in improving the future trade. The estimate of index for different types of NTMs is negative and insignificant in model (3). This result shows that different types of NTMs imposed by importing countries have no effect on the future trade.

Overall, the analysis of both the samples, overall and firm-level, suggests that respondent's education level and years of experience, and other core factors such as the benefits of NTMs in terms of improving quality standards and competitiveness; and harmonization of standard and technical regulations would increase trade between ASEAN and India in the coming years. However, the problem of procedural obstacles related to NTMs, difficulties in terms of compliance with standard and technical regulations and financing and foreign exchange problems would decrease trade in future. In addition to all sample results, the results of firm level analysis also suggest that the respondents, who believe that ASEAN is the potential market in the next 10 years, have indicated a rise in future trade between ASEAN and India.

6.5 Concluding Remarks

The growing awareness to consume safe and quality products has stressed the importance of maintaining national and international standards and technical regulations and in testing,

inspection and certification procedures across all sectors. For instance, ASEAN has initiated several work programmes to improve NTMs and has constituted an ASEAN Consultative Committee on Standards and Quality (ACCSQ) to undertake harmonization process and to implement MRAs with international bodies. Its major objectives are to harmonise the national standards with international standards and practices, develop and harmonize technical regulations, and in creating an efficient and non-duplicative conformity assessment procedure. In the case of India, BIS is the sole entity responsible for development and formulation of standards for several sectors and also has the status of Indian Standards. Similarly, the Food Safety and Standards Authority of India (FSSAI) as a statutory body is responsible for laying standards for food and regulating manufacturing, processing, distribution, sale and import of food. India also has improved quality of checking compliance regulations through third party conformity assessment bodies and has established QCI as an accreditation structure in the country. In this context, the primary survey has explored stakeholders' perception on NTM regulations in both ASEAN and India.

The major findings of this chapter are as follows:

- Majority of the respondents strongly believed that harmonization of standard and technical regulations between ASEAN and India would improve the trade Between ASEAN and India.
- Most of the respondents believed that complicated trade procedures (37 per cent), handling of documents manually (25 percent), rise in cost of compliance (21 per cent) and increase in time to trade (13 per cent) were the major barriers to trade.
- Most of the respondents believed that NTMs leading to harmonization of standards (36 per cent) would improve competitiveness (25 per cent) and protect consumer safety (22 per cent).
- Lack of credit availability for traders, insufficient cash flow for business expansion, exchange rate volatility, non-acceptance of local currency trade, lack of banking facility in both host and domestic country were the problems restricting trade between ASEAN and India.
- Almost 40.4 per cent of the respondents reported that NTMs led to incur additional time and cost to trade. Similarly, each about 23 per cent of the respondents believed that lack of regulatory incoherence and bad design in implementing countries and its nature of restricting trade were the problems in NTMs.
- More than 30 per cent of the respondents strongly agreed that procedural obstacles of NTMs in the form of regulatory barriers, information obstacles, documentation obstacles and logistics obstacles hindered firm's ability to export and import.
- Almost 30 per cent of the respondents reported that complication in utilizing ASEAN-India FTA and lack of transparency of trade-related rules and regulations were major barriers to trade for majority of the respondents.
- Overwhelmingly, about 72 per cent of the respondents believed that the trade between ASEAN and India in next 20 years would rise.
- Only about 19 per cent of the export and import firms participated in the programmes related to NTMs, compared to other stakeholders such as trade associations, business chambers, government institution, regulatory authorities, think tanks and research institutions.
- The empirical analysis on the factors determining the perception of future trade between ASEAN and India revealed that the problems and procedural obstacles related to NTMs and barriers related to standard and technical regulations did have a negative effect on the perception of future trade. Harmonisation of standards and technical regulations, benefits associated to NTMs would positively promote future trade between ASEAN and India.

Chapter 7

Dealing with Regulatory Requirements of SPS and TBT

7.1 Introduction

NTMs such as SPS and TBT measures have emerged as an alternative trade policy instrument relative to traditional means of managing international trade, such as tariffs and quotas. Due to growing attention on awareness and interest on the quality and safety of the consumers and environment, countries are increasingly imposing several standards and regulaory measures to assure the quality of the imported goods. However, some of the NTMs are also imposed to protect the domestic market. Therefore, exporting countries have also raised trade concerns against the NTMs as well. In this context, this chapter deals with the issues and relevance of regulatory requirements of SPS and TBT between ASEAN and India. The study has also covered issues of Specific Trade Concerns (STCs) of SPS and TBT between ASEAN and India. The study also assessed the incidence of SPS and TBT between ASEAN and India both at the country level and sectoral level. Along with the study carried out case studies on selected products at HS 6-digit level to look at the issues related to SPSs and TBTs.

7.2 Brief Background of SPS and TBT

"Sanitary" refers to human and animal health, including food safety, and "phytosanitary" means plant health. Sanitary and Phytosanitary (SPS) sets out the basic rules for food safety and animal and plant health requirements. The Agreement on the Application of SPS Measures entered into force with the establishment of the World Trade Organization (WTO) on 1 January 1995. It allows countries to set their own standards. However, it also specifies that regulations must be based on scientific findings and should be applied only to the extent they are necessary to protect human, animal or plant life or health; they should not unjustifiably discriminating among countries where similar conditions exist. In the NTM classification, Chapter A deals with SPS measures. It gathers measures such as restriction for substances and ensuring food safety, and those forpreventing dissemination of diseases or pests. It also includes all conformity-assessment measures related to food safety, such as certification, testing and inspection, and quarantine. The detail sub-classification of SPS is given in Box 7.1.

The WTO Technical Barriers to Trade (TBT) Agreement[39] has addressed all other technical regulations, standards and conformity assessment procedures imposed with a non-trade objective (i.e. to ensure safety, quality and environmental protection, etc). The legitimate objectives of taking technical measures are very broad and comprehensive, mostly not related directly to trade policy objectives and, inter alia, for national security requirements. But, in practice, it is often difficult to identify legitimacy and protective effects of technical

Box 7.1: SPS Classifications

A1 Prohibitions/restrictions of imports for SPS reasons
- Temporary geographic prohibitions for SPS reasons (A11)
- Geographical restrictions on eligibility (A12)
- Systems approach (A13)
- Special authorization requirement for SPS reasons (A14)
- Registration requirements for importers (A15)

A2 Tolerance limits for residues and restricted use of substances
- Tolerance limits for residues of or contamination (A21)
- Restricted use of certain substances (A22)

A3 Labeling, marking and packaging requirements
- Labeling (A31), Marking (A32) and Packaging (A33)

A4 Hygienic requirements
- Microbiological criteria of the final product (A41)
- Hygienic practices (A42)

A5 Treatment for elimination of plant and animal pests and disease-causing organisms in the final product
- Cold/heat treatment, Irradiation and Fumigation

A6 Other requirements on production or post-production processes
- Plant-growth processes (A61),Animal-raising or -catching processes (A62) and Food and feed processing (A63)
- Storage and transport conditions (A64)

A8 Conformity assessment related to SPS
- Product registration requirement (A81)
- Testing requirement (A82),Certification requirement (A83) and Inspection requirement (A 84)
- Traceability requirements (A85) and Quarantine requirement (A86)

A9 SPS measures, n.e.s.

Source: UNCTAD (2012).

measures, whether intended or not. Chapter B details technical measures, such as labelling, standards on technical specifications and quality requirements, and other measures protecting the environment. The detailed sub-classification of TBTs is given in Box 7.2.

Box 7.2: TBT Classifications

B1 Prohibitions/restrictions of imports for objectives set out in the TBT agreement
- Prohibition for TBT reasons (B11)
- Authorization requirement for TBT reasons (B14)
- Registration requirement for importers for TBT reasons (B15)

B2 Tolerance limits for residues
- Tolerance limits for residues of or contamination by certain substances (B21)
- Restricted use of certain substances (B22)

B3 Labelling, marking and packaging requirements
- Labeling requirements (B31), Marking requirements (B32)
- Packaging requirements (B33)

B4 Production or post-production requirements
- TBT regulations on production processes (B41)
- TBT regulations on transport and storage (B42)

B6 Product identity requirement

B7 Product-quality or -performance requirement

B8 Conformity assessment related to TBT
- Product registration requirement (B81) Testing requirement (B82)
- Certification requirement (B83)
- Inspection requirement (B84)
- Traceability information requirements (Origin, Processing and Distribution) (B85)

B9 TBT measures, n.e.s.

Source: UNCTAD (2012).

While the scope of SPS and TBT agreements (*see* Table 7.1) is different, the purpose of both the agreements is to protect human or animal health from food-borne risks and also from animal- or plant-borne diseases, pests and to ensure the quality of the product through several technical requirements.

SPS and TBT measures, their objectives and legal frameworks have important economic effects on the international trade. Not all SPS and TBT measures have negative effect on the trade. They may have both trade diversion and trade creating effect depending on the effective implementation of streamlining information regarding safety, quality and specifications of products between trading partners.[40] Therefore, they would ultimately reduce trade costs promoting trade and protecting consumers with the required information about the product. Many of the NTMs require improved production processes, investment in new technology, efficient trade infrastructure and use of more expensive shipping methods— all of which are often more costly to be implemented in developing countries. SPS and TBT regulations are mostly carried through series of conformity assessment measures, which often depend on the origin of the product, may incur high cost, and may have complexity and procedural delay for certification. Therefore, the differences in the requirement between exporting and importing countries on both regulations and conformity assessment measures may create restrictions in the market access. It often increases fixed and marginal trade costs and/or production costs. We have discussed in detail in Chapter 5 on the firms' perception on the impact of standards and technical regulations on trade costs.

7.3 STCs on SPS and TBT in ASEAN and India

The agreements on SPS and TBT measures helped improve the transparency by notifying to the WTO Secretariat, if anything new or change in the regulations with trade. Each WTO member has an enquiry point to respond to request raised by the partner country related to requirements on SPSs and TBTs. Better transparency helps protect consumers and trading partners from avoidable technical requirements imposed for restricting market access. NTMs are imposed legitimately to protect consumers from low-quality products, but eventually end up as

Table 7.1: Differences in SPS and TBT Measures

SPS measures	TBT measures
Additive in food or drink	Labelling of food, drink and drugs
Contaminants in food or drink	Grading and quality requirements for food
Poisonous substance in food or drink	Packaging requirements for food
Residues of veterinary drugs or pesticides in food or drink	Packaging and labelling for dangerous chemicals and toxic substances
Certification: food safety, animal or plant health	Regulations for electrical appliances
Processing methods with implications for food safety	Regulations for cordless phones, radio equipment, etc.
Labelling requirements directly related to food safety	Textiles and garments labelling
Plant/animal quarantine	Testing vehicles and accessories
Declaring areas free from pests or disease	Regulations for ships and ship equipment
Preventing disease or pests spreading to a country	Safety regulations for toys
Other sanitary requirements for imports (e.g., imported pallets used to transport animals)	Other TBT measures

Source: WTO (2010).

trade barriers and increase trade costs. When importing countries shift from tariff protection to non-tariff protection, that becomes effective barrier to trade and the exporter country can raise a concern at the dedicated SPS and TBT Committees of the WTO (*see* Box 7.3).

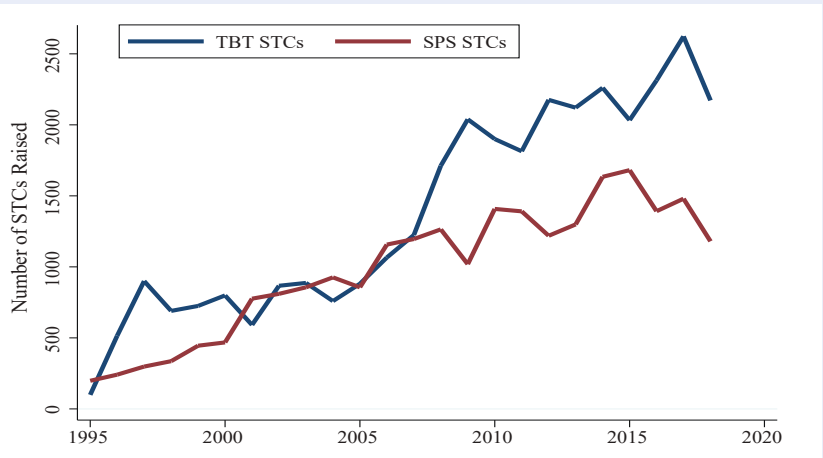
When a country raises a concern at the WTO SPS and TBT Committee over a measure (whether draft or in force), it specifies the product of the concern, type of concern about the measure and the objective of the measure concerned. Out of 511 SPS STCs, 158 STCs and 88 STCs have been raised against ASEAN and India by member countries, whereas and in case of TBT STCs, about 85 STCs and 51 STCs are raised over the period from 1995 to 2018 (*see* Figure 7.2). In other words, about 35 per cent and 64 per cent of the STCs of SPSs and TBTs

Box 7.3: WTO Committee on Specific Trade Concerns for SPS and TBT Measures

Specific Trade Concerns database on SPSs and TBTs by WTO provides WTO members with a forum to discuss issues related to SPS and TBT measures taken by other members. The Specific Trade Concerns (STCs) at the WTO ensured that NTMs imposed by importing countries are not intending for barriers to trade. STC highlights the specific product of concern rather than the product on which the measure is applied. STCs raised by a country on specific product may be different from the information of product coverage given in the notification of NTMs. For instance, the notifications may cover a broad range of products, while the concern raised by a country pertains only to a subset of products covered by the measure. STCs can be raised to a measure currently in force or a new measure notified at the WTO. In the case of new measures, except for the case of an emergency measure, STCs can be raised as early as 8 months before the new regulation entering into force.

Therefore, database on STCs by WTO SPS and TBT Committee brings attention to, discusses, and potentially resolves STCs. However, the Committee would not engage in a formal dispute in any legal sense, There is no obligation for members to raise a concern, whereas, it facilitiate as a forum for members to exchange information and discuss implementation of SPS Agreement.

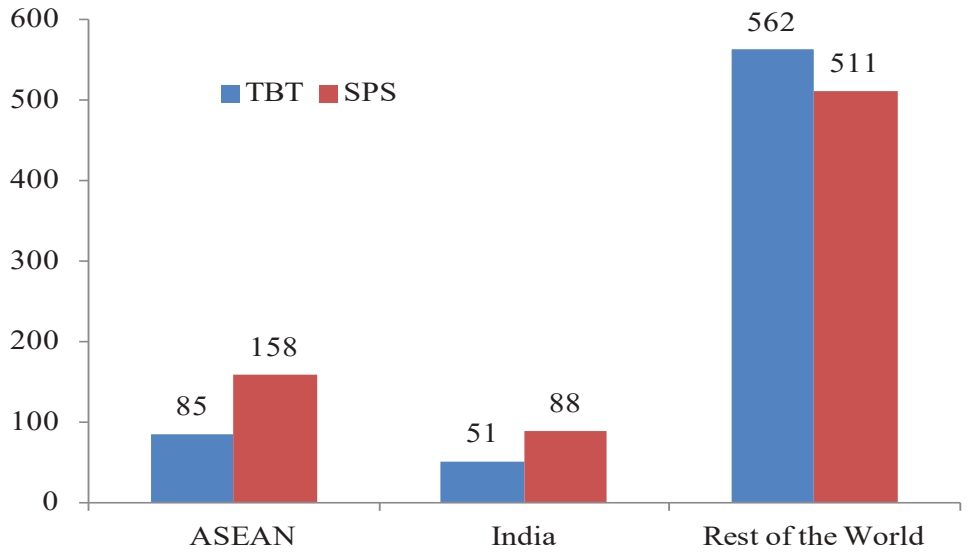
Figure 7.1: Number of Members Raised Specific Trade Concerns (STCs) on SPS and TBT



Source: World Trade Organization (WTO).

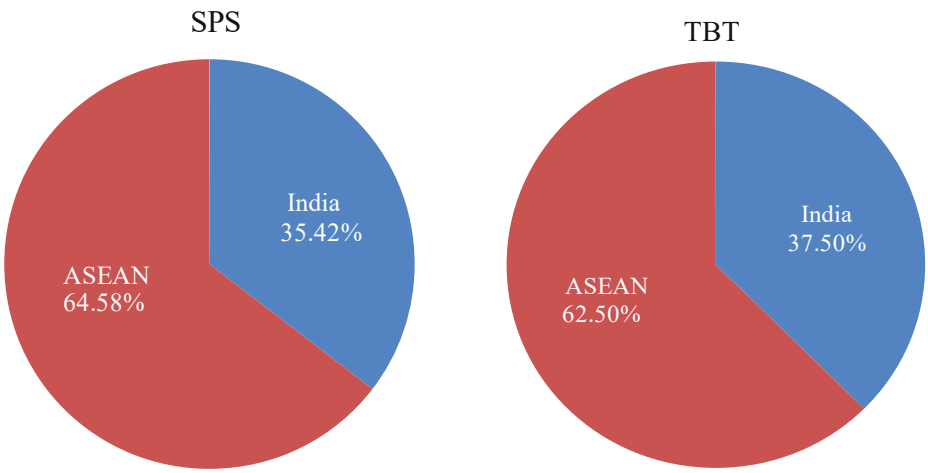
Figure 7.1 shows the trends of SPS Notifications and Specific Trade Concerns (STCs) from 1995 to 2018. The SPS Notifications to WTO were 240 in 1995, and they have been increasing every year and have reached to 1200 in 2018. In the case of STCs, in the initial period, the frequency of STCs raised again the implementing countries was in the range of 5 to 30 until 2005. Later, 2006 onwards, the STCs raised to 20 every year.

Figure 7.2: Number of Members Issued STCs on SPS and TBT Reasons



Source: World Trade Organization (WTO).

Figure 7.3: Share of Members Issued STCs on SPS and TBTs against ASEAN and India to the World

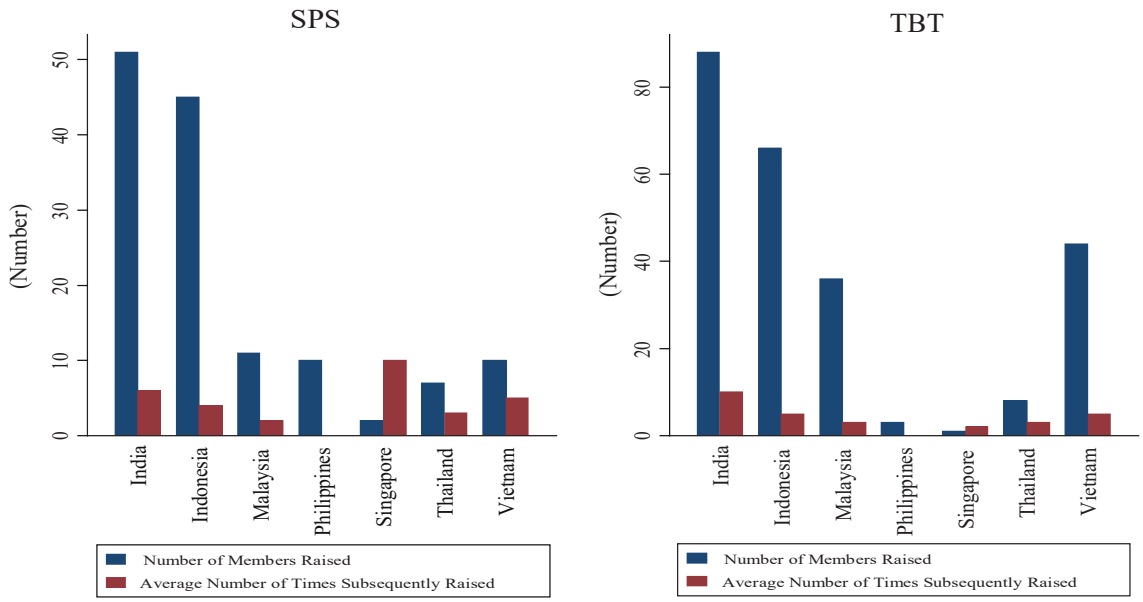


Source: World Trade Organization (WTO).

have been raised against ASEAN and India by the member countries (Figure 7.3).

On each STC, one or several countries have raised the concern in relation to SPS or TBT measures maintained by one or more of their trading partners. The database on STCs provides information on (i) the country or countries raising the concern and the country imposing the measure, (ii) the product codes (HS 4-digit) involved in the concern, (iii) the year in which the concern has been raised to the WTO, and (iv) whether it has been resolved and how. In this regard, we have investigated whether India has raised any STC concern against any of the ASEAN countries related to SPS and TBT; and similarly, ASEAN countries raising any concern against India.[41] Since 1995, there has not been single concern raised against each other. Only other member countries, about 98 per cent of developed countries like USA, Canada,

Figure 7.4: Number of Members Issued STCs related to SPSs and TBTs against India and ASEAN (1995 – 2018)

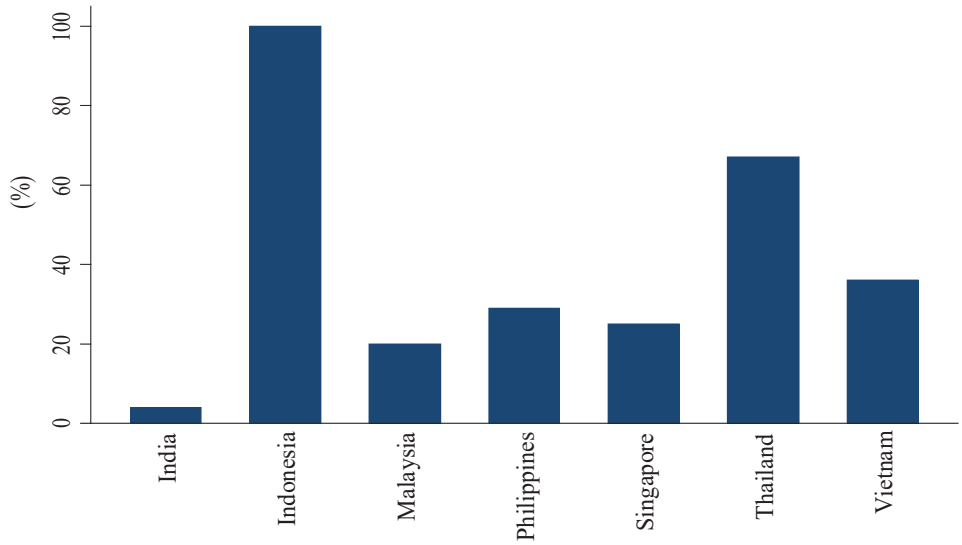


Source: World Trade Organization (WTO).

European Union, Australia, Japan, etc., have raised several STCs against ASEAN and India.

Figure 7.4 shows STCs related to SPSs against India and ASEAN between 1995 and 2018. It shows that almost 51 WTO member countries raised STCs related to SPSs against India and the WTO member countries also subsequently on an average raised 6 times on the same concern. Followed by, among ASEAN countries, about 45 member countries raised STCs related to SPSs against Indonesia, and they also subsequently raised on an average 4 times on the same concern. In case of other ASEAN countries, about 10 member countries raised STCs related

Figure 7.5: Share of Resolved SPS STCs in Total Number of Issues Raised by Member Countries



Source: World Trade Organization (WTO).

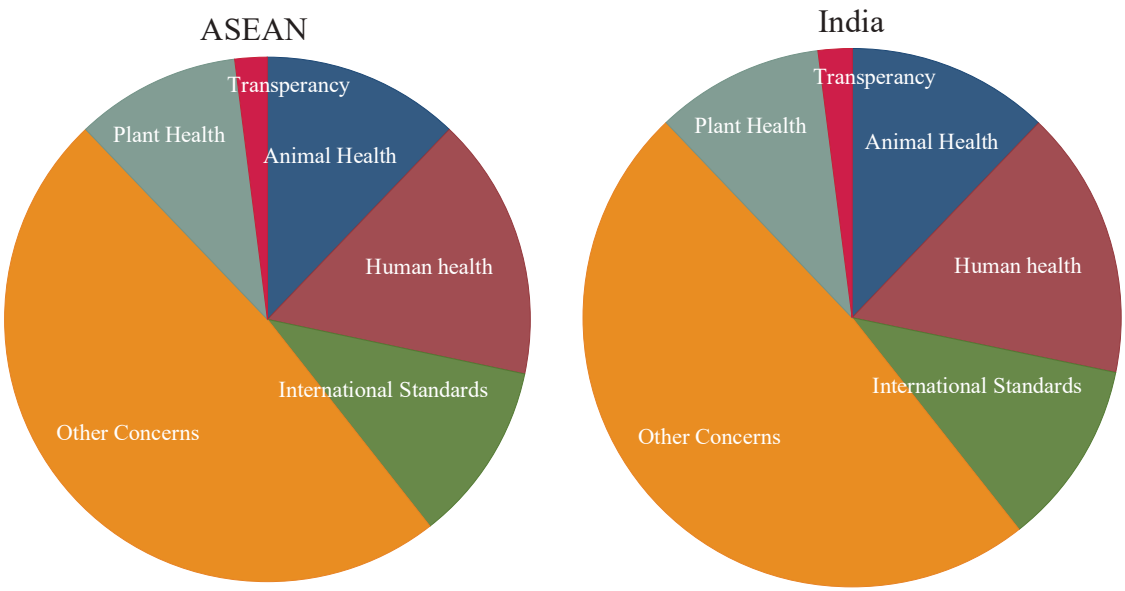
to SPS against Vietnam, Malaysia, Thailand and Philippines. Out of the issues raised by member countries for SPS STCs reasons, only 4 per cent of the issues were resolved against India (Figure 7.5). Among ASEAN counties, about 100 per cent of the issues were resolved against Indonesia, followed by 67 per cent of the issues, resolved against Thailand. The other ASEAN countries resolved only less than 30 per cent of the issues raised by the member countries.

In case of TBT STCs raised against ASEAN and India, about 88 members raised NTM issues against India, followed by 66 member countries against Indonesia, 44 and 36 members against Thailand and Vietnam, respectively. There were hardly few issues raised against other ASEAN countries, such as Malaysia, the Philippines and Singapore. Most of the STCs on SPS and TBT were raised by the developed countries against ASEAN and India and a very few concerns were also raised by India and ASEAN against other member countries but not between each other (*see* Figure 7.4). Studies suggest that countries limit the concerns due to cost involved, and they were mostly against the large export markets.[42] Besides, richer countries are more sensitive to food safety issues than poorer countries. Therefore, richer countries will impose more numerous and stringent measures than poorer countries, and this, in turn, would reflect in a greater number of concerns against the former.[43]

Majorly, STCs are raised in relation to measures protecting human, animal or plant life or health. In some cases, countries require a clarification about the scope and the status of the measure. In other cases, the concerns relate to perceived discriminatory or trade-restrictive nature of the measure. SPS measures cover food and agriculture as well as manufacturing products. For instance, between 1996 and 2018, about 17 per cent and 11 per cent of concerns were raised related to international standards and lack of harmonization against India and ASEAN, respectively (*see* Figure 7.6). About 10 per cent of the concerns were raised related to animal health, plant health and transparency against both ASEAN and India, respectively. Most of the issues raised against India and ASEAN were food safety related and showed how the issue of lack of harmonization on SPS

Figure 7.6: Issues of STCs on SPS Raised against ASEAN and India by Member Countries

(%)



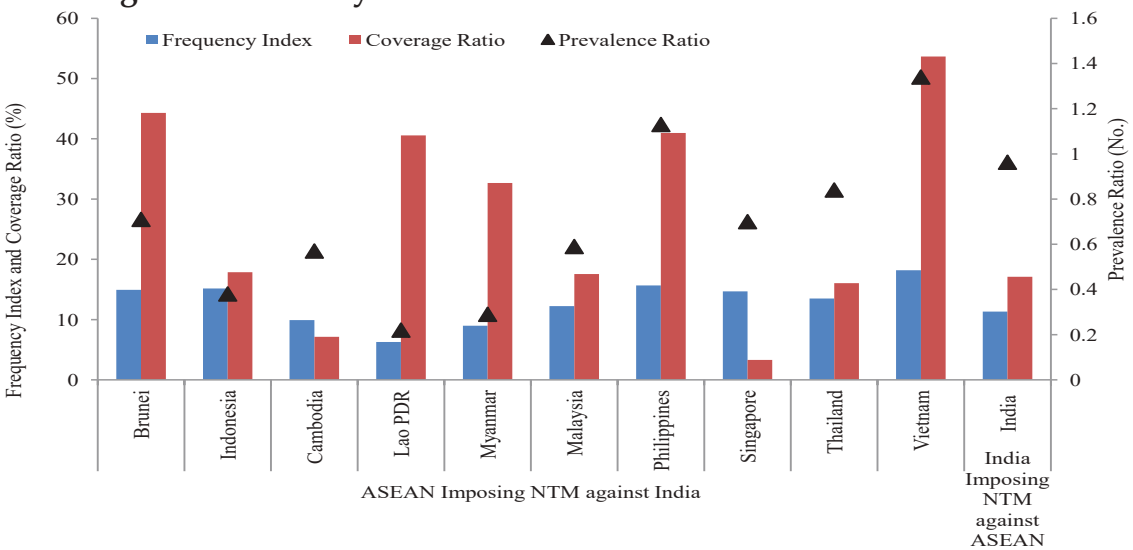
Source: World Trade Organization (WTO).

requirements such as standard, inspection procedure and also the transparency of the measure were faced by ASEAN and India.

7.4 Incidence of SPS and TBT between ASEAN and India

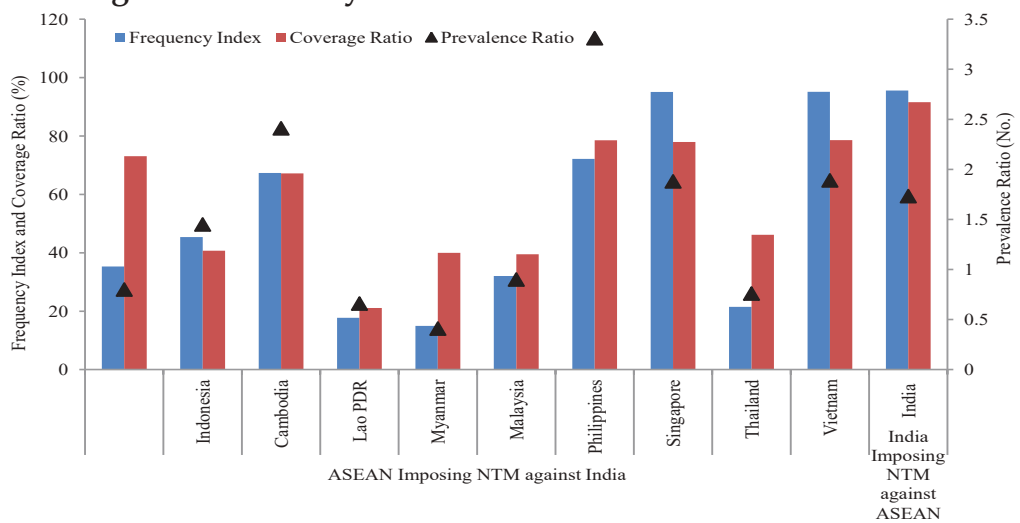
The detailed methodology for Frequency Index, Coverage Ratio and Prevalence Ratio are given in Chapter 3. Figure 7.7 shows that Coverage Ratios are often higher than frequency indices in both ASEAN imposing SPSs against India and India imposing SPSs against ASEAN. It indicates that almost 20 per cent of the products were affected by SPS measures that were imposed by each other, whereas, almost 60 per cent of the export values were affected by SPS measures imposed by ASEAN against India and India against ASEAN, respectively. This suggests that, in general, NTMs are imposed for regulatory purposes (e.g. for consumer protection) rather than as a protectionist tool. Higher coverage ratios may also be partly explained by import composition, at least for low-income countries.[44] In terms of incidence of TBTs between ASEAN and India, the Coverage

Figure 7.7: Country-wise SPS Measures between ASEAN and India



Source: Authors' calculation based on UNCTAD (2017) database.

Figure 7.8: Country-wise TBT Measure between ASEAN and India

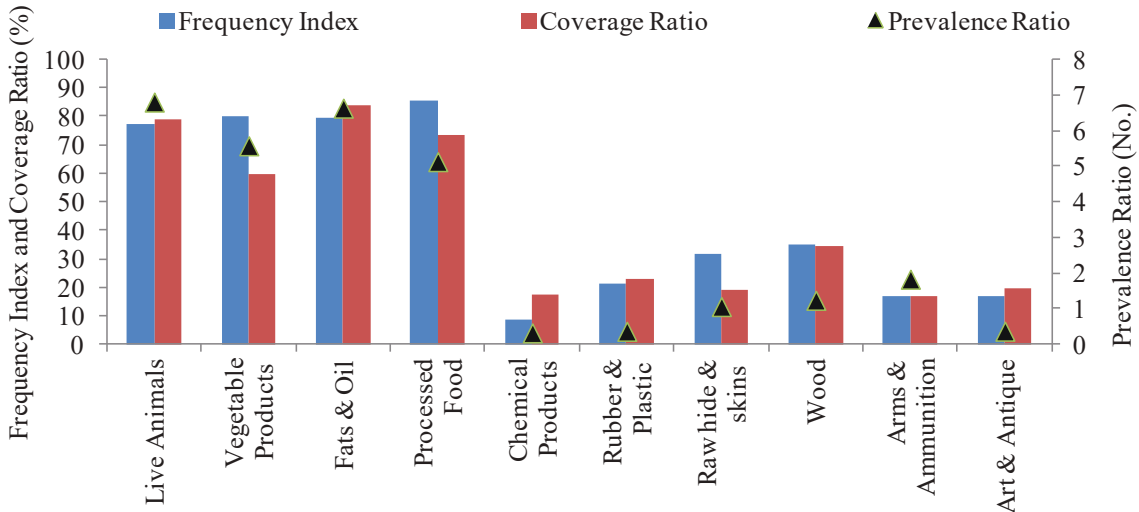


Source: Authors' calculation based on UNCTAD (2017) database.

Ratio and Frequency Index of the Philippines, Singapore, Vietnam and Cambodia imposed about 60 per cent against India (*see* Figure 7.8). In case of India, both Frequency Index and Coverage Ratio showed more than 80 per cent against ASEAN. Both ASEAN and India often import relatively large volumes of agricultural products, which are generally more subject to import regulations. The incidence of the use of NTMs depends on both the percentage of products (or imports) affected by NTMs and the number of NTMs affecting each product.

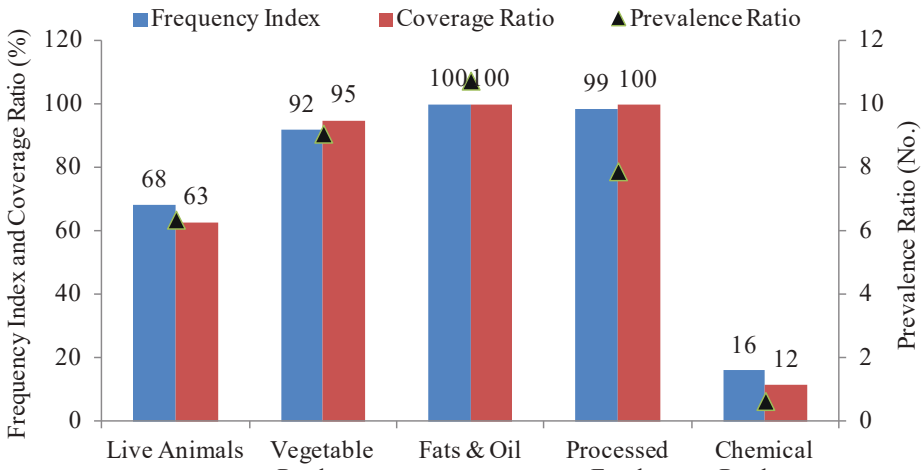
The use of SPS measures is largely limited to agricultural sector and products of animal origin, as their control is essential for ensuring health and well-being of consumers and protection of environment. As the result, more than 60 per cent of food-related products were found affected by at least one form or other of SPS measure (*see* Figure 7.9 and Figure 7.10). TBTs, on the other hand, can be applied to a much wider set of products and indeed are found to be applied more uniformly across economic sectors with peaks in textiles, footwear, processed food and

Figure 7.9: ASEAN Imposing SPS against India (Number of Products at HS 6-digit level)



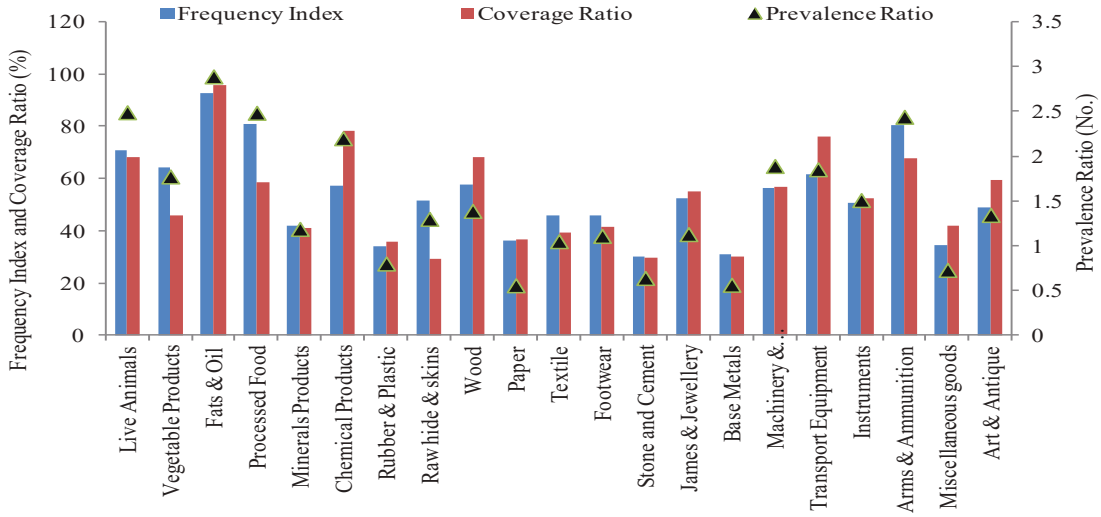
Source: Authors' calculation based on UNCTAD (2017) database

Figure 7.10: India Imposing SPS against India (Number of Products at HS 6-digit level)



Source: Authors' calculation based on UNCTAD (2017) database

Figure 7.11: ASEAN Imposing TBT against India (Number of Products at HS 6-digit level)



Source: Authors' calculation based on UNCTAD (2017) database.

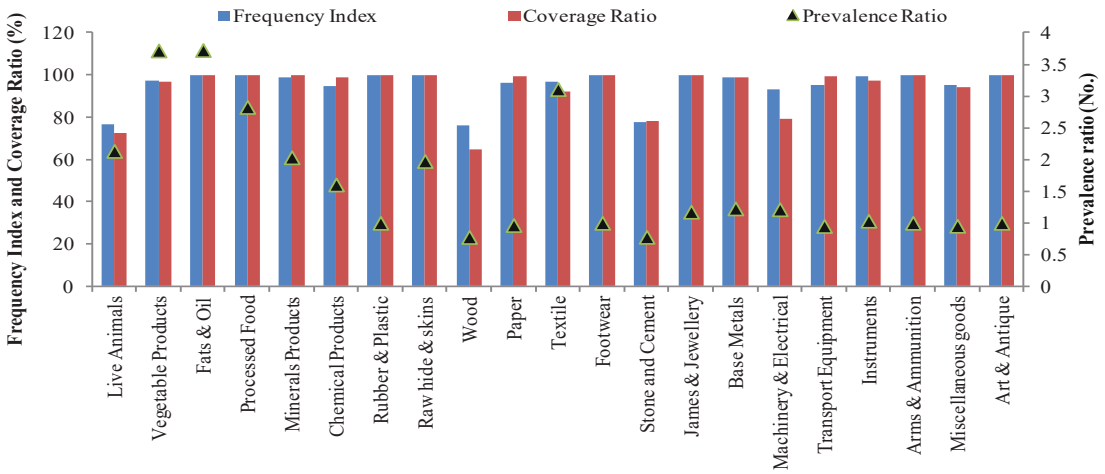
chemicals (*see* Figure 7.10 and Figure 7.11). The distribution of NTMs across sectors, especially with regard to SPS measures and TBTs, is more due to technical properties of the products than to economic policy, and, therefore, does not vary substantially across countries.

7.5 ASEAN Working Group on SPS and TBT

It is evident from Chapter 4 and Chapter 5 that SPS and TBT standards are different across countries. Therefore, it makes harmonization of standards a policy priority for both ASEAN and India. Countries widely follow standards to protect consumer safety and environmental concern. However, it should be based on commonly agreed international standards conforming scientific grounds facilitating trade by harmonizing production process across countries.

In practice, harmonization of standards should remove many of the restrictions to trade, as production processes do not need to be

Figure 7.12: India Imposing TBT against ASEAN (Number of Products at HS 6-digit level)



Source: Authors' calculation based on UNCTAD (2017) database.

customized to meet requirements particularly to each of the export market. The studies on harmonization generally compare country-specific standards to internationally set guidelines (Codex, ISO, etc). This allows any trade effect of a more stringent national standard to be assessed. The effects of SPS and TBT measures on trade are also often related to compliance costs, lack of technology, weak infrastructure and poor export services, all of which may impede developing countries in meeting. The cost of compliance is often higher in low-income countries as infrastructure and export services are more expensive or need to be outsourced abroad.[45] In this regard, ASEAN has been undertaking series of measures to harmonize standards to promote inter-ASEAN trade and progress towards ASEAN single market.

7.5.1 ASEAN Working Group on SPSs

ASEAN Consultative Committee on Standard and Quality (ACCSQ) has been undertaking the Working Group on the Sanitary and Phytosanitary (SPS) measures, a body under the Senior Officials of the ASEAN Ministers of Agriculture and Forestry (SOM AMAF), which has action plans on NTB elimination in crops, livestock and fisheries. It involves compiling information on NTMs affecting agricultural products and developing MRA of SPS standards to liberalize intra-ASEAN trade in agriculture products. Box 7.4 presents summary of progress in ASEAN agreement on various harmonizations of agricultural products' standards based on the international standards from Codex, International Plant Protection Convention

Box 7.4: Harmonization of ASEAN Agriculture Products

ASEAN has agreed on the following harmonization:

Codex

ASEAN Task Force on Codex (ATFC) agreed on the harmonization of:
Codex General Standards for the Labelling of Pre-packaged Foods,
Codex General Standard for the Labeling of Food Additives;
Codex General Guidelines on Claims
Codex Guidelines on Nutrion Labelling

International Plant Protection Convention (IPPC)

The ASEAN Working Group on Crops (ASWGC) agreed on the Harmonisation of International Standards for Phytosanitary Measures (ISPMs) Standards Number:

No. 6 (1997) - Guidelines for surveillance
No. 7 (2011) - Phytosanitary Certification System
No. 10 (1999) - Requirements for the establishment of pest free places of production and pest free production sites
No. 12 (2011) - Phytosanitary Certificates
No. 13 (2001) - Guidelines for the notification of non-compliance and emergency action
No. 15 (2002) - Guidelines for regulating wood packaging material in international trade
No. 17 (2002) - Pest reporting No. 19 (2003) - Guidelines on lists of regulated pests
No. 20 (2004) - Guidelines for a phytosanitary import regulatory system
No. 23 (2005) - Guidelines for inspection
No. 24 (2005) - Guidelines for the determination and recognition of equivalence of phytosanitary measures No. 25 (2006) - Consignments in transit
No. 28 (2009) - Phytosanitary treatment for regulated pests
No. 31(2008) - Methodologies for sampling consignments

World Organization for Animal Health (OIE)

ASEAN Working Group on Livestock (ASWGL) agreed for harmonization of OIE Guidelines for disease reporting (Section 1.1-1.5), import-export risk analysis (Section 3.1), surveillance section (Section 3.4)

Source: ASEAN Secretariat.

(IPPC) and World Organization for Animal Health (OIE).

ASEAN has established eight working groups along the lines of the Codex working groups, whose mandate is the development of principles and standards relating to food control: ASEAN Sectoral Working Group on Livestock (ASWGL); ASEAN Sectoral Working Group on Fisheries (ASWGF); ASEAN Sectoral Working Group on Crops (ASWGC); ASEAN Experts Group on Food Safety (AEGFS); ACCSQ – Prepared Foodstuff Product Working Group (ACCSQ-PPWG); ASEAN Task Force on Codex (ATFC); ASEAN Working Group on Halal (AWG Halal); and Ad-hoc Working Group on Food Irradiation (AWGFI). These working groups have, so far, produced the ASEAN Harmonized Food Control and Safety Requirements and Principles, which are largely adaptations of the Codex standards and principles.[46]

7.5.2 ASEAN Working Group on TBTs

ACCSQ has formulated different committees and working groups that are summarized in Table 7.2. A few technical regulations are yet to be adopted and are still in draft stage such as those for medical devices, traditional medicines and health. Other priority sectors do not contemplate a single regional regulatory regime (rubber, prepared foodstuff). Likewise, for conformity assessment, no harmonized regional approach for conformity assessments are envisioned for medical devices, traditional medicines and health supplements.

7.6 Case Studies

In this section, we carried out case studies to show how both ASEAN and India imposed NTMs against each other at HS 6-digit level, particularly with respect to SPS and TBT measures. We had selected four products based on the RCA approach and trade potential indicators for SPS and TBT measures for ASEAN and India, respectively. From the case studies, we attempted to explain differences of NTM measures imposed by ASEAN countries against India and India against ASEAN countries. What are the standard and technical regulation requirements by each ASEAN country and India on same products? Do each ASEAN country and India follow international standards or domestic standards? The rest of the section has discussed this in details.

7.6.1 Methodology for Product Selection

We followed RCA index approach to select products for the case studies. The detailed methodology on RCA index and RCA decomposition is given in Chapter 4. We calculated the RCA index at HS 2-digit level. Based on the RCA decomposition, we short-listed HS 2-digit level under "Looser of RCA", if RCA>1 in 2006 but not in 2016. It meant how many number of products experienced comparative advantage in 2006 and experienced comparative disadvantage in 2016. As it is evident from Chapter 4, most of the products exported under Loosers of RCA experienced NTMs imposed by ASEAN and India against each other. For the selected HS 2-digit level category, we calculated trade potential at HS 6-digit products for both ASEAN exports to India and India export to ASEAN. We could then shortlist a few HS 6-digit products, for which trade potential was greater than US $ 10 million in 2016. The selected products for the case studies are given in Figure 7.13.

7.6.2 Case Study 1 on SPS Imposed by ASEAN against India: Boneless Meat

7.6.2.1 India's Export of Boneless Meat (HS 20230) to ASEAN

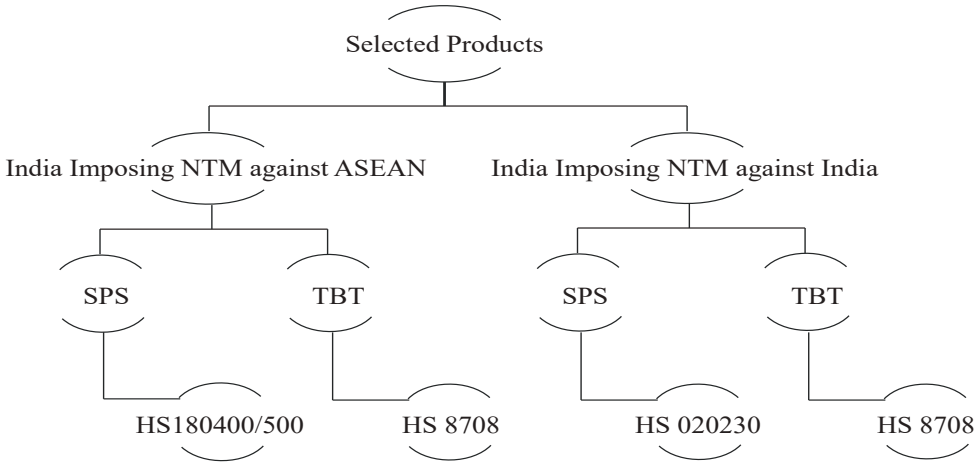
India has the largest population of milch animals in the world. The export of Animal Products includes buffalo meat, sheep/goat meat, poultry products, animal casings, milk and milk products, honey, etc. India's export of animal products was US$ 4,623.05 million in 2017-18, which included major exports like

Table 7.2: Summary of Activities Addressing TBTs in Priority Sectors

Sector	Standard / Technical Requirements	Technical Regulations	Conformity Assessment
Automotive	Harmonization of national standards and technical requirements (mandatory and voluntary) with UNECE Regulations of the 1958 Agreement	Development of a single regulatory regime in ASEAN for the automotive sector is not in the work programme of the Automotive Product Working Group	ASEAN MRA for type Approval of Automotive Products.
Cosmetics	Harmonization of technical requirements for limits of cosmetic ingredients	ASEAN Cosmetic Harmonised Regulatory Scheme (Schedule B ASEAN Cosmetic Derivative)	ASEAN Cosmetics Testing Laboratory Network.
Electrical and electronic equipments	Harmonization of national standards and technical requirements (mandatory and voluntary) with ICE standards	ASEAN Harmonized Electrical and Electronic Equipment Regulatory Regime	ASEAN Sectoral MRA for Electrical and Electronic Equipment.
Medical devices	Harmonization of national standards and technical requirements with ISO standards for medical devices	ASEAN Medical Device Directive (draft stage)	Conformity Assessment and evaluation of medical devices are within the purview of the a national level. No harmonised regional approach for conformity assessment of medical devices.
Pharma-ceutical	Adoption of the ASEAN Common Technical Requirements and ASEAN Common Technical Dossier for product placement supported by guidelines for its uniform application in the region	Development of a single regulatory regime in ASEAN for the pharmaceutical sector is not in the work programme of the Pharmaceutical Product Working Group	ASEAN Sectoral MRA for GMP inspection of Manufacturers of Medicinal Products
Prepared food stuff	Harmonization of national standards and technical requirements for limits for pesticide residues, fruits, animal vaccines and products, food safety requirements on food additives and contaminants	Development of a single regulatory regime in ASEAN for the Pharmaceutical sector is not in the work programme of the Prepared Food stuff Product Working Group	ASEAN Food Testing Laboratory Network
Rubber-based products	Harmonization of national standards with ISO standards	Development of a single regulatory regime in ASEAN for the rubber-based products sector is not in the work programme of the Rubber-based Product Working Group	Exchange of information and transparency in available accredited conformity assessment bodies for rubber-based products
Traditional medicines and health supple-ments	Harmonization of national standards and technical requirements with harmonised requirements for product placement and support supported by guidelines for its uniform application in the region	ASEAN Regulatory Framework for TMHS (draft stage)	Conformity Assessment and evaluation of traditional medicine and health supplements are within the purview of the national level

Source: Pasadila (2013).

Figure 7.13: Selected Product for Case Study

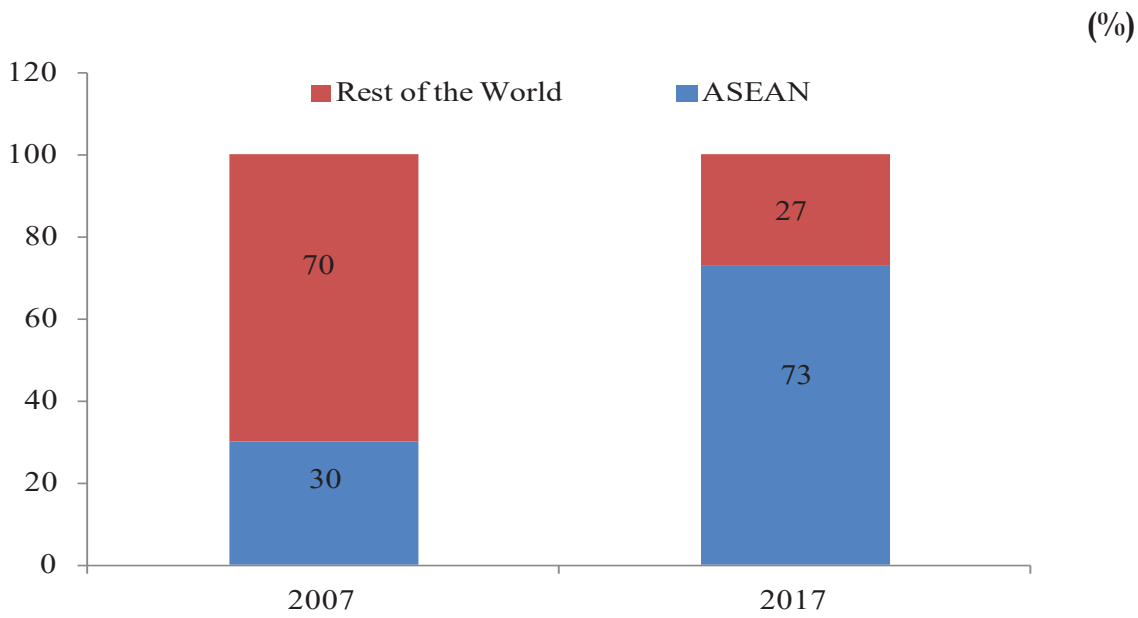


Source: Author's own.

buffalo meat (US$ 4036.89 million), sheep/goat meat US$ 129.68 million, poultry products US$ 85.71 million, dairy products (US$ 185.49 million), animal casing (US$ 50.68 million), processed meat (US$ 1.54 million), albumin (eggs & milk) (US$ 12.98 million, and natural honey (US$ 101.32 million).[47]

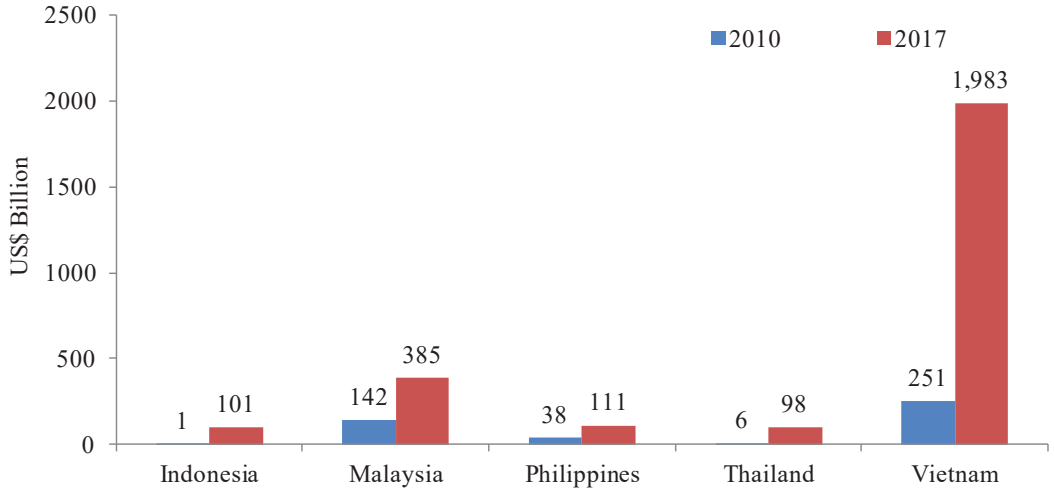
The demand for Indian buffalo meat is gradually growing in export markets due to its cost competitiveness, perceived organic nature and less proportion of fat. Indian exporters were able to meet international demand by utilizing modern integrated abattoirs and meat processing facilities thereby improving the quality of Indian product. For buffalo meat particularly, India's share of export of boneless meat (HS 20230) to ASEAN increased from 30 per cent in 2007 to 70 per cent in 2017 (*see* Figure 7.14). With an import of US$ 1.98 billion in 2017 Vietnam became the largest importer of meat from India of about

Figure 7.14: Share of India's Boneless Meat (HS-20230) Exports to ASEAN in the World



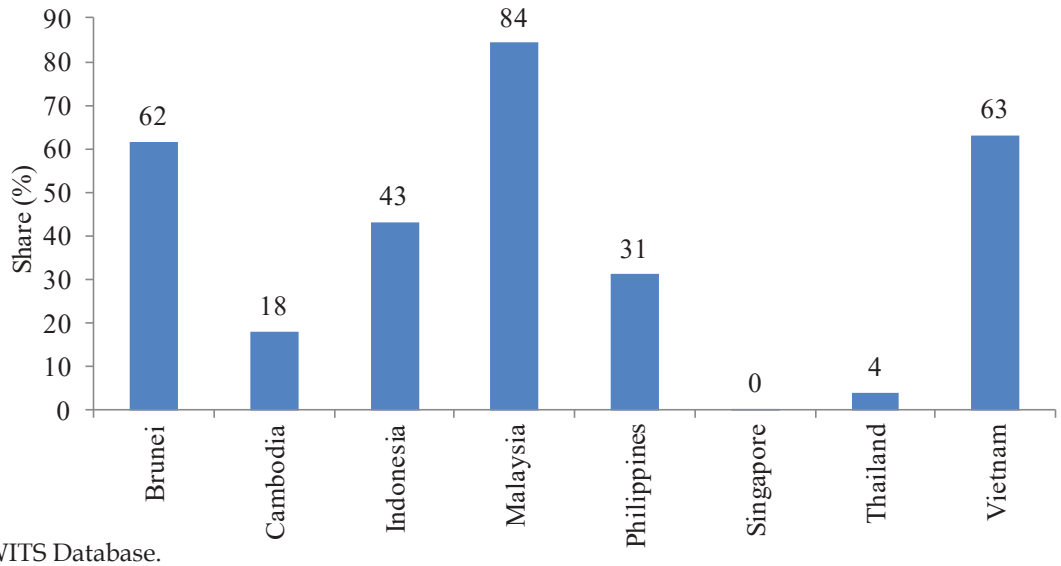
Source: WITS Database.

Figure 7.15: India's Boneless Meat Export to ASEAN, 2017



Source: WITS Database.

Figure 7.16: Share of India's Export of Meat in ASEAN's Meat Imports from World, 2017



Source: WITS Database.

US$ 1.98 billion in 2017, followed by Malaysia (US$ 0.38 billion), Indonesia (US$ 0.10 billion), the Philippines (US$ 0.11 billion) and Thailand (US$ 0.09 billion), respectively (*see* Figure 7.15). In terms of share of India's export of meat to ASEAN in ASEAN's import from the world (*see* Figure 7.16), Malaysia imported 84.3 per cent of total import of meat from India only, followed by Vietnam (63.2 per cent), Brunei (61.5 per cent), Indonesia (43.1 per cent) and the Philippines (31.21 per cent), respectively, in 2017. Overall, almost 40 to 60 per cent of ASEAN's total imports of meat were from India.

7.6.2.2 Regulations for Meat Production and Exports in India

The Indian meat exports are regulated as per Export Act 1963 (Quality Control and Inspection) for raw meat (Chilled and Frozen). The Government of India has laid down standards for export of meat, which include

Box 7.5: Quality Infrastructure Facilities for Meat Productions and Exports in India

India is free from all the trade- related diseases listed at List 'A' of OIE except an insignificant incidence of foot and mouth disease. The disease diagnostic laboratories are fully equipped and manned by specialists of different disciplines. The country has 26 veterinary biological units for production of wide range of vaccines using modern and latest technologies. As a result of various programmes launched by the Govt of India, the incidence of various livestock diseases has reduced considerably. India has well established veterinary services. It has 8,720 Veterinary Hospitals, 17,820 Veterinary Dispensaries, 25,433 Veterinary Aid Centre, 57,000 Veterinarians and 50,000 para-veterinarians.

Export Oriented Abattoirs

Export Oriented Abattoirs are modern integrated units established on the guidelines given by APEDA. They follow world class sanitary and phytosanitary measures having mandatory requirement of Hazard analysis and critical control points (HACCP) and ISO Certification.

Licensing and registration of meat plant/abattoirs

The Government of India has laid down standards for export of meat, which include standards for abattoir, processing plants for various meat products. Registration of abattoirs and meat processing plants is done by the Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and industry, Government of India. There are about 27 integrated modern meat processing plants approved for export of meat. These plants are eco-friendly and are of world class, following sanitary and phytosanitary (SPS) guidelines, given in the Codes Alimentarius for production of Quality safe meat.

These plants have HACCP and ISO:9000 Certification. Many integrated plants have SGS Certification also and follow Good manufacturing Practices (GMP) and Good Hygienic Practices (GHP). The integrated plants have facilities for holding of animals, lairage, race, knocking box, stunning facilities, abattoir with slaughter line for bleeding, de-hiding, splitting, washing and weighing facilities. The plants have also facilities for chilling, deboning, plate freezing, blast freezing, modern packing and cold storage. The processing plants have bio-security in-built where there are two zones, namely, black and white zones.

Boneless meat of Buffalo (both male and female)

A. Boneless Meat of Buffalo (both male and female) (falling under 0201 3000 and 0202 3000 – Sr. No. 19(b) of Schedule II of ITC (HS) Frozen and Fresh and Chilled is allowed to be exported subject to the conditions –

Certificate is produced from the designated veterinary authority of the State, from which meat or offals emanate, to the effect that meat or offals are from Buffaloes not used for breeding and milch purpose.

Quality Control and Inspection under Note 3 and 4, respectively, as well conditions stipulated at Note 6 above are required to be fulfilled. [This condition was inserted vide notification No. 30, dated 21-08-2006].

Source: Agricultural and Processed Food Products Export Development Authority (APEDA).

standards for abattoir, processing plants and for various meat products. Registration and licensing of abattoirs and meat processing plants is done by the Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry, Government of India; Export Inspection Council, Government of India; and Food Safety and Standards Authority of India. Inspection of the meat processing plants is carried out by a Committee of exports as per the standards laid down in the Meat and Meat Products Order

(1973) of Food Safety and Standards Authority of India (FSSAI), Government of India. Besides, all the animals are slaughtered by Halal[48] System under strict vigilance of Jamait-e-Ulema-e-Hind.

7.6.2.3 NTMs Imposed by ASEAN against India on Boneless Meat

Several department and government bodies under ministries such as Ministry of Agriculture, Ministry of Trade and Ministry of Commerce and industry in ASEAN and India are responsible for creating standards and regulations for meat products (*see* Table 7.3). The major purpose of NTMs imposed by ASEAN countries against India is to protect food safety, human health, animal health and animal diseases (*see* Table 7.4).

The summary of SPS measures imposed by ASEAN against India on meat product (including boneless meat) is presented in Table 7.5. It clearly shows that there are several SPS measures at sub-classification level, which are imposed against India. For instance, SPS-sub classification at the 1-digit level, ASEAN countries broadly imposed almost all the measures against India. Specifically, most of the ASEAN countries have imposed SPS measures such as Special authorization requirement for SPS reasons (A14), Tolerance limits for residues or contamination by certain (non-microbiological) substances (A21), Labelling requirement (A31), Storage and transport conditions (A64), Product registration requirement (A81) and Inspection requirement (A84) against India. In the case of TBT measures given in Table 7.6, ASEAN widely imposes TBT measures such as Authorisation

Table 7.3: Regulatory Agencies in ASEAN and India

Country	Concerned Agencies
India	Agricultural and Processed Food Products Export Development Authority (APEDA), Food Safety and Standards Authority of India (FSSAI), Ministry of Commerce and industry, Government of India
Brunei Darussalam	Attorney General's Chambers, Prime Minister's office Brunei Darussalam
Cambodia	Cambodia National Trade Repository
Indonesia	Ministry of Agriculture (MoA), Ministry of Trade (MoT)
Lao PDR	Lao PDR Trade Portal
Malaysia	Ministry of Agriculture & Agro-Based Industry, Ministry of Health, Department of Wildlife and National Parks Peninsular, Sabah Wildlife Department, Sarawak Forestry Corporation, Department of Quarantine and Inspection Services
Myanmar	Forest Department, Ministry of Forestry and Environmental Conversation, Ministry of Livestock, Ministry of Health
Philippines	Bureau of mal Industry (BAI), National Meat Inspection Service (NMIS), Department of Agriculture (DA), Livestock Development Council (LDC), Bureau of Animal Industry and National Meat Inspection Commission (NMIC)
Singapore	Attorney General's Chambers, Singapore Government
Thailand	Food and Drug Administration (Thai FDA), Department of Livestock Development (DLD)
Viet Nam	National Agro-Forestry-Fisheries Quality Assurance Department (NAFIQAD), MARD

Source: Authors' compilation from spsims.wto.org and asean.i-tip.org database.

Table 7.4: Purpose of NTMs Imposed by ASEAN against India

Nature of NTMs	Philippines	Thailand	Viet Nam	Indonesia	Malaysia	Singapore
Animal diseases	✓	✓		✓		✓
Food safety	✓	✓	✓	✓	✓	✓
Human health	✓	✓	✓	✓	✓	✓
Zoo noses		✓				
Bovine Spongiform Encephalopathy (BSE)		✓				
Transmissible Spongiform Encephalopathy (TSE)		✓				
Maximum residue limits (MRLs)			✓	✓		✓
Veterinary drugs			✓			
Animal health	✓			✓		✓
HACCP Plan requirements	✓					
Territory protection	✓			✓		

Source: Authors' compilation from UNCTAD (2017), spsims.wto.org and asean.i-tip.org database

requirement for TBT reasons (B14), Labelling requirement (B31) and Certification requirement (B83) against India's meat products.

ASEAN is home to more than 250 million Halal consumers, and countries like Malaysia, Indonesia and Singapore have had regulations to control import of Halal-certified products for years together. Table 7.7 shows that Malaysia and Indonesia are following country-level standards for import of meat products. Besides, some ASEAN countries have introduced their guidelines on halal standards, such as PBD 24:2007 Brunei standard, MUIHC-S001/002 Singapore Muis Halal standard and HAS 23000, HAS 23103 and HAS 23201 Indonesia Halal Standard[49], THS 24000:2552 made by the Central Islamic Committee of Thailand. Malaysia requires all domestic and imported meat (except pork) to be certified as halal by Malaysian authorities. Malaysia has implemented a food product standard-MS1500: 2009 that sets out general guidelines on halal food production, preparation, handling and storage. MS1500: 2009 creates standards that go well beyond the internationally recognized halal standards, which are contained in the Codex Alimentarius. Specifically, the guidelines require slaughter plants to maintain dedicated halal production facilities and ensured segregated storage and transportation facilities for halal and non-halal products. In contrast, the Codex allows for halal food to be prepared, processed, transported, or stored using facilities previously used for non-halal foods, provided that Islamic cleaning procedures have been observed.[50] In Indonesia, Halal certificate is issued by the Indonesian Council of Ulama (MUI) based on an assessment done by the Assessment Institute for Foods, Drugs and Cosmetics, the Indonesian Council of Ulama (LPPOM MUI). In Indonesia, Majlis Ulama Indonesia (MUI) exercises an effective monopoly over Indonesia's halal certification scheme.

In the regional level, ASEAN established ACCSQ Working Group (AWG) on Halal Food. It is a subsidiary body that coordinates ASEAN cooperation in halal food, especially in the implementation of ASEAN General Guidelines on the Preparation and Handling of Halal Food in the view to further expand intra-ASEAN

Table 7.5: Summary of SPS Measures at Sub-classification Level Imposed by ASEAN against India on HS 6-digit Product (20230 – Boneless Meat)

NTM Code	NTM Sub-Classification	Brunei	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
A1	Prohibitions/restrictions of imports for SPS reasons										
A11	Temporary geographic prohibitions for SPS reasons			✓							✓
A12	Geographical restrictions on eligibility			✓							
A13	Systems approach			✓			✓	✓			
A14	Special authorization requirement for SPS reasons		✓	✓	✓	✓	✓	✓	✓		✓
A15	Registration requirements for importers		✓	✓				✓	✓		✓
A19	Prohibitions/restrictions of imports for SPS reasons, not elsewhere specified (n.e.s.)		✓								
A2	Tolerance limits for residues and restricted use of substances										
A21	Tolerance limits for residues of or contamination by certain (non-microbiological) substances	✓		✓			✓		✓	✓	✓
A22	Restricted use of certain substances in foods and feeds and their contact materials	✓					✓		✓		✓
A3	Labelling, marking and packaging requirements										
A31	Labelling requirements	✓		✓			✓	✓	✓	✓	✓
A32	Marking requirements			✓				✓			
A33	Packaging requirements		✓	✓				✓		✓	✓
A4	Hygienic requirements						✓				
A41	Microbiological criteria of the final product	✓							✓		✓
A42	Hygienic practices during production			✓		✓				✓	✓
A5	Treatment for elimination of plant and animal pests and disease-causing organisms in the final product										
A51	Cold/heat treatment			✓					✓		
A59	Treatment for elimination of plant and animal pests and disease-causing organisms in the final product, n.e.s.			✓					✓		✓
A6	Other requirements on production or post-production processes										
A62	Animal-raising or –catching processes			✓			✓				
A63	Food and feed processing			✓			✓			✓	✓
A64	Storage and transport conditions	✓	✓	✓		✓	✓		✓	✓	
A69	Other requirements on production or post-production processes, n.e.s			✓							
A8	Conformity assessment related to SPS										
A81	Product registration requirement	✓			✓			✓	✓	✓	
A82	Testing requirement		✓	✓	✓		✓	✓	✓	✓	✓
A83	Certification requirement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
A84	Inspection requirement	✓	✓	✓	✓		✓	✓	✓		✓
A85	Traceability requirements		✓	✓						✓	
A851	Origin of materials and parts		✓				✓				✓
A86	Quarantine requirement		✓	✓							
A89	Conformity assessment related to SPS, n.e.s.										✓

Source: Authors' compilation from UNCTAD (2017), spsims.wto.org and asean.i-tip.org database.

Table 7.6: Summary of TBT Measures at Sub-classification Level Imposed by ASEAN against India on HS 6-digit Product (20230 – Boneless Meat)

NTM Code	NTM Sub-Classification	Brunei	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
B1	Prohibitions/restrictions of imports for objectives set out in the TBT agreement										
B11	Prohibition for TBT reasons								✓		
B14	Authorization requirement for TBT reasons	✓	✓			✓	✓	✓	✓		✓
B15	Registration requirement for importers for TBT reasons	✓	✓					✓			
B19	Prohibitions/restrictions of imports for objectives set out in the TBT agreement, n.e.s.										✓
B3	Labelling, marking and packaging requirements										
B31	Labelling requirements	✓		✓		✓	✓	✓	✓	✓	✓
B32	Marking requirements								✓		
B33	Packaging requirements									✓	
B4	Production or post-production requirements										
B41	TBT regulations on production processes	✓									
B42	TBT regulations on transport and storage	✓	✓				✓				
B6	Product identity requirement	✓							✓		
B7	Product-quality or –performance requirement						✓			✓	
B8	Conformity assessment related to TBT										
B81	Product registration requirement							✓	✓	✓	
B82	Testing requirement								✓		
B83	Certification requirement	✓						✓	✓	✓	✓
B84	Inspection requirement	✓							✓	✓	
B89	Conformity assessment related to TBT,.n.e.s.						✓				
B9	TBT measures, n.e.s.	✓									

Source: Authors' compilation from UNCTAD (2017), spsims.wto.org and asean.i-tip.org database.

trade in meat and meat-based products. The Guidelines were prepared based on and in line with the Association of Religious Ministers of Brunei Darussalam, Indonesia, Malaysia and Singapore (MABIMS) Guidelines for Preparation of Food and Drink for Muslims and Codex General Guidelines for Use of the Term "Halal". By having a unified standard among ASEAN countries would help exporters to minimize export cost for halal products.

7.6.3 Case Study 2 on SPS Imposed by India against ASEAN: Cocoa Products

7.6.3.1 ASEAN's Export of Cocoa to India (HS 180400, 180500 and 180610)

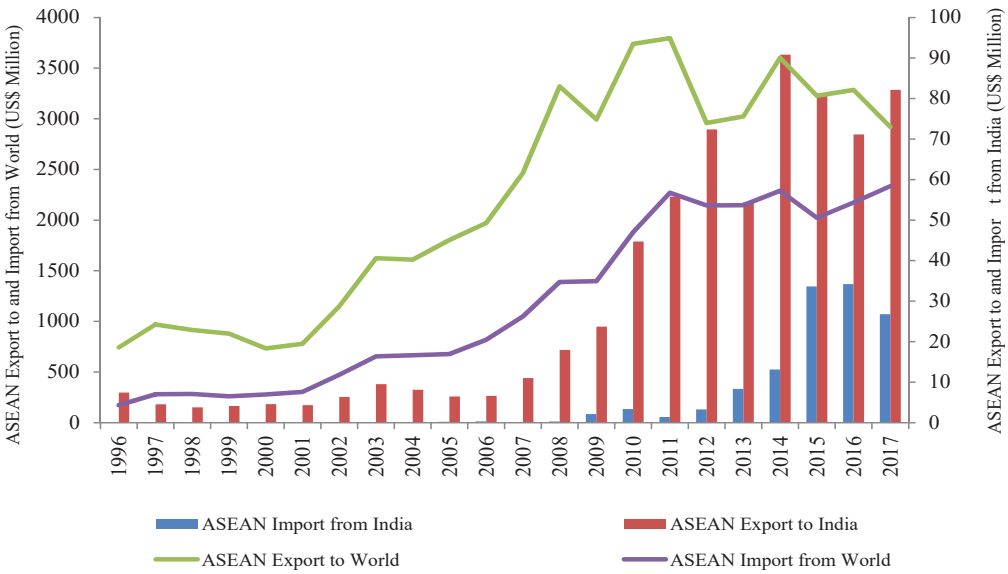
Cocoa is probably best known today as the raw material for chocolate, which consumes approximately 90 per cent of the world's cocoa production. The Cocoa trees grow mostly in

Table 7.7: International and National Standards Followed by ASEAN and India

Country	International Standards			National Standards
	Codex Alimentarius Commission	World rganization for Animal Health (OIE)	International Plant Protection Convention	
India		✓		
Philippines	✓			
Thailand		✓		
Singapore				
Viet Nam	✓			
Indonesia				Indonesian Council of Ulama (MUI)
Malaysia				Jabatan Kemajuan Islam Malaysia (JAKIM), Department of Islamic Development Malaysia

Source: Authors' compilation from spsims.wto.org and asean.i-tip.org database.

Figure 7.17: ASEAN's Export and Import of Cocoa (HS-18) to India and World

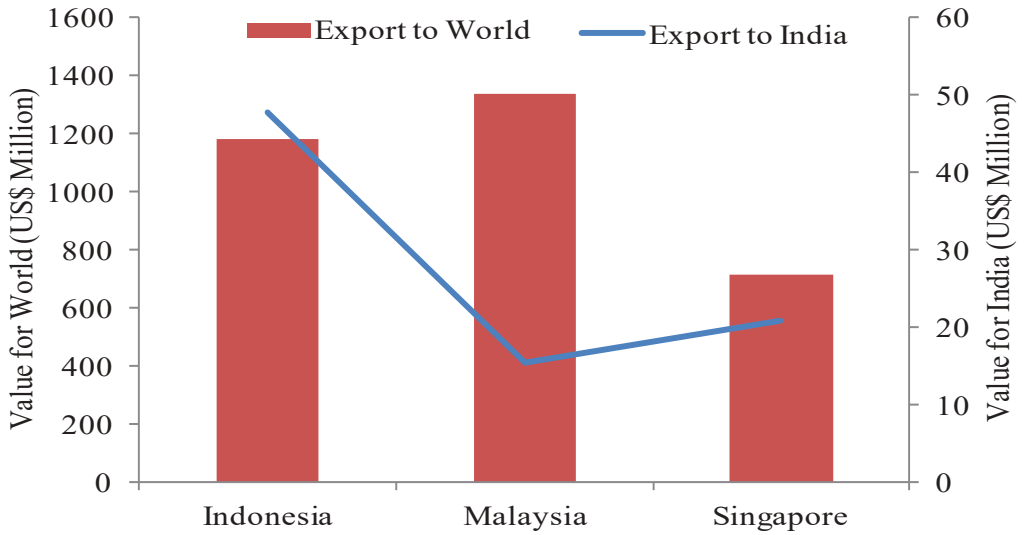


Source: WITS Database.

Central and South America, West Africa and Southeast Asia specifically Malaysia, Indonesia, Singapore and the Philippines. Figure 7.17 shows ASEAN countries' export of cocoa to world increase from US$ 743.07 million in 1996 to US$ 2919.85 million in 2017. At the same time, ASEAN countries' import of cocoa from world increased from US$ 173.44 million in 1996 to US$ 2335.38 million in 2017. In case of CoCoa's trade with India, ASEAN's export of cocoa to India increased from US$ 7.43 million in 1996 to US$ 82.14 million in 2017, and its import from India from US$ 0.16 million in 1996 to US$ 26.79 million in 2017.

Among ASEAN countries, Indonesia, Malaysia and Singapore are the major exporters

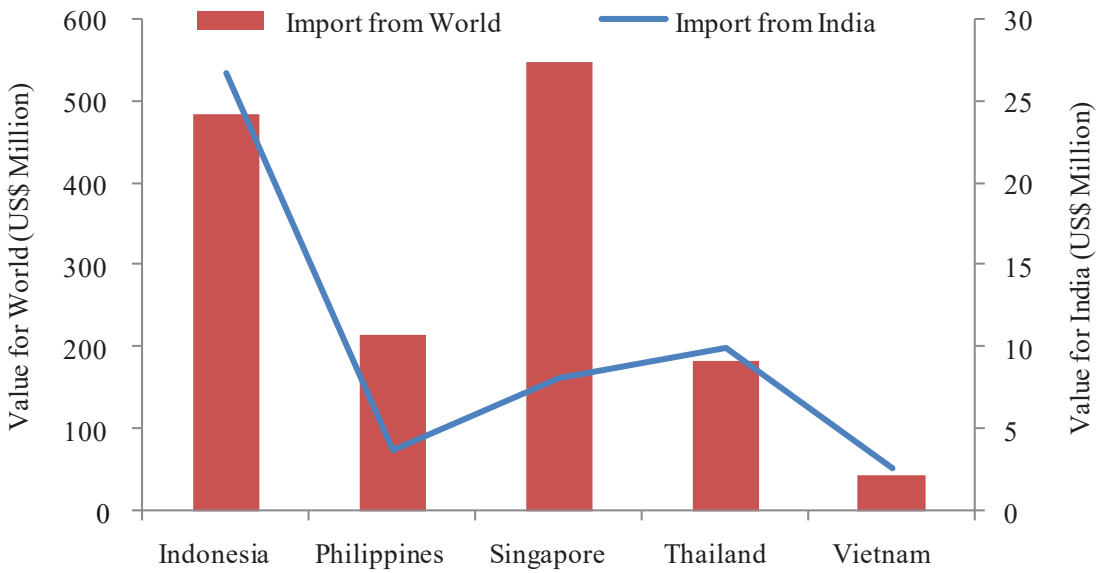
Figure 7.18: ASEAN's Export of Cocoa to India and World in 2016-17



Source: WITS Database.

of cocoa and cocoa products to India. Figure 7.18 shows that Malaysia was the largest exporter of cocoa to world (US$ 1180.19 million), followed by Indonesia and Singapore. Indonesia was the largest exporter of cocoa to India (US$ 47.78 million), followed by Singapore and Malaysia. Similarly, Figure 7.19 shows that Singapore as the largest importer of cocoa from world (US$ 546.01 million), followed by Indonesia, Philippines, Thailand and Vietnam. Indonesia was the largest importer of cocoa from India (US$ 26.61 million), followed by Thailand, Singapore, Philippines and Vietnam. Figures 7.18 and 7.19 clearly illustrate that ASEAN countries being

Figure 7.19: ASEAN's Import of Cocoa from India and World (2016-17)



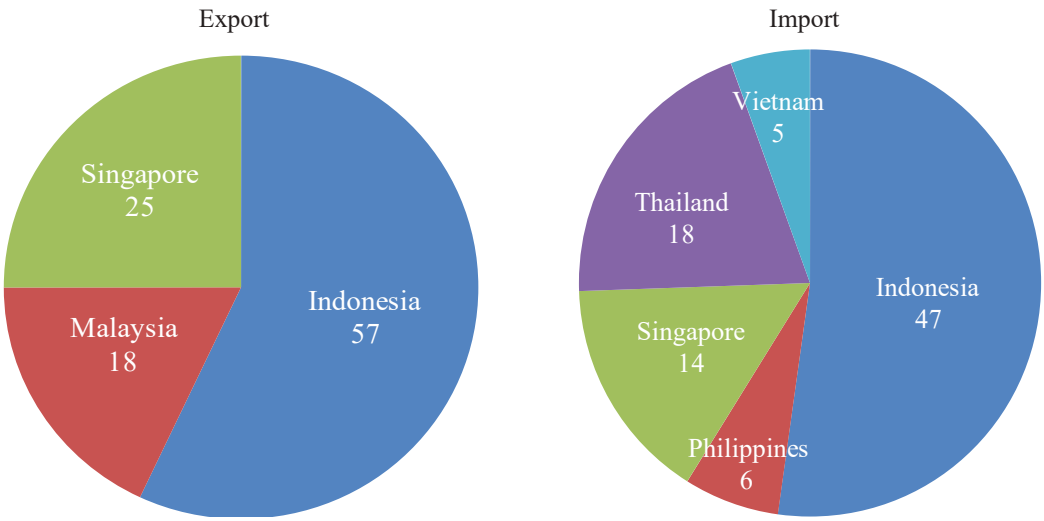
Source: WITS Database.

one of the major producers of cocoa and cocoa preparations products export more of them to India than import.

Among 10 ASEAN countries, Indonesia exported 57 per cent of cocoa to India, followed by Singapore (25 per cent) and Malaysia (18 per cent) (*see* Figure 7.20). Similarly, Indonesia imported 47 per cent of cocoa and cocoa preparation products from India, followed by Thailand (18 per cent), Singapore (14 per cent), the Philippines (6 per cent) and Vietnam (5 per cent).

Figure 7.20: ASEAN Countries' Export and Import Share of Cocoa to and from India in 2016-17

(%)



Source: WITS Database.

Table 7.8: ASEAN's Export of Cocoa and Cocoa Preparations (HS-18) to India, 2017

(US$ million)

HS Code	Product Description	Indonesia	Malaysia	Singapore
180100	Cocoa beans, whole or broken, raw or roasted	2075.89	3259.41	0.00
180200	Coaoa shell, ghusks, skins and other cocoa waste	11.75	14.92	
180310	Not defatted	425.25	1690.63	450.95
180400	Cocoa butter, fat and oil.	29954.15	581.19	8090.57
180500	Cocoa powder, not containing added	13384.98	5726.59	4574.48
180610	Cocoa powder, containing added sugar	0.23	2483.25	98.96
180620	Other preparations in blocks, slabs or bars weighing more than 2 kg or in liquid, paste, powder, granular, or other bulk form in containers or immediate packaging, of a content exceeding 2 kg	1184.15	83.37	8125.55
180631	Others, in blocks, slabs, or bars: Filled	0.00	919.59	448.66
180632	Others, in blocks, slabs, or bars: Not Filled	196.55	318.67	420.05
180690	Others	17.49	477.01	268.05

Source: WITS Database.

ASEAN countries such as Malaysia, Indonesia and Singapore export some of the cocoa and cocoa preparation products at HS 6 digit level to India, such as cocoa beans, cocoa butter, fat and oil, cocoa powder etc. (*see* Table 7.8). Out of which, Cocoa butter, fat and oil (HS-180400) is the most exported product to India from Indonesia, Malaysia and Singapore (US$ 38725.21 million), followed by Cocoa powder, not containing added sugar (US$ 2444.96 million) and containing added sugar (US$ 2404.75 million).

7.6.3.2 NTM Imposed by India against ASEAN on Cocoa

FSSAI (Food Safety and Standards Authority of India) is responsible to create standards and regulations for cocoa trade (*see* Table 7.9). The major purpose of NTMs imposed by India against ASEAN on cocoa imports is to protect food safety, human health and food additives.

The summary of SPS measures imposed by India against ASEAN on cocoa products (Cocoa butter, fat and oil, Cocoa powder, not containing added and Cocoa powder, containing added sugar) is presented in Table 7.10. It clearly shows that there are several SPS measures at sub-classification level that are imposed by India against Indonesia, Malaysia and Singapore. At the 1-digit level, A1) Prohibitions/restrictions of imports for SPS reasons, A2) Tolerance limits for residues and restricted use of substances Labelling, A3) marking and packaging requirements, A4) Hygienic requirements A6) Other requirements on production or post-production processes and A8) Conformity assessment related to SPS were the SPS measures imposed by India on import of cocoa product from ASEAN.

Under NTM code on A1, India has imposed registration requirements for importers at 2-digit level (A15), which requires importers to register under the Food Safety and Standards Act, 2006 to import cocoa products for their business. Under NTM code on A2, India has imposed tolerance limits for residues of or contamination by certain (non-microbiological) substances (A21) and restricted use of certain substances in foods and feeds and their contact materials (A22) on cocoa exporters at 2-digit level. These measures include all the restrictions or limits which the exporters of cocoa and its related products (such as chocolate, cocoa powder, mixture of cocoa and milkfood etc.) need to follow in order to export to India (*see* Tables 7.11, 7.12 and 7.13).

Similarly, under NTM code on A3, exporters from Indonesia, Malaysia and Singapore are required to maintain labelling, marking and packaging requirements at 2-digit level. The labelling measures specify all the necessary

Table 7.9: Regulatory Agencies in ASEAN and India

Country	Agency
India	Food Safety and Standards Authority of India, Ministry of Health and Family Welfare, Government of India
Indonesia	Directorate General Marketing and Processing of Agricultural Product, Ministry of Agriculture, Ministry of Agriculture (MoA), Ministry of Industry (MoI), Ministry of Trade (MoT), Ministry of Finance (MoF), The National Agency of Drug and Food Control (BPOM)
Malaysia	Plant Biosecurity Division, Department of Agriculture, Ministry of Agriculture and Agro-based Industry, Malaysia, Malaysian Cocoa Board, Department of Quarantine and Inspection Services, Malaysia, Sabah Wildlife Department, Ministry of Health, Malaysia
Singapore	Attorney General's Chambers, Singapore Government

Source: Authors' compilation from spsims.wto.org and asean.i-tip.org database.

Table 7.10: SPS Measures at Sub-classification Level Imposed by India against ASEAN on HS 6-digit Product (HS 180400-Cocoa butter, fat and oil HS 180500- Cocoa powder, not containing added and HS 180610 – Cocoa powder, containing added sugar)

NTM Code	NTM Sub-classification	Indonesia	Malaysia	Singapore
A1	Prohibitions/restrictions of imports for SPS reasons			
A15	Registration requirements for importers	✓	✓	✓
A2	Tolerance limits for residues and restricted use of substances	✓	✓	✓
A21	Tolerance limits for residues of or contamination by certain (non-microbiological) substances	✓	✓	✓
A22	Restricted use of certain substances in foods and feeds and their contact materials	✓	✓	✓
A3	Labelling, marking and packaging requirements			
A31	Labelling requirements	✓	✓	✓
A32	Marking requirements	✓	✓	✓
A33	Packaging requirements	✓	✓	✓
A4	Hygienic requirements			
A42	Hygienic practices during production	✓	✓	✓
A49	Hygienic requirements, n.e.s.	✓	✓	✓
A6	Other requirements on production or post-production processes			
A63	Food and feed processing	✓	✓	✓
A8	Conformity assessment related to SPS			
A82	Testing requirement	✓	✓	✓
A83	Certification requirement	✓	✓	✓

Source: Authors' compilation from UNCTAD (2017) database.

requirements and regulations such as displaying the FSSAI license number and logo on the label of the food product, labelling of pre-packed food, which include name of food, list of ingredients, compound of ingredients, combination of ingredients, nutritional ingredients, declaration of veg. and non-veg. and declaration regarding food additives, etc, which exporters need to follow. The packaging and marking measures specify all the necessary regulations such as providing necessary information clearly so not to mislead or exaggerate the expressions of the commodity contained in the package. They should follow pre-packaging regulations, specified height of letters, which need to be in the packaging, clearly specify the net weight of the product, required to be followed as per the food safety and standards (packaging and labelling requirements). As far as hygiene requirements are concerned, India has imposed hygienic practices during production (A42) and hygienic requirements, n.e.s (A49) measures on the exporters at 2-digit level. These measures emphasize on maintaining standards, such as air

Table 7.11: Restricted Use of Certain Substances in Foods and Feeds (which includes Cocoa- HS-18)

		Malted milkfood without Cocoa powder	Malted milkfood with cocoa powder
(a)	Moisture	Not more than 5 per cent by weight.	Not more than 5 per cent by weight
(b)	Total protein (N x 6.25) (on dry basis)	Not less than 12.5 per cent by weight.	Not less than 11.25 per cent by weight.
(c)	Total fat (on Dry basis)	Not less than 7.5% by weight	Not less than 6% by weight.
(d)	Total ash (on dry basis)	Not more than 5% by weight	Not more than 5% by weight.
(e)	Acid insoluble ash (on dry basis) (in dilute HCl)	Not more than 0.1 per cent by weight	Not more than 0.1 per cent by weight
(f)	Solubility	Not less than 85% by weight.	Not less than 80% by weight.
(g)	Cocoa powder (on dry basis)		Not less than 5.0% by weight.
(h)	Test for starch	Negative	-
(i)	Bacterial count	Not more than 50,000 per gram.	Not more than 50,000 per gram.
(j)	Coliform count	Not more than 10 per gram.	Not more than 10 per gram.
(k)	Yeast and mould count		absent in 0.1 gm
(l)	Salmonella and Shigella		absent in 0.1 gm
(m)	E.Coli		absent in 0.1 gm
(n)	Vibrio cholera and V.Paraheamolyticus		absent in 0.1 gm
(o)	Faecal streptococci and Staphylococcus aureas		absent in 0.1 gm

Source: Food Safety and Standards Authority of India, Ministry of Health and Family Welfare.

emissions, environmental protection managing waste, etc., while producing products for export. India also has imposed food and feed processing (A63) measures on the respective exporting countries to regulate the post production processes of labelling, packaging and marking requirements to be followed for exporting products. Under A8, India has imposed testing (A82) and certification requirement (A83), which requires testing of imported article to be carried out by an authorized food officer analyst. In addition, the quantity of sample supplied for testing should be approximately 200 gm. These measures also include checking and clearance of safe food at the ports, food safety management system plan or certificate, quality certifications etc. for exporting to India.

7.6.3.3 National and International Standards in India

About 57 per cent of India's cocoa consumption is met through imports, and India has had regulations to control the import of cocoa products since long. For importing cocoa products in India, the importers need to comply with quality specified for the product as per same Indian Standards. For this, all importers are required to obtain Bureau of Standards (BIS) license for using Standards mark on their product. The importers also need to comply with the quality and packaging requirements as has been laid down in the Food Safety & Standards Act, 2006 of the Food Safety and Standards Authority of India (FSSAI). India also requires

Table 7.12: Permitted Food Additives in Chocolate

Sl. No.	Characteristics	Requirements for					
		Milk Chocolate	Milk Covering Chocolate	Plain Chocolate	Plain Covering Chocolate	White Chocolate	Blended Chocolate
1.	Total fat (on dry basis) per cent by weight. Not less than	25	25	25	25	25	25
2.	Milk fat (on dry basis) Per cent by weight. Not less than	2	2			2	
3.	Cocoa solids (on moisture-free and fat free basis) per cent by weight. Not less than	2.5	2.5	12	12	-	3.0
4.	Milk solids (on moisture-free and fat-free basis) per cent by weight						
	a) Not less than	10.5	10.5	-	-	10.5	1
	b) Not more than	-	-	-	-	-	9
5.	Acid insoluble ash (on moisture fat and sugar free basis) percent by weight. Not more than	0.2	0.2	0.2	0.2	0.2	0.2

Source: Food Safety and Standards Authority of India, Ministry of Health and Family Welfare.

Table 7.13: Permitted Food Additives in Low and High Fat Cocoa Powder

Additive	Requirement/Limit
Total ash	Not more than 14.0 per cent (on moisture and fat free basis).
Ash insoluble in dilute HCl	Not more than 1.0 per cent (on moisture and fat free basis).
Alkalinity of total ash	Not more than 6.0 per cent as K2O (on moisture and fat free basis)
Cocoa butter	
(i) for low fat	Not less than 10.0 percent (on moisture free basis)
(ii) for high fat	Not less than 20.0 percent (on moisture free basis)

Source: Food Safety and Standards Authority of India, Ministry of Health and Family Welfare.

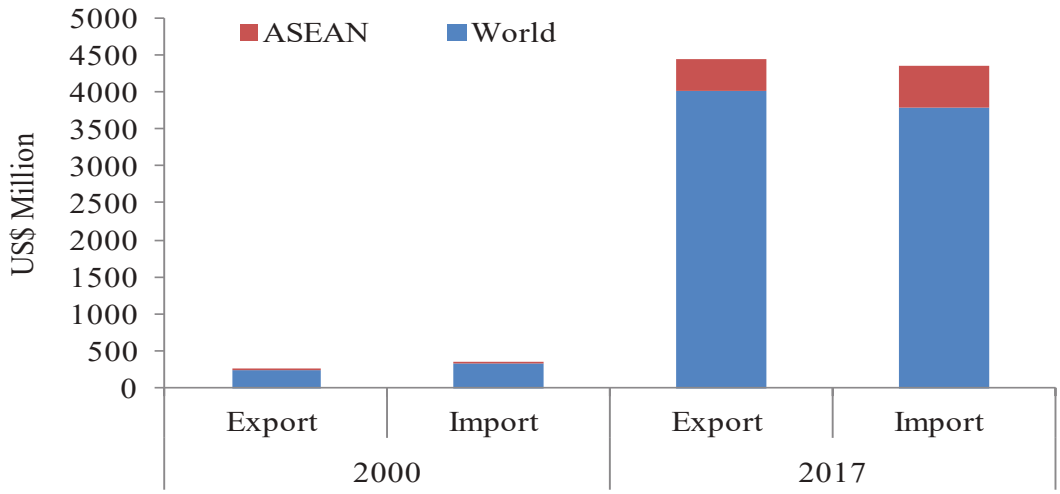
that all importers must comply with Codex Alimentarius Commission; according to which the title or serial number of Codex standard or related text should be mentioned on the product.

7.6.4 Case Study on TBTs Imposed against by ASEAN and India against Each Other: Automobile Parts and Accessories (HS 8708)

7.6.4.1 India's Export to and Import from ASEAN on Automobile Parts and Accessories

The implication of NTMs on parts and components in the production networking process is multi-fold, if NTMs apply at various stages of production processes. NTMs like TBTs are aims to assure certain standards and

Figure 7.21: India's Export and Import of Automobile Parts and Components (HS-8708) with ASEAN and World

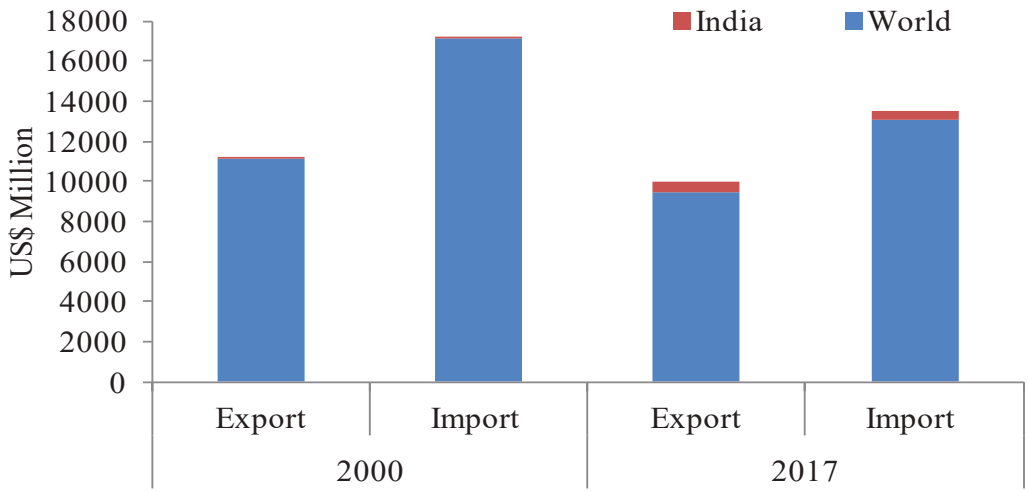


Source: WITS Database.

technical regulations on imported products that may affect trade flows and prices of products at different stages of production in various ways. For instance, automakers in both ASEAN and India have faced several NTMs such as documentation process (for clearances, Customs), licences (Import and Export Licenses), Certification and Standards of Trading Partner Nations, non-trade barriers (like Anti-Dumping Measures, Countervailing Duties) and import quotas or prohibition etc. Here, we have analysed India's trade with ASEAN on automobile parts and components and what observed the existing NTMs regulating process of bilateral trade.

Over time, India's export and import of HS 8708 increased (Figure 7.21). The export and import of HS 8708 increased gradually over the period of 2000 to 2017 for ASEAN countries and to the world. Similarly, we analysed the ASEAN's export and import of that particular

Figure 7.22: ASEAN's Export and Import of Automobile Parts and Components (HS-8708) with India and World



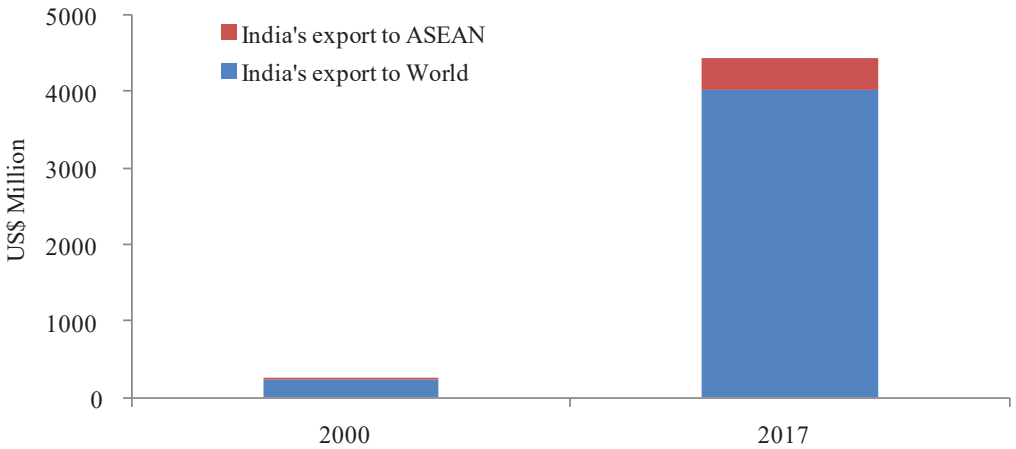
Source: WITS Database.

product with India and to the world in Figure 7.22. It is clear from the Figure 7.22 that it has the same increasing trend like the way India's trade is increasing for that product. The bilateral trade between ASEAN and India improved significantly between 2000 and 2017.

Figures 7.23(a) and 23(b) show that India's export of automobile parts and components to the ASEAN countries and rest of the world India's export to the ASEAN and to the world of the automobile parts and components largely increased over the period of 2000 to 2017. The share of the export with respect to the world increased from 5 per cent to 10 per cent during 2000 and 2017.

Figures 7.24(a) and 7.24(b) depict trade of automobile parts and components of ASEAN with India. ASEAN export of automobile parts and components are given in absolute and in share to the world trade from 2000 to 2017. In absolute terms, ASEAN export of automobile parts and components decreased in 2017 as compared to 2000. The ASEAN export decreased over time but the export to India increased during

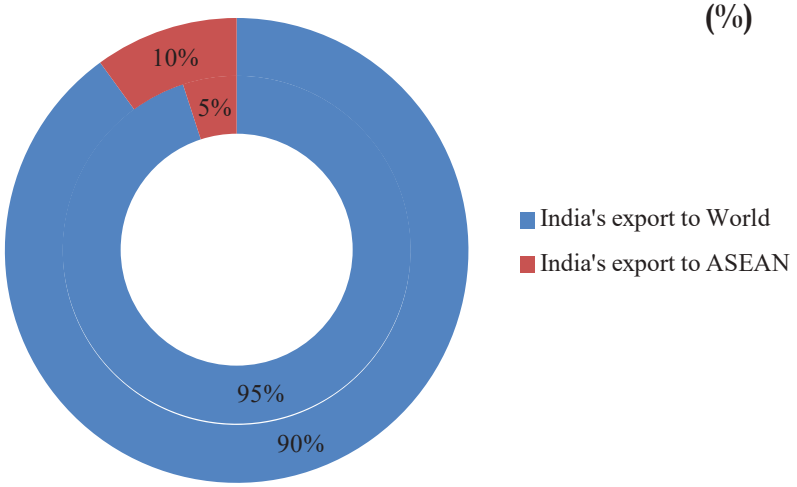
Figure 7.23(a): India's Export to ASEAN of Automobile Parts and Components (HS-8708) in Value with respect to World



Source: WITS Database.

Figure 7.23(b): Share of India's Export to ASEAN of Automobile Parts and Components (HS-8708) with respect to World

(%)

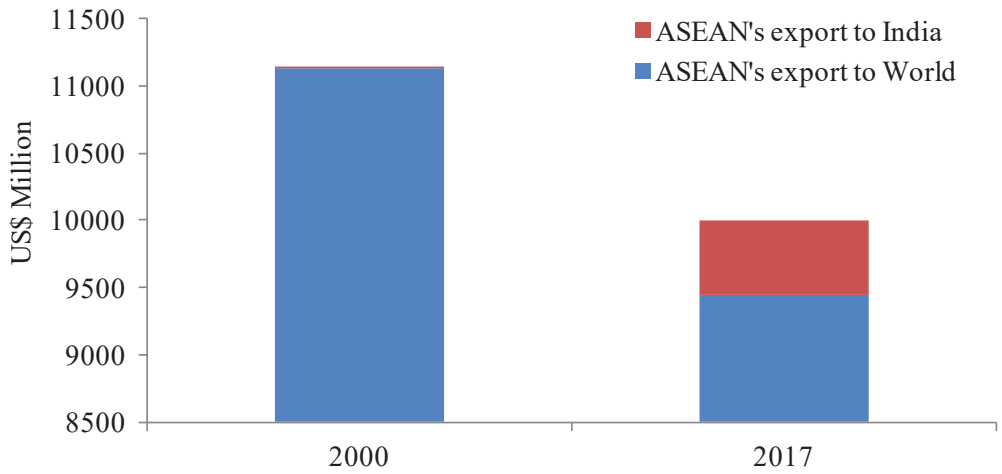


Source: WITS Database.

the period. It is much clear in Figure 7.24(b), where the share of the ASEAN export to India is given. It is discernible that the bilateral trade of automobile parts and components products is on demand in India from ASEAN countries in the recent past; showing 6 per cent of the export has gone to India from the total world export.

Different countries have different regulations on parts and components. The Table 7.14 provide the glimpse of regulations given by the ASEAN countries with their types and year of regulation. The information of the regulatory agencies across ASEAN countries and categories was collected from Indonesia, Malaysia and Thailand. The major purpose of the NTMs imposed by ASEAN countries against India followed the UNEDE Regulation and was to stop deceptive practices and protect consumer

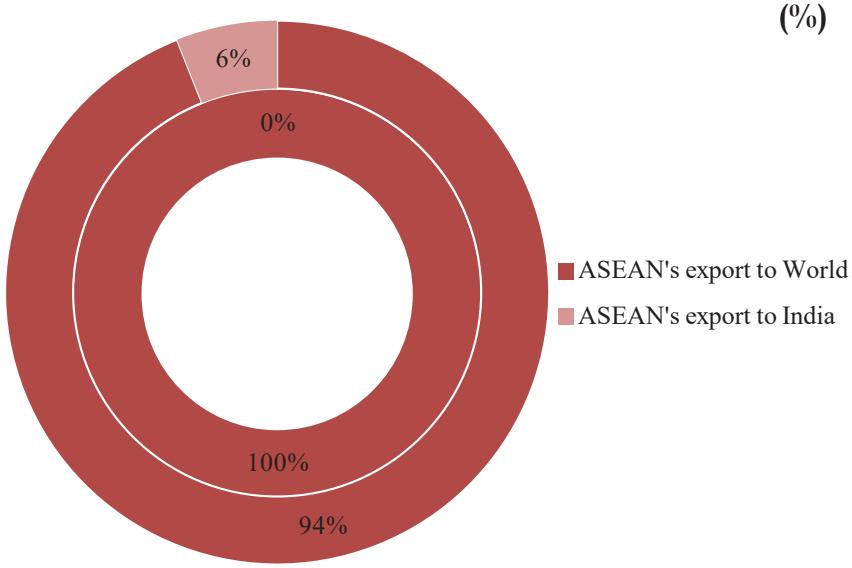
Figure 7.24(a): ASEAN's Export to India of Automobile Parts and Components (HS-8708) in Value with respect to World



Source: WITS Database.

Figure 7.24(b): Share of ASEAN's Export to India of Automobile Parts and Components (HS-8708) in with respect to World

(%)



Source: WITS Database.

Table 7.14: Regulatory Agencies in ASEAN

Country	Concerned Agencies
Indonesia	Directorate General of Transportation Equipment and Telematics Industries, Ministry of Industry, Directorate General of Chemical, Agriculture, and Forestry Based Industries, The Ministry of Industry and Trade
Malaysia	Road Transport Department, Ministry of Transport Malaysia, Ministry of Transport Malaysia
Thailand	Thai Industrial Standards Institute (TISI), Ministry of Industry

Source: UNCTAD (2017), WTO-SPS database, ERIA-I-Tip Database.

Table 7.15: Purpose of the NTMs Imposed by ASEAN against India

Nature of NTMs	Indonesia	Malaysia	Thailand
Prevention of deceptive practices and consumer protection		✓	✓
Protection of human health or safety		✓	✓
Quality requirements	✓		✓
Reducing trade barriers and facilitating trade	✓		

Source: UNCTAD (2017), WTO-SPS database, ERIA-I-Tip database.

considering human health or safety and was imposed for quality requirements and reducing trade barriers and facilitating trade (Table 7.15).

Table 7.16(a) and 16(b) analysed India's export and import with ASEAN in 2017. India's export to ASEAN countries for the product HS 8708 was heterogeneously distributed. HS 6 digit was taken to analyse the export of automobile parts and components to ASEAN countries. Indian export was noticed highest for vehicle parts and accessories (HS 870899) to Thailand, Indonesia, and Vietnam respectively. India exported vehicle parts; gear boxes and parts thereof to Thailand of 43.82 million in 2017. To check the role of NTMs regulation, Non-Tariff Measures (NTMs) imposed by ASEAN against India were tabulated (*see* Table 7.17). This table indicates that the Philippines had imposed numbers of NTMs against India regarding prohibition for TBT reasons, authorization and registration requirement, labelling, marketing, testing, inspection etc. As a result, the bilateral trade with the Philippines was not much remarkable as compared to other ASEAN countries. In contrast, bilateral trade with Thailand showed notable volume for vehicle parts and accessories; gear boxes and parts. A country like Thailand had imposed NTMs on India regarding labelling, testing, and product-quality or performance. India's export was significant with Indonesia and Vietnam, which had imposed NTMs against India for authorization, registration, labelling, product-quality and certification, respectively. Other than TBTs, ASEAN countries had imposed regulation on pre-shipment inspection; requirement to pass through the specified port of customs, licensing, custom-inspection, processing and servicing fees, stamp tax etc. to name a few.

Similar to India's export, India's import is also regulated by NTMs regulation. In Table 7.16(b), India's import is presented from ASEAN for the product HS 8708 in 2017. India's import was highest for vehicle parts and accessories

Table 7.16(a): India's Automobile Exports to ASEAN in 2017

(US$ million)

Product code		World	Indonesia	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
870810	Vehicles; bumpers and parts thereof, for the vehicles of heading no. 8701 to 8705	166.39	0.51	0.85	0.71	0.50	0.45	4.38	1.04
870821	Vehicles; parts of bodies, safety seat belts	53.85	0.19	0.33	0.02	0.17	0.00	0.92	0.51
870829	Vehicles; parts and accessories, of bodies, other than safety seat belts	105.82	1.00	0.06	1.55	6.05	0.08	4.95	1.31
870839	Brake System Parts except linings	411.55	0.67	0.68	0.30	0.11	0.38	6.37	1.26
870840	Vehicle parts; gear boxes and parts thereof	317.26	4.54	0.15	0.04	0.94	0.04	43.82	2.47
870850	Vehicle parts; drive-axles with differential, whether or not provided with other transmission components, and non-driving axles; parts thereof	312.88	1.51	0.79	0.10	0.24	1.55	15.25	0.50
870870	Vehicle parts; road wheels and parts and accessories thereof	121.39	2.23	0.29	0.16	0.25	0.03	5.94	0.29
870880	Vehicle parts; suspension systems and parts thereof (including shock-absorbers)	112.19	0.42	0.15	0.06	1.01	0.07	0.66	0.56
870891	Vehicle parts; radiators and parts thereof	46.13	0.23	0.15	0.07	0.32	0.09	2.70	0.14
870892	Vehicle parts; silencers (mufflers) and exhaust pipes; parts thereof	54.82	0.78	0.04	0.13	0.30	0.08	1.99	0.02
870893	Vehicle parts; clutches and parts thereof	51.30	2.05	0.14	0.06	0.03	0.01	1.54	0.13
870894	Vehicle parts; steering wheels, steering columns and steering boxes; parts thereof	163.04	1.70	0.20	0.24	1.46	0.03	2.65	0.75
870899	Vehicle parts and accessories; n.e.c. in heading no. 8708	2520.0	69.13	18.11	13.52	19.50	2.87	100.4	67.77

Source: WITS Database.

Table 7.16(b): India's Automobile Imports from ASEAN in 2017

(US$ million)

Product code		World	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
870810	Vehicles; bumpers and parts thereof, for the vehicles of heading no. 8701 to 8705	59.61	0.20	0.48	0.00	0.01	3.29	0.00
870821	Vehicles; parts of bodies, safety seat belts	16.41	0.06	0.00	0.00	0.00	1.21	0.01
870829	Vehicles; parts and accessories, of bodies, other than safety seat belts	368.75	3.40	0.74	0.03	0.50	42.71	1.68

Table 7.16(b) contd...

Table 7.16(b) contd...

870839	Brake System Parts except linings	169.48	1.45	0.02	0.01	0.12	18.53	0.27
870840	Vehicle parts; gear boxes and parts thereof	947.15	55.01	0.00	7.98	0.01	33.67	18.79
870850	Vehicle parts; drive-axles with differential, whether or not provided with other transmission components, and non-driving axles; parts thereof	206.13	0.00	0.01	2.14	0.00	26.09	0.28
870870	Vehicle parts; road wheels and parts and accessories thereof	177.28	18.00	1.32	0.01	0.03	18.32	0.11
870880	Vehicle parts; suspension systems and parts thereof (including shock-absorbers)	78.11	0.00	0.02	0.00	0.01	7.26	0.00
870891	Vehicle parts; radiators and parts thereof	40.03	0.09	0.04	0.00	0.01	7.98	3.74
870892	Vehicle parts; silencers (mufflers) and exhaust pipes; parts thereof	50.83	0.32	0.00	0.00	0.02	2.67	0.00
870893	Vehicle parts; clutches and parts thereof	123.92	1.49	0.01	0.44	0.03	4.13	0.01
870894	Vehicle parts; steering wheels, steering columns and steering boxes; parts thereof	248.58	0.00	0.07	1.51	0.01	17.12	0.00
870899	Vehicle parts and accessories; n.e.c. in heading no. 8708	1861.82	16.47	4.53	8.86	0.85	211.57	14.36

Source: WITS Database.

Table 7.17: TBT Measures Imposed by ASEAN on India

NTM Code	NTM Sub-Classification	Indonesia	Cambodia	Lao PDR	Myanmar	Malaysia	Philippines	Singapore	Thailand	Vietnam
B110	Prohibition for TBT reasons		√				√			
B140	Authorization requirement for TBT reasons	√		√	√		√	√		
B150	Registration requirement for importers for TBT reasons	√	√				√			
B310	Labelling requirements	√		√			√		√	
B320	Marking requirements						√			
B420	TBT regulations on transport and storage		√				√	√		
B700	Product-quality –r -performance requirement	√							√	
B810	Product registration requirement	√		√			√			
B820	Testing requirement	√					√		√	
B830	Certification requirement						√			√
B840	Inspection requirement			√			√			
B850	Traceability information requirements	√					√			
B859	Traceability requirements, n.e.s.						√			

Source: WITS Database.

Table 7.18: Other NTMs Imposed by ASEAN on India

NTM Code	NTM Sub-Classification	Indonesia	Cambodia	Lao PDR	Myanmar	Malaysia	Philippines	Singapore	Thailand	Vietnam
C100	Pre-shipment inspection	√					√			
C300	Requirement to pass through specified port of customs	√								
C900	Other formalities, n.e.s.						√			
E110	Licensing for economic reasons						√			
E112	Licensing for specified use						√			
E230	Temporary		√							
E231	Global allocation		√							
F610	Custom-inspection, -processing a–d -servicing fees			√			√			
F620	Merchandise-handling –r -storing fees						√			
F640	Stamp tax						√			
F650	Import licence fee						√			
F690	Additional charges, n.e.s.							√		√
F710	Consumption taxes			√						
G130	Advance payment of customs duties						√			
G190	Advance payment requirements, n.e.s.						√			
H900	Measures affecting competitions, n.e.s.									√

Source: WITS Database.

Table 7.19: NTMs Imposed by India on ASEAN

NTM Code	NTM Sub-Classification	Brunei	Indonesia	Cambodia	Lao PDR	Myanmar	Malaysia	Philippines	Singapore	Thailand	Vietnam
B150	Registration requirement for importers for TBT reasons	√	√	√	√	√	√	√	√	√	√
C300	Requirement to pass through specified port of customs	√	√	√	√	√	√	√	√	√	√
D110	Antidumping investigation									√	
E311	Full prohibition (import ban)	√	√	√	√	√	√	√	√	√	√
F400	Customs surcharges	√	√	√	√	√	√	√	√	√	√
F710	Consumption taxes	√	√	√	√	√	√	√	√	√	√
F790	Internal taxes and charges levied on imports, n.e.s.	√	√	√	√	√	√	√	√	√	√
I900	Trade-related investment measures, n.e.s	√	√	√	√	√	√	√	√	√	√

Source: WITS Database.

from Thailand. Following this, import was highest for vehicle parts; gear boxes and parts thereof from Indonesia (US$ 55.01 million); followed by vehicles; parts and accessories, of bodies, other than safety seat belts from Thailand (US$ 42.71 million) in 2017. It is thus clear that NTMs regulations have played a major role for easy and smooth trade. Where the number of regulations were more the volume of trade s showed a lesser number (e.g. the Philippines) and *vice-versa*.

Table 7.19 presents NTMs imposed by India against ASEAN. India majorly has given NTM regulations on registration, the requirement to pass through specified port of customs, anti-dumping investigation, customs surcharges, consumption taxes, trade-related investment measures, and full prohibition (import ban). These regulations are given for almost all ASEAN countries.

Comparing ASEAN's NTMs on India and India's on ASEAN with respect to TBT, it is seen that India has only one requirement to check registration for importers for TBT reasons. ASEAN countries, especially the Philippines and Indonesia, have number of non-tariff regulations that have created hurdle to trade business. Similarly, in case of other non-tariff measures, India has imposed regulation on anti-dumping investigation, customs surcharges, consumption taxes, trade- related investment measures, etc. In contrast to India, ASEAN regulations are many and are related to licensing for specified use, economic reasons, global allocation, custom inspection, merchandise handling, stamp tax, import licence, etc. These again ultimately make the trade business slow and restricted for both the exporter and importer.

7.7 Concluding Remarks

This chapter has dealt with issues and relevance of regulatory requirements of SPSs and TBTs between ASEAN and India. The issues of Specific Trade Concerns (STCs) of SPS and TBTs between ASEAN and India were also studied. Besides, incidences of SPS and TBT between ASEAN and India were covered both at country and sectoral levels. This chapter has and also covered case studies of SPS and TBT measures at HS 6-digit level.

The major findings of this chapter are as follows.

- Since 1995, both ASEAN and India did not raise any specific trade concern on SPS and TBT against each other. About 98 per cent of the developed countries like USA, Canada, EU, Australia, Japan etc had raised several STCs against ASEAN and India.
- Most of the STCs raised against India and ASEAN are related to food safety, protecting human, animal or plant life or health. In some cases, countries required a clarification about the scope and the status of the measure. In other cases, the concerns related to the perceived discriminatory or trade-restrictive nature of the measure. There were also several concern related to the issues of lack of harmonization on SPS requirements such as standard, inspection procedure and also the transparency of the measures that were faced by ASEAN and India.
- Both ASEAN and India often imported relatively large volumes of agricultural products, which were generally subjected more to import regulations. The incidence of the use of NTMs depends on both percentage of products (or imports) affected by NTMs and number of NTMs affecting each product.
- More than 60 per cent of the food-related products were found affected by at least one form of SPS measure. TBTs, on the other hand, can be applied to a much wider set of products and indeed are found to be more uniformly applied across economic sectors with peaks in textiles, footwear, processed food and chemicals. The distribution of NTMs across sectors, especially with regard to SPS measures and TBTs, is more due to the technical properties of

the products than to economic policy, and therefore does not vary substantially across countries.

- ASEAN Consultative Committee on Standard and Quality (ACCSQ) has been undertaking Working Group on SPS on agricultural products and processed foods and TBTs on automotive, cosmetics, electrical and electronic equipments, Medical devices, pharmaceutical, prepared food stuff, rubber-based products, traditional medicines and health supplements. In this regard, India should monitor the development of ACCSQ Working Group on product standards and engage in cooperation with ASEAN to bring in the required standards in the domestic market.

Chapter 8

Conclusions and Recommendations

8.1 Introduction

India and ASEAN are home to 1.8 billion people and have an economic size of US$ 3.8 trillion, accounting for a substantial share of world resources, economic and otherwise. In terms of both the shared land and maritime boundaries, regional economic integration has been seen as a complementary path to strengthen globalization process. The partnership with ASEAN countries has made significant progress in recent years. India has active regional trade agreements both at the bilateral level and at the multilateral level with most of the South Asia and Southeast Asian countries in the Asia-Pacific region.

Despite better market access due to trade liberalization and several trade agreements between countries, the complexities and applications of NTMs have been increasing over time. Therefore, exporters often consider NTMs as barriers to trade, and compliance to NTM requirements represents an additional cost and time to export, which also has a negative effect on competitiveness of their products exported to partner countries.

This study has focused on understanding the trade environment and experiences of firms on NTMs between ASEAN and India. Particularly, it is essential to understand the firms' perspective on the NTM issues, which would help identify and define strategies that can address and overcome impediments to trade. Firms dealing with exports and imports have to deal with NTM issues on a daily basis, and they also faced several challenges and problems pertaining to specific NTMs. Therefore, understanding firms' concern and difficulties would help the government and other stakeholders to take necessary policy directions to ease burden of NTMs on trade. The Report has also looked into two specific NTM measures SPS and TBT, and carried out case studies on the selected products, which have consequences on trade since exporters seeking market access for their products need to comply with requirements imposed by several regulatory agencies. Finally, the Report has also investigated the regulatory environment and has identified regulatory gaps.

The study has used both primary and secondary data for analysis. For the primary survey, the study had designed a fairly detailed questionnaire to capture all possible issues related to NTMs in both ASEAN and India. The survey has given special focus on SPS and TBT specific questions pertaining to sub-classification of SPS and TBT related issues, standard and technical regulations, impact of SPS and TBT on cost and time to trade, procedural obstacles, barriers and suggestions to ease NTM associated problems and to improve ASEAN-India trade and economic relationship in future. Besides,

it has also covered awareness and perception on NTMs, FTAs and trade facilitation related issues. The primary survey was carried through online survey approach from firms, trade experts, associations, government officials and researchers. To ensure the reliability and consistency of the primary survey, the study followed several diagnostic tests. The study broadly used descriptive statistics, cross tables, frequency calculations and graphs for presenting the survey results. The study also assumed factors determining ASEAN and India future trade using probit model.

The secondary data on NTMs were collected from the Trade Analysis and Information System (TRAINS) database, which was developed by UNCTAD. UNCTAD has comprehensive database on NTMs at sub-classification level by HS at 6-digit level for most of the countries at the bilateral level. The study used various methods to assess the incidence of NTMs and its impact on ASEAN and India both at the country and sectoral levels. The study used Revealed Comparative Advantage (RCA) index to investigate how sector-wise export patterns could shift over time between ASEAN and India and also to assess impact of NTMs in shifting export competitiveness between them.

8.2 Major Findings from the Secondary Data Analysis

Tariff and NTMs between ASEAN and India

- The study found that although AIFTA has considerably reduced the tariff for almost 80 per cent of the products granting market access; due to stringency and complexities of NTMs some of the sectors and products are denied market access in both ASEAN and India.
- ASEAN countries such as Vietnam, the Philippines and Cambodia complement both tariff and NTMs to restrict market access of India, whereas, Brunei and Singapore substitute tariff with NTMs on imports from India.
- ASEAN countries imposing higher tariffs on products such as agricultural and food processing products, chemical products, textiles, base metals, machinery and electrical equipments also have a larger NTM impact, thereby indicating that countries are protecting their domestic sectors with both NTMs and tariffs. For instance, almost more than 60 per cent of India's export is affected by NTMs imposed by ASEAN.
- Some of the ASEAN's exports to India under the sectors like fats and oil, footwear, mineral products, rubber and plastic and processed foods are under exclusion and in the sensitive list, however, the share of those products in ASEAN's export to India is marginal. Therefore, those products may have less impact on ASEAN's actual export but have more impact on ASEAN's potential export to India. Barring a few, sector-wise average numbers of NTMs imposed by India on ASEAN's export at HS 6-digit level have affected most of the sectors close to 100 per cent.

Trends on NTMs between ASEAN and India

- Relatively both ASEAN and India imposed almost equal number of NTMs against each other. However, in the case of India, TBTs, Price-control Measures (PCM) and Trade related Investment (TRM) measures are imposed in almost all the products, whereas ASEAN imposed several types of NTMs in both technical and non-technical measures.
- About 27.41 per cent of India's exports were affected by ASEAN's SPS measures in 2016, and about 56.28 per cent of India's export was affected by ASEAN's TBT measures in 2016. In case of non-technical measures, majority were quantity control measures and price control measures
- India imposed few SPS measures against ASEAN, and its effect on ASEAN's export was about 17.12 per cent in 2016.

Besides, India imposed TBT measures against ASEAN to most of the products that affected about 92 per cent of ASEAN export to India. In case of the non-technical measures, price control measures and trade- related measures are the major measures affecting ASEAN's export.

- Invariably both ASEAN and India imposed almost same level of NTMs barring a few ASEAN countries under vegetable products, chemical products, textiles, machinery and electrical and base metals, respectively.

Incidence of NTMs between ASEAN and India

- Among ASEAN countries, Cambodia, Lao PDR, Philippines, Singapore and Vietnam had imposed more NTMs against India's export. Particularly, the Philippines imposed highest number of the types of NTMs at each product level, compared to other ASEAN countries. On the other, India's NTMs affected exports of ASEAN countries like Thailand, Malaysia, Myanmar, Brunei, respectively. However, India imposed less number of different types of NTMs against ASEAN.
- ASEAN countries such as Vietnam, the Philippines and Cambodia have complemnetary tariff and NTMs, whereas, Brunei, Singapore have substituted tariff with NTM measures against India's exports to ASEAN. India follows substitution effect of NTMs with tariff, while imposing tariff and NTM against ASEAN's export.

Impact of NTMs on Export Pattern between ASEAN and India

- Both ASEAN and India experienced comparative disadvantage in several products, and the impact was much higher in case of India's RCA.
- In terms of impact of NTMs on trade, the number of NTM types was higher for the products which were under the loosers of RCA for both ASEAN and India. Exports of ASEAN experienced negative growth between 2006 and 2016 in most of the sectors, and India's export to ASEAN experienced lower growth for most of the sectors.
- The impact of NTMs on ASEAN exports to India was much higher than India's export to ASEAN for the sectors like transport equipment, machinery and electrical, textiles, chemical products, food processing and base metals.

8.3 Major Findings from the Primary Survey

Firms Experience on SPS and TBT Issues

- About 53 per cent of the firms faced difficulties with SPS reasons and 41 per cent for TBT reasons.
- Almost 50 to 70 per cent of the respondents experienced difficulties in most of the SPS types, such as Temporary geographic prohibitions for SPS reasons, Geographical restrictions on eligibility, Systems approach, Special authorisation requirement for SPS reasons, Registration requirements for importers, Restricted use of certain substances in foods and feeds and their contact, Microbiological criteria of the final product, Hygienic practices during production, Cold/heat treatment, Irradiation, Fumigation, Plant-growth processes, and Food and feed processing. This shows that Indian firms are experiencing serious difficulties in meeting SPS requirements.
- About 60 per cent of the firms found most difficulties in trade due to authorization requirement for TBT reasons. In addition, more than 50 per cent of the respondents declared TBT requirements such as tolerance limits for residues of or contamination by certain substances, registration requirement for importers,

product identity requirement, regulation on production processes etc.

- About 19 and 45 per cent of the respondents experienced reduction in export performance due to SPS and TBT, respectively.
- Respondents believed that mutual recognition, international standards, harmonization, common positive and negative list of additives and stakeholder consultation would majorly ease problems/ challenges in meeting SPS and TBT measures and promoting trade between ASEAN and India.
- Standard and technical regulations for SPS and TBT measures hindered entry of exports to a large extent, in addition to decrease in export performance due to increased per unit cost.

Firms Perception on Harmonisation of Standard and Technical Regulations

- Majority of the respondents strongly believed that harmonization of standards and technical regulations between ASEAN and India would improve trade.

Firms Experience on Utilisation of ASEAN-India FTA

- Exporter and importer firms have poor knowledge and utilisation of FTAs between ASEAN and India. And also firms use other FTA route to trade with ASEAN countries such as APTA, India-Singapore CEPA, and India-Malaysia CEPA. As a result, only 30 per cent of the firms have utilised upto 10 per cent of share of export to ASEAN countries.
- Majority of export and import firm believe that low general custom tariff, obstacles due to rules of origin and costs and procedural delay are the major reasons for low utilisation of ASEAN-India FTA.
- Most of the respondents believed that complicated trade procedures (37 per cent), handling of documents manually (25 percent), rise in cost of compliance (21 per cent) and increase in time to trade (13 percent) were the major obstacles to NTMs.
- Almost 30 per cent of the respondents reported that Complication in utilizing ASEAN-India FTA and lack of transparency of trade-related rules and regulations were major barriers to trade for majority of the respondents.

Perception on Benefits of NTMs

- Most of the respondents believed that NTMs led to harmonization of standards (36 per cent) would improve competitiveness (25 per cent) and would protect consumer safety (22 per cent).

Perception on Financing and Foreign Exchange Problems

- Lack of credit availability for traders, insufficient cash flow for business expansion, exchange rate volatility, non-acceptance of local currency trade, lack of banking facility in both host and domestic country were problems restricting trade between ASEAN and India.

Major Problems Associated with NTMs

- Almost 40.4 per cent of the respondents reported that NTM measures led to incur additional time and cost to trade. Similarly, about 23 per cent of the respondents believed that lack of regulatory incoherence and bad design in implementing countries and its nature restricting trade.

Firms Perception on Procedural Obstacles

- More than 30 per cent of the respondents strongly agreed that procedural obstacles of NTMs in the form of regulatory barriers, information obstacles, documentation obstacles and logistics obstacles hindered firm's ability to export and import.

General Awareness on NTMs

- Only about 19 per cent of the export and import firms participated in the programmes related to NTMs, compared to other stakeholders such as trade associations, business chambers, government institution, regulatory authorities, think-tanks and research institutions.

Future of ASEAN and India Trade

- Overwhelmingly, about 72 per cent of the respondents believed that the trade between ASEAN and India in next 20 years would increase. The study found that problems and procedural obstacles related to NTMs and barriers related to standard and technical regulations did have a negative effect on the future trade. Harmonization of standards and technical regulations, benefits associated to NTMs would positively promote future trade between ASEAN and India.

8.4 Recommendations

Primary survey calls for more transparency in the adoption and implementation of NTMs between ASEAN and India. Particularly, the exporting and importing SMEs face several barriers on behind-the-borders such as lack of information on specific regulations, lack of coordination and coherence of regulatory regimes, complexities in following certain requirements. Besides, regulations also tend to change in a short duration creating uncertainty among business firms. It affects business decisions for firms due to non-tariff obstacles to trade.

Business firms in the primary survey have chalked out series of suggestions to improve the Ease of Regulatory Regime and some of them are discussed below.

- **Adopt Good Regulatory Practices**: Maintaining good regulatory practices such as administrative simplification, impact assessments, stakeholder engagement, e-government and appeal to improve quality of the regulatory environment. Good regulatory practices particularly benefit small and medium enterprises (SMEs). As SMEs are often affected by the increasing stock and flow of regulations and may, in turn, lack adaptive capacity and comply with regulations like large enterprises.
- **Enhance Transparency in NTM Regulations** to improve regulatory environment and provide access to all information and regulation procedures to traders.
- **Non-discriminatory Treatment** to provide fair opportunities irrespective of their country of origin
- **Eliminate unnecessary Trade Restrictiveness**: Government should use regulations to fulfil legitimate public policy objectives rather than curtailing trade and investment restrictive measures
- **Simplifying the Procedures** for firms to comply with regulations at ease, such as single window clearance, IT enabled mechanisms, simplifications of license, permit procedures etc.
- **Effective Dissemination of FTA:** Government should provide capacity -building and training at the official level for dissemination of AIFTA among traders to implement effectively.
- **Single Window System for NTM:** Each ASEAN country and India should have a single portal to access all NTM- related regulations and procedures and also it should be available in English language.
- **Simplifying Trade Procedures:** Adopt Information Technology enabled services to make trade procedure simple to avoid delay in export time and reduce trade costs associated with cumbersome administrative procedures for meeting NTM requirements. Similarly, promote paper-less trade procedures for prompt clearance.

- **Develop Warehousing Facilities:** ASEAN and India should invest in affordable warehousing facilities; especially cold chains at airports & ports.
- **Engage Private-Public Dialogue:** Both ASEAN and India should actively engage private-public dialogue both formally and informally to troubleshoot and improve trade-related issues related to NTMs and procedural obstacles.
- **Regulatory Coherence between ASEAN and India:** Need to have regulatory coherence between ASEAN and India to carry out discussions on the activities based on regulatory cooperation in terms of dialogues, meetings, information exchanges, including for small and medium enterprise-related issues; training programmes and other assistance; and strengthening cooperation and relevant interaction amongst government regulatory bodies, private sector and other voluntary/non-profit organisations and associations. The deliberation should help improve conformity assessment capabilities and facilitate process of mutual recognition of each other's accreditation certificates.
- **Streamlining NTMs between ASEAN and India:** The observation of the study is that in addition to tariff liberalization, streamlining of NTMs is equally important for facilitating preferential market access between ASEAN and India. Therefore, there is a need for regional agreement between ASEAN and India to facilitate trade by streamlining NTMs through harmonization of standards and regulations and mutual recognition of conformity assessment and reduction of border procedures. Only then any regional trade agreements can promote trade and investment activities. India and ASEAN should form a taskforce involving relevant agencies and representatives from the private sector to review scope and implementation of its existing regulations with a view to streamlining regulatory framework.
- **Harmonization of Standard and Technical Regulations between ASEAN and India:** Conformity assessment procedures can raise barriers when there is duplication of costs in different markets for essentially identical tests against the same or equivalent standards. Therefore, both ASEAN and India should harmonise standards and mutually recognise declarations, conformity assessment certificates, testing and licensing that would help minimize the burden of additional trade costs for firms, especially, small and medium ones.
- **Mutual Recognition Agreement between ASEAN and India:** In addition, the study also found that the impact of NTMs on a particular product or a group of product restricted market access at sector/industry specific between ASEAN and India. Specifically, given the number of national and international standards and technical regulations, which have grown across the sectors, there is a need for bilateral and multilateral negotiations by creating and strengthening discipline around the sectoral mutual recognition agreements (MRAs), particularly, in dealing with the SPS and TBT measures.

ASEAN and India should identify potential products of interests and should build cooperation to work in areas where difficulties in recognising or validating certificates of testing and inspections, and strengthen use of international standards, mandatory documentation of equivalence procedure and adopting Codex consignment rejection guidelines, standards in English language and agreement on self certification. Indian accreditation authorities should enter into mutual recognition agreements (MRAs) with similar agencies in the ASEAN countries. This is important especially when it is found that several SPS and TBT measures are based on the national standards. This would facilitate lower

transaction cost as well as hassle- free trade and would also help strengthen production networks across borders between ASEAN and India.

- **Active Participation with ACCSQ:** ASEAN Consultative Committee on Standard and Quality (ACCSQ) has been undertaking the Working Group on SPS and TBTs, committed to harmonization of standards and technical regulations for the priority sectors towards ASEAN single market. In this regard, India should monitor development of ACCSQ Working Group on product standards and engage in cooperation with ASEAN to bring in the required standards in the domestic market. India should also disseminate development of harmoniztion of standards and technical regulations within ASEAN, and how Indian SMEs and large enterprises should be adopting and improving standards accordingly to promote export from India.
- **Initiate Common Information Portal between ASEAN and India:** India trade portal, India standards portal and single window interface for facilitating trade (SWIFT) are intended to increase transparency and facilitate smoother trade among the countries. The portal, developed by the Ministry of Commerce and Industry, Government of India, along with other partners provides access to all trade-related regulations under MFN and various other agreements. These portals also allow access to rules of origin criteria, procedural and documentary requirements for export and import, and information on best practices for trade facilitation. There should be a common portal for both India and ASEAN for traders to get comprehensive information on NTMs, tariff, rules of origin and others for regional trade. Regular updates of information under the common portal would help traders. The common portal would also encourage agencies and others stakeholders for reporting changes or suggestions.
- **Disseminate the NTM Information and Provide Training and Networking for SMEs:** Most SMEs in ASEAN and India face barriers to exports and find difficulties in capturing markets due to lack of knowledge about issues such as rules of origin and export requirements as well as inadequate product standards. Both India and ASEAN should create a forum with sector-specific business associations to help develop capacity of SMEs. This can be done through training on rules of origin and custom procedures; guidance and assistance on improving production process and quality; and knowledge-sharing through networking and consultation.

Endnotes

1 Refer, for example, Kartika and Atje (2013), UNESCAP (2017), AIC-RIS (2016, 2017)

2 Refer, UNCTAD (2016)

3 Ibid

4 Refer, UNESCAP (2017), page 12

5 Refer, UNCTAD (2013), Movchan and Eremenko (2003), for more details

6 Refer UNCTAD (2013) and Ing (2016)

7 Refer, WTO (2018)

8 Ibid

9 Refer, for example, UNCTAD (2009)

10 This was also reflected in Shepherd and Wilson (2013)

11 Refer, for example, Kartika and Atje (2013), UNESCAP (2017), AIC-RIS (2016, 2017)

12 Refer, Ing (2016), UNCTAD (2014) for more details.

13 The World Bank in collaboration with the United Nations Conference on Trade and Development (UNCTAD) and in consultation with the organizations such as International Trade Center, United Nations Statistical Division (UNSD) and the World Trade Organization (WTO) has developed the World Integrated Trade Solution (WITS).

14 Only "sensitive product categories" and "technical regulations" are further subcategorized according to the objectives of the measure (for example, protection of safety, human health, animal health and life, plant health, environment and wildlife).

15 In 1994, it began to collect and classify non-tariff barriers (NTBs) according to a customized Coding System of Trade Control Measures (TCMCS). This coding system classified tariffs, para-tariffs and non-tariff measures (NTMs) into over 100 sub-categories. Concurrently, a Trade Analysis and Information System (TRAINS) database was developed by UNCTAD, which grew subsequently into the most complete collection of publicly available information on NTBs. Later, in collaboration with the World Bank, TRAINS became accessible to researchers through the World Integrated Trade Solution (WITS) software application. The TRAINS database contains a brief description of each NTB, affected or excluded countries and footnotes on the exact product coverage, where available.

16 See Chapter 2 for more details on NTM classifications.

17 There are various approaches for identifying importance of NTMs and assessing their effects on international trade, such as simple inventory measures, computation of price gaps and e estimation of ad valorem equivalents.

18 Refer, WTO (2014)

19 AIFTA was signed on August 13, 2009, and it became operational from January 2010. It is one of the significant agreements for India with 10 ASEAN member countries towards integrating with the Southeast Asia. ASEAN-India FTA covers almost 90 per cent of the tariff line which has a preferential market access to reduce the tariff up to zero tariffs for those tariff lines covered under the Normal Track-1

and Normal Track-II of the AIFTA tariff schedule by the members to the Agreement. There are other tariff lines which are under exclusion list; sensitive list and highly sensitive list which are excluded from the AIFTA agreement.

20 See Chapter 3 for detailed analysis.

21 Refer UNCTAD (2014)

22 Only "sensitive product categories" and "technical regulations" were further subcategorized according to the objectives of the measure (for example, protection of safety, human health, animal health and life, plant health, environment and wildlife).

23 In 1994, it began to collect and classify non-tariff barriers (NTBs) according to a customized Coding System of Trade Control Measures (TCMCS). This coding system classified tariffs, para-tariffs and non-tariff measures (NTMs) into over 100 sub-categories. Concurrently, a Trade Analysis and Information System (TRAINS) database was developed by UNCTAD, which subsequently grew into the most complete collection of publicly available information on NTBs. Later, in collaboration with the World Bank, TRAINS became accessible to researchers through the World Integrated Trade Solution (WITS) soft ware application. The TRAINS database contains a brief description of each NTB, affected or excluded countries and footnotes on the exact product coverage, where available.

24 See Chapter 2 for more details on NTM classifications.

25 There are various approaches for identifying the importance of NTMs and assessing their effects on international trade, such as simple inventory measures, computation of price gaps and the estimation of ad valorem equivalents.

26 The study uses surveymonkey.com platform to collect primary data. The programme provided all the necessary tools for creating a strong, professional survey easily and data analysis functions smoothly. In addition, email invitations, reminders and the response time was quick. It also provided functions for tracking the respondents, non-respondents and results throughout the data collection process.

27 Given the limited constraints of access to the collection of email ids of the firms, the study collected the email ids of firms majorly from food and processed agricultural sector, textile industries, automobile and auto component industries and pharmaceutical industries.

28 Refer, UNCTAD (2014)

29 Refer, CII (2015) and CII (2016)

30 Ibid.

31 Refer, for example, Ing (2016)

32 Interim Working Group for the Common Effective Preferential Tariff (CEPT) and AFTA (ITWG) was reconstituted as CCA to supports the work of the AFTA Council; the AFTA Council, in turn, supports the work of the ASEAN Economic Ministers (AEM). The ASEAN Secretariat supports all three ASEAN bodies – the ITWG/CCA, SEOM, and AEM.

33 The Bureau of Indian Standards Act, 1986, revised as The Bureau of Indian Standards Act, 2016.

34 The Act seeks to repeal eight different food-related legislations in India. It also seeks to establish the Food Safety and Standards Authority of India, which will lay down science-based standards for food items, regulate the manufacture, storage, distribution, sale and import of food item, and ensure the availability of safe and wholesome food for human consumption.

35 ILAC is the international authority on laboratory and inspection accreditation, with a membership consisting of accreditation bodies and affiliated organizations throughout the world. Its website www.ilac.org provides a range of information on laboratory and inspection accreditation, as well as the location of its members including its MRA signatories

world-wide. ILAC promotes the increased use and acceptance by industry as well as government of the results from accredited laboratories and inspection bodies, including results from accredited organizations in other countries.

36 All import declarations were brought in under the ambit of a single import declaration and the online clearance facility with effect from 01st April 2016.

37 The detail regression results of probit model are given in Appendix 5

38 See, for example, Chevassus-Lozza et al. (2008) and Henry de Frahan and Vancauteren, (2006).

39 WTO TBT Agreement and other multilateral discussions have put efforts in establishing rules and regulations on TBT (often called as the Standard Code following the Tokyo Round (1973-1979) under GATT. Subsequently, it has progressed, as a result of the Uruguay Round, to become the WTO Agreement on Technical Barriers to Trade (TBT Agreement) with the launch of the WTO in 1995 (Nam, 2005).

40 Refer, WTO (2010)

41 For the detailed table of SPS STCs and TBT STCs raised against ASEAN and India by member countries is given in Appendix 7 (Table 7 to Table 10).

42 Refer Fontagne, et. al (2013)

43 Ibid

44 Refer, UNCTAD (2014)

45 Refer, UNCTAD (2014)

46 Refer, Osiemo (2017)

47 Refer, APEDA, New Delhi

48 The Halal, in Arabic meaning Lawful, refers to food and beverages that are permissible for use and consumption by Muslims. Muslim consumers recognized Halal product by identifying the halal certification or halal logo in product packages.

49 Refer, Johan (2018)

50 Refer, Jordan (2018)

References

AIC-RIS (2015). *ASEAN India Development and Cooperation Report*. New Delhi. file:///C:/Users/RISC-164/Downloads/9781351223812_googlepreview.pdf

AIC-RIS (2016). *Mekong-Ganga Cooperation (MGC): Breaking Barriers and Scaling New Heights*, RIS, New Delhi

Andriamananjara, S., Dean J. M., Ferrantino, M. J., Feinberg, R. M., Ludema, R. D., Tsigas, M. E. (2004). The Effects of Non-Tariff Measures on Prices, Trade, and Welfare: CGE Implementation of Policy-Based Price Comparisons. Available at SSRN: https://ssrn.com/abstract=539705. or http://dx.doi.org/10.2139/ssrn.539705

Augier, P., Cadot, O., Gourdon, J., & Malouche, M., (2012). "Non-tariff measures in the MNA region: Improving governance for competitiveness" Available at: http://works.bepress.com/ocadot/26/

Austria, M. S. (2013). Non-Tariff Barriers: A Challenge to Achieving the ASEAN Economic Community. *ASEAN Economic Community*, 31.

Baldwin, R.E. (1989). Measuring Nontariff Trade Policies. National Bureau of Economic Research. Working Paper No. 2978. https://www.nber.org/papers/w2978

Beghin, J. C., Maertens, M. & Swinnen, J. (2015). Non-Tariff Measures and Standards in Trade and Global Value Chains. *CARD Working Papers*. 559. https://lib.dr.iastate.edu/card_workingpapers/559

Beghin, J.C., A.C. Disdier, and S. Marette. "Trade Restrictiveness Indices in Presence of Externalities: An Application to Non-Tariff Measures." *Canadian Journal of Economics*.

De, Prabir, Phetmany, T., Phimmavong, B., Phommathan, A. & Pathoumvanh, A. (2016). Non-Tariff Measures (NTMs) Faced by Exporters of Lao PDR: A Field Survey Report. Available at: http://www.laotradeportal.gov.la/kcfinder/upload/files/Lao_NTM_survey9_2016%20(No%20Annex).pdf

De, Prabir, Phetmany, T., Phimmavong, B., Phommathan, A., Pathoumvanh, A. (2017). Non-Tariff Measures (NTMs) Faced by Exporters in the Lao People's Democratic Republic: An Assessment. Chapter 3 in Trade Integration within ASEAN: The Role of Non-Tariff Measures for Cambodia, The Lao PDR, Myanmar and Vietnam, UNESCAP, pp. 235-260

Deardorff, A.V., & Stern, R.M. (1998). Measrement of Nontariff Barriers. Ann Arbor, Mich: University of Michigan Press. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=328927&site=eds-live&scope=site

Dedehouanou, F., Swinnen, J. and M. Maertens. (2013). Does contracting make farmers happy? Evidence from Senegal. *Review of Income and Wealth,* vol 59(1), pp 138-160

Disdier, A., & Marette, S. (2010). The Combination of Gravity and Welfare Approaches for Evaluating Nontariff Measures, *American Journal of Agricultural Economics*, Volume 92, Issue 3, 1 April (2010), Pages 713–726, https://doi.org/10.1093/ajae/aaq026

Dolan, C., & Humphrey, J. (2000). Governance and trade in fresh vegetables: The impact of UK supermarkets on the African horticulture industry. *Journal of Development Studies*, 37(2), 147–176.

Dries, L., Swinnen, J. (2010). The impact of interfirm relationships on investment: evidence from the Polish dairy sector. *Food Policy, 35* (2), 121-129

ESCAP (2017). Trade Integration within ASEAN: The Role of Non-Tariff Measures for Cambodia, The Lao People's Democratic Republic, Myanmar and Vietnam, Bangkok. https://www.unescap.org/sites/default/files/Introduction_3.pdf

Ferrantino, M. (2006). "Quantifying the Trade and Economic Effects of Non-Tariff Measures", *OECD Trade Policy Papers*, No. 28, OECD Publishing, Paris, https://doi.org/10.1787/837654407568.

Fontagne, Lionel, Orefice, Gianluca, Piermartini, Roberta and Rocha, Nadia (2013). "Product Standard and Margins of Trade: Firm Level Evidence", CEPII, No.2013-06, February, pp. 1-40.

Gertrude, N. (2011). The Impact of Technical Measures on Agricultural Trade: A Case of Uganda, Senegal, and Mali. — Improving Food Security through Agricultural Trade. Available at: http://hdl.handle.net/10919/34887

Gibbon, P. (2003). Value-chain governance, public regulation and entry barriers in the global fresh fruit and vegetable chain into the EU. *Development Policy Review*, 21, 615–625.

Gow, H., Streeter, D., Swinnen, J. (2000). How private contract enforcement mechanisms can succeed where public institutions fail: The case of Juhosucor A.S. *Agricultural economics, 23* (3), 253-265.

Grübler. J., Ghodsi, M., & Stehrer, R. (2016). Assessing the Impact of Non-Tariff Measures on Imports. Available at: https://cepr.org/sites/default/files/2486_GRUEBLER%20-%20Assessing%20the%20Impacy%20of%20NTMs%20on%20Imports.pdf

Henson, S. & Humphrey, J. (2010). Understanding the Complexities of Private Standards in Global Agri-Food Chains as They Impact Developing Countries. *Journal of Development Studies* 46(9) , 1628-1646.

Henson, S. & Jaffee, S. (2008). Understanding Developing Country Strategic Responses to the Enhancement of Food Safety Standards. *The World Economy*, 31 (4), pp. 548-568.

Hudson, J., & Jones, P. (2003). International Trade in 'Quality Goods': Signaling Problems for 37 Developing Countries. *Journal of International Development 15* , 15; 999-1013.

Ing L.Y., Cordoba, S.F. & Cadot, O. (2016). Non-Tariff Measures in ASEAN. Economic Research Institute for ASEAN and East Asia (ERIA).

Jaffee, S & Masakure, O. (2005). Strategic Use of Private Standards to enhance international competitiveness: Vegetable Exports from Kenya and Elsewhere. *Food Policy* 30(3), 316-333.

Johan, Eva (2018). "New Challenges in ASEAN Regional Market: International Trade Framework on Halal Standard", Jurnal Dinamika Hukum, 18 (1), pp.93-102.

Kee, Hiau Looi; Nicita, Alessandro and Olarreaga, Marcelo (2009), "Estimating Trade Restrictiveness Indices,"*Economic Journal, Royal Economic Society*, 119(534), pages 172-199.

Maertens, M., and J.F.M. Swinnen (2009). "Trade, standards, and poverty: Evidence from Senegal." *World Development* 37.1: 161-178.

Maskus, K. E., Otsuki, T., & Wilson, J. S. 2005. The Cost of Compliance with Product Standards for Firms in Developing

Countries: An Econometric Study. World Bank Policy Research Working Paper 3590.

McCarty, A. (1999). Vietnam's Integration with ASEAN: Survey of non-tariff measures affecting trade. *A report prepared for the office of the Government, UNDP-Funded Research Report*, (8).

Medalla, E. M..; Mantaring, M. C. (2017). *Review of Intra-ASEAN Nontariff Measures on Trade in Goods*. © Philippine Institute for Development Studies. http://hdl.handle.net/11540/7245.

Mehta, R. (1999). *Tariff and Non-Tariff Barriers of Indian Economy - A Profile*. Research and Information System for developing Countries, New Delhi.

Mehta, R. (2005). Non-tariff Barriers Affecting India's Exports. Discussion Paper #97. Research and Information System for developing Countries, New Delhi.

Mehta, R., Saqib, M. and George, J. (2003). Addressing Sanitary and Phytosanitary Agreement: A Case Study of Select Processed Food Products in India. Discussion Paper #39. Research and Information System for developing Countries, New Delhi.

Minten, B., Randrianarison, L. and Swinnen, J. F. M. (2009). Global retail chains and poor farmers: Evidence from Madagascar. *World Development* 37(11): 1728-1741.

Mohanty, S.K. and Manoharan, T.R. (2002). Analysis of Environment related Non-Tariff Measures in the European Union Implications for South Asian Exports. Discussion Paper #38. Research and Information System for developing Countries, New Delhi.

Negash, M. and J. Swinnen. (2013). Biofuels and Food Security: Micro-Evidence from Ethiopia. LICOS Discussion Paper DP319.

Noev, N., Dries, L., Swinnen, J. (2009). Institutional change, contracts, and quality in transition agriculture: evidence from the Bulgarian dairy sector. *Eastern European Economics, 47* (4), 62-85.

Osiemo, Onsando (2017). Food Safety Standards in International Trade: The Case of the EU and the COMESA, Routledge Publications, London. pp. 1-229.

Pasadilla, G. O., Wang, T., & Duval, Y. (2013). Non-Tariff Measures in ASEAN.

Pasadilla, G.O. (2013), Addressing Non-Tariff Measures in ASEAN, ARTNeT Working Paper, No.130, September, pp. 1-63.

Raihan, S., M. A. Khan and S. Quoreshi. (2014). "NTMs in South Asia: Assessment and Analysis", SAARC-TPN.

Rao, E. and M. Qaim. 2011. Supermarkets, Farm Household Income, and Poverty: Insights from Kenya. *World Development* 39(5), pp 784-796.

Rao, E., Brummer, B. and M. Qaim. (2012). Farmer Participation in Supermarket Channels, Production Technology, and Efficiency: The Case of vegetables in Kenya. *American Journal of Agricultural Economics* 94(4): 891–912;

Reardon, T., Barrett, C., Berdegué, J. A., and Swinnen, J. (2009). Agrifood industry transformation and small farmers in developing countries. *World Development*, 37(11), 1717-1727.

Saqib, M., and Taneja, N. (2005). *Non-tariff barriers and India's exports: the case of ASEAN and Sri Lanka* (No. 165). Indian Council for Research on International Economic Relations, New Delhi, India.

Thelle, M. H., and Sunesen, E. R. (2011). Assessment of Barriers to Trade and Investment between the EU and Japan. Available at: http://trade.ec.europa.eu/doclib/docs/2011/november/tradoc_148370.pdf

United Nations Conference on Trade and Development (UNCTAD) (2017). TRAINS NTMs: The Global Database on Non-Tariff Measures, Geneva

United Nations Conference on Trade and Development (UNCTAD). (2014). Non-Tariff Measures to Trade: Economic and Policy Issues for Developing Countries. Geneva, United Nation. https://unctad.org/en/PublicationsLibrary/ditctab20121_en.pdf

United Nations Conference on Trade and Development (UNCTAD). (2012). Classifi-

cation of Non-Tariff Measures. https://unctad.org/en/Publications Library/ditctab20122_en.pdf

UNESCAP (2018). 'Asia-Pacific Trade and Investment Report, 2018', Bangkok, https://www.unescap.org/publications/asia-pacific-trade-and-investment-report-2018

Vandemoortele, T. and K. Deconinck, (2014). "When are private standards more stringent than public standards?" A*merican Journal of Agricultural Economics*, vol. 96, no. 1, pp. 154 - 171.

Winchester, N. (2009). "Is there a dirty little secret? Non-tariff barriers and the gains from trade". *Journal of Policy Modeling*, *31*(6), 819-834.

World Bank (2011). Middle East and North Africa: Sustaining the Recovery and Looking Beyond. Economic Developments and Prospects Report, January 2011 World Bank Washington DC

World Bank. (2005). When the market comes to you – Or not. The Dynamics of Vertical Coordination in Agri-food Chains in Transition.

World Economic Forum (2016). Global Enabling Trade Index (ETI) Report Database.

WTO (2012). The trade effects of non-tariff measures and services measures. Geneva, Switzerland. https://www.wto.org/english/res_e/booksp_e/anrep_e/wtr12-2d_e.pdf

WTO (2010). "The WTO agreements series", World Trade Organisation, pp. 1-50.

Yue, C., J.C. Beghin, and H.H. Jensen. (2006). "Tariff Equivalent of Technical Barriers to Trade with Imperfect Substitution and Trade Costs." *American Journal of Agricultural Economics* 88(4): 947–960.

Appendices

Appendix 1: Questionnaire

AIC
ASEAN-India Centre at RIS

RIS
Research and Information System for Developing Countries

Survey on Assessing the Impact of Non-Tariff Measures (NTMs) on Trade between ASEAN and India

About the Survey

Research and Information System for Developing Countries (RIS) is a New Delhi–based autonomous policy research institute that specialises in issues related to international economic development, trade, investment and technology. RIS is envisioned as a forum for fostering effective policy dialogue and capacity-building among developing countries on global and regional economic issues.

ASEAN-India Centre (AIC) at RIS undertakes research, policy advocacy and regular networking activities with relevant public/private agencies, organisations and think-tanks in India and ASEAN countries, with the aim of providing policy inputs, up-to-date information, data resources and sustained interaction, for strengthening ASEAN-India Strategic Partnership.

AIC is conducting a survey to study the impact of non-tariff measures (NTMs) on trade between ASEAN and India. It also attempts to assess the level of awareness and perception of NTMs among the stakeholders such as traders, officials, trade/business associations, practitioners, etc.

ASEAN (Association of Southeast Asian Nation) is a trade block of 10 countries (Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Lao PDR, The Philippines, Singapore, Thailand, and Vietnam), which has a free trade agreement (FTA) with India in 1st January 2010.

This Questionnaire aims at seeking your views and experiences in trade-related issues. Accordingly, the Questionnaire is designed for four targeted respondents: 1) Traders/Companies, 2) Trade Association/ Business Chamber, 3) Government Institution/ Regulatory Authority, and 4) Academic/ Research Institution/Think Tank. We broadly classify this Questionnaire into three sections. Section 1 covers general information about the respondents, Section 2 includes the awareness and perception of NTM, FTAs and trade facilitation measures related issues, and Section 3 focuses on NTM-related issues.

We have opted for fairly detailed questions in order to capture all possible issues related to NTMs in both ASEAN and India. We realise that this choice may lead to some difficulties in filling in all the details, in which case you are invited to focus on the questions which are more relevant for you.

Disclaimer: No individual or company information will be published, and your answer will be kept in fully confidential. If you have any questions regarding the contents of the survey, please contact Prof. Prabir De at prabirde@ris.org.in and Dr. Durairaj Kumarasamy at durairaj@ris.org.in.

Section 1 – General Information

1. Your Organisation/Your profile?
   Business – Export / Import firm;
   Trade Associations/Business Chambers;
   Government Institution/Regulatory Authority
   Academic/Research Institutions/Think-Tank
   Other (please specify)
2. Name of the Respondent
3. Age
   Upto 20
   21 to 30
   31 to 40
   41 to 50
   51 and above
4. Gender
   Male
   Female
5. Education
   Under Graduate
   Post Graduate
   Ph.D.
   Other (please specify)
6. Years of Experience
   Upto 5
   6 to 10
   11 to 15
   16 to 20
   21 to 25
   26 and above
7. Languages Known
   English
   Hindi
   Malay
   Khmer
   Indonesian
   Lao
   Chinese
   Burmese
   Filipino
   Thai
   Vietnamese
   Other (Please specify)
8. Name of the organisation
9. Designation
10. Location of your firm
    State/Province
    Country
11. Year established
12. Firm Size
    Small (less than 100 employees)
    Medium (between 100 and 500 employees)
    Large (more than 500 employees)
13. Firm Type
    Foreign
    Domestic
14. If Foreign
    Wholly owned Subsidiary (WoS)
    Joint Venture (JV)
15. In which country your head quarter is located?
16. Are you an exporting firm?
    Yes
    No
17. Please write name of the export product(s)
18. Please select the export destination(s)

Brunei	Cambodia
India	Indonesia
Lao PDR	Malaysia
Myanmar	Philippines
Singapore	Thailand
Vietnam	South Korea
Japan	China
USA	European Countries

    Others (please specify)
19. Are you an importing firm?
    Yes
    No
20. Please write name of the import product(s)
21. Please select the import destination(s)

Brunei	Cambodia
India	Indonesia
Lao PDR	Malaysia
Myanmar	Philippines
Singapore	Thailand
Vietnam	South Korea
Japan	China
USA	European Countries

    Others please specify

22 Your firm's years of experience in exporting/ importing

Upto 5 years | 6 to 10
11 to 20 | 21 and above

23 Please specify your firms broad area of activities

- Foods, processed agricultural or marine products
- Apparels and textile products
- Timber and wood products
- Rubber and Plastic
- Leather and Footwear
- Cements
- Iron and steel
- Nonferrous metals and products
- Fabricated metal products
- General machinery (including metal moulds and machine tools)
- Electrical machinery and electronic equipments
- Electric and electronic parts and components
- Automobile and auto components
- Transport Equipments (parts and accessories)
- Telecommunications
- Pharmaceuticals
- Construction equipments
- Others (please specify)

24 Modes of transportation used for the export and import

Maritime | Air
Rail | Road
Inland waterways | Others (please specify)

25. How is your overall export volume to your major trade countries for the last 3 years?

Increased
Decreased
No change

26. How is your overall import volume to your major trade countries for the last 3 years?

Increased
Decreased
No change

27. According to you, which countries show potential as a market for your company's future operation/products over the next 10 years? Please select at least two countries in the order of importance

Rank 1
Rank 2
Rank 3

CLM（Cambodia, Laos, Myanmar）

Indonesia | Malaysia
Philippines | Singapore
Thailand | Vietnam
India | Other South Asian countries
Japan | South Korea
China | Australia
New Zealand | USA
Europe | Others (please specify)

Section II – Questions Related to Free Trade Agreements (FTA) and Trade Facilitation Measures (TFM)

28. Does your company currently use any existing bilateral or regional FTAs for import or export?

Yes
No
Considering to use FTA route
No Knowledge about FTA
Others (please specify)

29 If yes, what are the FTA routes have you used to trade between ASEAN countries and India?

Asia-Pacific Trade Agreement (APTA)
India-ASEAN FTA
India-Singapore Comprehensive Economic Cooperation Agreement
India-Malaysia Comprehensive Economic Cooperation Agreement
India- South Korea Comprehensive Economic Partnership Agreement
India-Japan Comprehensive Economic Partnership Agreement
Others (please specify)

30 Your experiences in utilizing the ASEAN-India FTA?
General custom tariffs are low, so an FTA provides no advantages
There is a reduction or exemption of custom tariffs at the export destination, so an FTA provides no advantages
Rules of Origin create too many obstacles
Cost of checking and issuing a certificate of origin is high
Procedures for obtaining a certificate of origin are complicated
Suppliers do not know the FTA/EPA system and cannot obtain the necessary documentation
Complexity arising because existing FTA/ EPA regulations vary in different Rules of Origin
No FTA/ EPA exists with the export/ import destinations
Lack of harmonization of NTMs (especially SPS and TBT)
There are no specific problems
Others (please specify)

31. Utilisation of ASEAN-India FTA in current years?
Upto 10%
11% - 20%
30% - 40%
41% and above

32. How do you find market access in export to India, compared to exporting to other countries?
Much more difficult
Somewhat more difficult
Equally difficult
Somewhat less difficult
Much less difficult
Don't know

33. How do you find market access in import from India, compared to importing from other countries?
Much more difficult
Somewhat more difficult
Equally difficult
Somewhat less difficult
Much less difficult
Don't know

Section III - Questions Related to Non-Tariff Measures (NTMs)

Identification of NTMs, Regulatory Requirements and Procedural Problems

34. Kindly mention the product description and importing country (either ASEAN countries or India), where you are experiencing NTMs-related issues
Name of the Product
HS Code (Optional)
Name of the importing country

35 Please rank the following NTMs in a scale between very easy to very difficult to which importers restrict your export.

	Very Difficult	Difficult	Neutral	Easy	Very Easy	not applicable/ Don't know
Standards and technical regulations for Sanitary and Phytosanitary Measures (SPS) reasons						

Standards and technical regulations for Technical Barriers to Trade (TBT) reasons						
Border procedures (e.g. customs procedures, pre-shipment inspection and other formalities)						
Price control measures (e.g. anti-dumping measures, countervailing measures)						
Quantity control measures (e.g. quotas, prohibitions)						
Distribution channels (e.g. seaport and airport regulations, secondary dealers)						
intellectual property rights (e.g. copyright, trademark, patents)						
Government assistance issues (e.g. subsidies, export refunds)						
Public procurement issues (e.g. legal framework, contract conditions)						
Financial measures (e.g. advance payments, multiple exchange rates)						
Para-tariff measures (e.g. customs surcharge, additional charges, internal taxes and charges on imports)						
Other non-tariff measures (please specify)						

36. Does your export experiencing SPS-related issues in importing country?
    Yes
    No

37 If yes, please rank between Very Easy and Very Difficult in terms of the degree to which your experience of any SPS reasons, if any?

	Very Difficult	**Difficult**	**Neutral**	**Easy**	**Very Easy**	**not applicable/ Don't know**
Temporary geographic prohibitions for SPS reasons						
Geographical restrictions on eligibility						
Systems approach						
Special authorisation requirement for SPS reasons						
Registration requirements for importers						
Restricted use of certain substances in foods and feeds and their contact						

Microbiological criteria of the final product						
Hygienic practices during production						
Cold/heat treatment						
Irradiation						
Fumigation						
Plant-growth processes						
Animal-raising or -catching processes						
Food and feed processing						
Storage and transport conditions						

38. Please rank the following factors related to standards and technical regulations a scale between Very Easy and Very Difficult in terms of the degree to which they impact your ability to export products from India:

	Very Difficult	Difficult	Neutral	Easy	Very Easy
Certification Requirement					
Quarantine Requirement					
Licensing Requirement					
Testing Requirement					
Packaging Requirement					
Labelling Requirement					
Marketing Requirement					
Pre-shipment Certification					

39. Do standards and technical regulations affect your cost of shipment?
    Yes No
    Not relevant Don't know
40. Do standards and technical regulations affect your cost of production?
    Yes No
    Not relevant Don't know
41. Do standards and technical regulations delay the entry of exports?
    Yes No
    Don't know Not relevant
42. By how much would you expect your costs per unit of export to decrease if the barriers related to standard and technical regulations were eliminated?
    0 – 1% 1-5 %
    5 – 10 % 10- 15 %
    15 – 20 % More than 20 %
    Not relevant Don't know
43. Is your main export product covered by a Mutual Recognition Agreement between India and importing country?
    Yes
    No
    Don't know

44. What is your opinion on the impact of SPS measure on your export performance?
Improved Reduced
Moderate No Change

45. What could possibly be done to ease the problems/challenges in meeting SPS measures?
Use of international standards
Mutual recognition of conformity assessment procedures
Harmonisation/convergence of rules and regulations
Suppliers' declaration of conformity
Common positive and negative list of additives
. Periodically arrange stakeholders consultation with business chambers, custom and concern departmental representatives
I don't know
Others (please specify)

46. Does your export experiencing TBT-related issues in importing country?
Yes No

47. If yes, please give a scale between Very Easy to Very Difficult in terms of the degree to which you experience of any TBT reasons, if any?

	Very Difficult	Difficult	Neutral	Easy	Very Easy	Not applicable/I don't know
Prohibition for TBT reasons						
Authorization requirement for TBT reasons						
Registration requirement for importers for TBT reasons						
Tolerance limits for residues of or contamination by certain substances						
Restricted use of certain substances						
TBT regulations on production processes						
TBT regulations on transport and storage						
Product identity requirement						
Product-quality or -performance requirement						

48. Please rank the following factors related to standards and technical regulations a scale between Very Easy to Very Difficult in terms of the degree to which they impact your ability to export products from India:

	Very Difficult	Difficult	Neutral	Easy	Very Easy
Certification Requirement					
Quarantine Requirement					
Licensing Requirement					

Testing Requirement					
Packaging Requirement					
Labelling Requirement					
Marketing Requirement					
Labelling Requirements					
Pre-shipment Certification					

49. Do standards and technical regulations affect your cost of shipment?
    Yes No
    Not relevant Don't know
50. Do standards and technical regulations affect your cost of production?
    Yes No
    Not relevant Don't know
51. Do standards and technical regulations delay the entry of exports?
    Yes No
    Don't know Not relevant
52. By how much would you expect your costs per unit of export to decrease if the barriers related to standard and technical regulations were eliminated?
    0 – 1% 1-5 %
    5 – 10 % 10- 15 %
    15 – 20 % More than 20 %
    Not relevant I don't know
53. Is your main export product covered by a Mutual Recognition Agreement between India and importing country?
    Yes No
    Don't know
54. What is your opinion on the impact of TBT measure on your export performance?
    Improved Reduced
    Moderate No Change
55. What could possibly be done to ease the problems/challenges in meeting TBT measures?
    Use of International standards
    Mutual recognition of conformity assessment procedures
    Harmonisation/convergence of rules and regulations
    Suppliers' declaration of conformity
    Periodically arrange stakeholder's consultation with business chambers, custom and concern departmental representatives
    I don't know
    Others (please specify)
56. Please rank the following factors related to procedural obstacles on NTMs a scale between Strongly Disagree and Strongly Agree in terms of the degree to which they impact your ability to export/import products:

Sl.No.	Procedural Obstacles	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Arbitrary behaviour of officials regarding classification and valuation of the reported product					

2	Arbitrary behaviour of officials with regards to the reported regulation					
3	Discriminatory behaviour favouring supplier from other countries					
4	Discriminatory behaviour favouring local supplier in destination markets					
5	Deadlines set for completion of requirements are too short					
6	Delay related to reported regulation					
7	Difficulties with translation of documents from or into other languages					
8	Documentation is difficult to fill out					
9	Facilities lacking international accreditation/recognition					
10	Informal payment					
11	Information on selected regulation is not adequately published and disseminated					
12	Large number of different documents					
13	Limited / inappropriate facilities for sector-specific transport and storage					
14	Limited/inappropriate facilities for testing					
15	Numerous administrative windows/ organisations involved, redundant documents					
16	There is no focal point for information					
17	Other limited/inappropriate facilities, related to certificate/regulation					
18	Other problems with internal recognition					
19	Requirements and processes differ from information published					
20	Selected regulation changes frequently					
21	Unusually high fees and charges for reported certificate/regulation					

57. What are the major benefits of NTMs on trade?
    Improve quality standards
    Improve competitiveness
    Product consumer safety
    Harmonisation of standards
    Other (please specify)
58. What are the major obstacles of NTM on trade?
    Lack of transparency

Lack of reporting
Lack of clarity in the notifications
Unnecessary delays due to procedural problems
Unwanted costs of compliance
Other (please specify)

59. Do you think harmonisation of standards and technical regulation will lead to increase trade between ASEAN and India?
Yes No
Don't Know

60. In your opinion, what are the reasons for the difficulties to comply with standards?
Increase the cost of the product
Discriminatory treatment

61. Stringent social compliance measures (e.g., insistence on specific code of conduct regarding respective countries social preferences)
Lack of uniformity of standards
Other (please specify)

61. In your opinion, what are the reasons due you think that NTMs is problematic?
Lack of regulatory incoherence and bad design in implementing countries
Legal notifications are published in different languages
Its nature of restricting trade
It impose additional costs to trade
Other (please specify)

62. In your opinion, what are the major challenges in trade between ASEAN and India?
NTMs such as standards and technical regulations
Port infrastructure
Custom regulations
Competitiveness
Lack of market access
Other (please specify)

63. In your opinion, how do you see the ASEAN and India trade in the next 20 years?
Increase
Decrease
Stable
Can't predict
Don't know

64. Have you organised or participated in the capacity building, workshop, seminar or conference on NTM related issues at regional/national level?
Yes
No

65. If yes, how many have you organised/participated in 2016 and 2017?
1 2
3 4
5 and above

66. Email

67. Telephone no. (with ISD code)

***

Appendix 2: Methodology

To capture the impact of non-tariff measures (NTMs) on trade between ASEAN and India, the analysis of the study has carried out through descriptive statistics, frequency tables, distribution tables and distribution charts. Further, the study employs statistical tests such as Cronbach Coefficient Alpha test (Cronbach, 1951), Shapiro Francia (W′ test) test (Shapiro and Francia, 1972) Levene's test (Levene, 1960) and Kruskal Wallis one way analysis of variance by rank test (Kruskal and Wallis, 1952) to check the consistency of the data, to assess the differences in the factors determining trade-related issues between ASEAN and India, level of awareness and perception of NTMs in future. The details of the methods used in table preparation and diagnostic tests are discussed below.

2.1 Methods used in table preparation

The description of the questions administered in the questionnaire are presented in cross/two-way tables where the respondents from traders/companies, trade association/business chamber, government institution/regulatory authority, and academic/research institution/think tank are taken as the base for reporting the frequency and distribution (percent share) of the responses for respondent's basic profile, firm's basic profile, firm's level of awareness and perception of standard and technical regulations in SPS, TBT and NTMs in future. Further, the study also reports responses in cross/two-way table for export and import business organizations' to analyze their views and experience of trade-related issues between ASEAN and India.

2.2 Diagnostic tests

To check the consistency of the data collected from primary survey the study proceeds with a reliability analysis by employing the Coefficient Alpha statistical technique. Further, the study employ Shapiro Francia (W′ test) test to check whether the data follows a normal distribution or not, followed by Levene's test for checking the homogeneity of variances. After knowing that the test for normality and test for equal variances across groups are not satisfied for some of the tables in the analysis, the study employs the Kruskal Wallis one way analysis of variance by rank test to assess the differences in the factors determining the impact of NTMs between ASEAN and India and firm's perception of the future of trade with the existing trade-related issues. These diagnostic tests are briefly discussed below.

2.2.1 Cronbach's alpha Test (Reliability test)

To increase the accuracy of evaluating a survey it is important to check the reliability of its measures i.e. the extent to which they are free from error and yield consistent results (Peter, 1979). Thus, to check the internal consistency of the data obtained from the primary survey, the study conducts the reliability analysis using Coefficient Alpha technique (Cronbach, 1951). Coefficient Alpha is the most widely used technique to measure the strength of consistency for a primary survey data. Cronbach's α is defined as:

$$\alpha = \frac{k\,\bar{c}}{\bar{v}+(k-1)\bar{c}} \qquad (1)$$

where k is the number of items, c is the average covariance between item pairs and v is the average variance. The resulting α coefficient of reliability ranges from 0 to 1. Generally, 0.7 is deemed as an acceptable reliability coefficient of a measure. Higher α coefficient indicates high internal consistency i.e. the more the items have shared covariance and probably measures the same underlying concept. Reliability analysis is conducted on the data we obtain from the set of different types of NTMs, different types of SPS and TBT measures, different types of standard and technical regulations in SPS and TBT issues, different factors impacting the export and import ability of firms which seek respondent's view on the importance of each factor on a six point likert style ranking.

2.2.2 *Shapiro Francia (W′ test) for normality*

To provide accurate and reliable evaluation of the differences in the factors determining the impact of NTMs between ASEAN and India and firm's perception of the future of trade with the existing trade-related issues, the study first checks whether the data has been drawn from a normally distributed population or not. To check the normality of the complete samples the study employs the Shapiro Wilk (W) test as the test is comparatively quite sensitive to a wide range of non-normality issues such as asymmetry, long-tailedness and short-tailedness, even for sample sizes less than 20. The Shapiro Wilk (W) test can be defined as:

$$W = \frac{\left(\sum_{i=1}^{n} a_i y_i\right)^2}{\sum_{i=1}^{n}(y_i - \bar{y})^2} \qquad (2)$$

However, for sample size greater than 50, Shapiro Francia (W′) test, which is the extension of the W test, appears to be more sensitive to a wide range of non-normality issues. The Shapiro Francia (W′) test can be defined as:

$$W' = \frac{\left(\sum_{i=1}^{n} b_i y_i\right)^2}{\sum_{i=1}^{n}(y_i - \bar{y})^2} \qquad (3)$$

The null hypothesis of Shapiro Francia test is that the sample comes from a normally distributed population. If we reject the null hypothesis then it implies that the sample does not come from a normally distributed population. Thus, given the sample size of 239, we employ the Shapiro Francia test to check for normality.

2.2.3 *Levene's Test for homogeneity of variances*

To check for the homogeneity of variances, we employ Levene's test. This homogeneity-of-variance test is less dependent on the assumption of normality than most tests. The Levene's test statistics demonstrates robust estimates when dealing with skewed populations' i.e. it reports equality of variances even under non-normality conditions. For each case, it computes the absolute difference between the value of that case and its cell mean and performs a one-way analysis of variance on those differences. The levene's test can be defined as:

$$F_{Levene} = \frac{\frac{\sum_{i=1}^{t} n_i(\overline{D_i} - \bar{D})^2}{(t-1)}}{\frac{\sum_{i=1}^{t}\sum_{j=1}^{n_i}\left(D_{ij} - \overline{D_i}\right)^2}{(N-t)}} \qquad (4)$$

It reports Levene's robust test statistic (W0) for the equality of variances between the groups defined by group variable. It also reports (W50), which replaces the mean with the median and (W10) which replaces the mean with the 10 per cent trimmed mean. The null hypothesis of Levene's test is

that the variances are equal across the groups. If we reject the null hypothesis then it implies that the variances are varying across groups.

2.2.4 Kruskal Wallis Test

A common problem in statistics is to decide whether several samples should be regarded as coming from the same population. Almost invariably the sample differ and the question is whether the differences signify the differences in the population or are merely the chance variation to be expected among random samples from the same population. Thus, to check the differences in the factors determining the impact of NTMs between ASEAN and India and firm's perception of the future of trade with the existing trade-related issues, we use Analysis of Variance (ANOVA) parametric test. But the ANOVA test requires that the data should be drawn from a normally distributed population and equal variances across the groups. In addition, we also employ Kruskal-Wallis one-way analysis of variance by rank test, a non-parametric alternative to ANOVA. The Kruskal–Wallis one-way analysis-of-variance test, H, is defined as:

$$H = \frac{1}{S^2}\left\{\sum_{j=1}^{m}\frac{R_j^2}{n_j} - \frac{n(n+1)^2}{4}\right\} \quad (5)$$

where

$$S^2 = \frac{1}{n-1}\left\{\sum_{all\ ranks} R(X_{ij})^2 - \frac{n(n+1)^2}{4}\right\} \quad (6)$$

One advantage of employing this technique is that it does not require the assumption of normality and is also not affected by the violation of homogeneity of variances assumption. The null hypothesis of Kruskal-Wallis test is that all samples come from identical population. If we reject the null hypothesis then it implies that the population is not same at all levels.

Appendix 3: Weighted Index

As per the questionnaire design, the respondents were provided with several options for questions such as problems related to NTMs, benefits associated with NTMs, obstacles associated with NTMs, difficulties related to compliance with standard and technical regulations, firm's perception of different types of NTMs and financing and foreign exchange related problems that restrict trade between India and ASEAN. To capture the respondent's weightage given to each of the options, the authors developed an index for each of the above mentioned variables. Since each individual variable do not satisfy the normality condition Principal Component Analyses (PCA) cannot be applied. Therefore, we employed a non-parametric approach to create an index. The index is created from the available survey responses to the respective questions by assigning both row and column weights to each respondent's response.

For example, the variable problems related to NTMs have six categories in the survey, which is reported as six different variables in the dataset. Given this, an index based on these six variables associated with the problems related NTMs is developed. Let the six reasons for the problems related to NTMs are represented by R (i.e. R_1, R_2, R_3, R_4, R_5, R_6). R is a dummy variable which takes the value of 1 if the respondent responded to this question and 0 otherwise. After this, summation of responses for R_1 to R_6 is carried out individually (i.e ΣR_1, ΣR_2, ΣR_3, ΣR_4, ΣR_5 and ΣR_6). Next, the value of 1is assigned if the respondent responded for at least one of the six reasons variables and 0 otherwise. After assigning the values, the total response of the respondents is calculated. Let this total value be represented by r. Next, to calculate the weights for R_1, r is divided by ΣR_1, and then multiplied by R_1. The same process is followed for calculating the other indexes. Finally, to calculate the index, summation of the six calculated weights is done. Therefore, the formula for calculating the index can be expressed as:

$$\frac{r}{\sum R_1} X R_1 + \frac{r}{\sum R_2} X R_2 + \frac{r}{\sum R_3} X R_3 + \frac{r}{\sum R_4} X R_4 + \frac{r}{\sum R_5} X R_5 + \frac{r}{\sum R_6} X R_6 \qquad (7)$$

Similar procedure is followed for the rest of the indexes such as obstacles, benefits of NTM, standard and technical regulations, perception on different NTM imposed by ASEAN countries, harmonization of standard and technical regulations, financial measures, and so on.

Appendix 4: Probit Model

The present study examines the respondent's perception on the factors determining expected increase or decrease in future trade relation between ASEAN and India. The analysis of this study proceeds in two parts. The first part of the analysis is carried out for all the stakeholders (export and import firms, trade associations, government institutions, research institutions and consultancy) of the primary survey.

Let Y^* be the future trade between ASEAN and India. The empirical model can be specified as:

$$Y^* = \alpha + \beta X' + \gamma Z' + \delta W + \varepsilon \quad (8)$$

where X' is the list of individual specific characteristics, Z' is the list of indexes and W represents the categorical variable for harmonization of standard and technical regulations between India and ASEAN. ε is the random error term. The dependent variable Y^* is not observed because it is a latent variable. Hence, the following probit model is defined as:

$$Y = \begin{Bmatrix} 1 \; for \; Y^* > 0 \, , \\ 0 \; for \; Y^* \leq 0 \end{Bmatrix} \quad (9)$$

Where Y is a binary variable with the value 1 if the respondent's perceive that future trade between India and ASEAN will increase and 0 otherwise (future trade between India and ASEAN will decrease). Let depict the cumulative standard normal distribution function. Then, the probit regression model can be represented as:

$$E(\mathrm{Y}|\mathrm{X}', \mathrm{Z}', \mathrm{W}) = \Phi(\alpha + \beta \mathrm{X}' + \gamma \mathrm{Z}' + \delta \mathrm{W}) \quad (10)$$

Appendix 5: Probit Analysis Results

Table 1: Probit Analysis for All Samples

Future Trade	Model 1	Model 2	Model 3	Model 4
	Coefficients	*Coefficients*	*Coefficients*	Coefficients
Education	1.784**	1.258	1.319*	1.799**
	(2.11)	(1.63)	(1.70)	(1.99)
Years of Experience	0.428***	0.293***	0.291***	0.319***
	(3.91)	(4.19)	(3.32)	(3.38)
Harmonization of S&T	3.591***	4.407***	4.221***	
	(2.59)	(14.43)	(12.29)	
Index for Problems relate to NTMs	-2.079***			-2.501***
	(5.88)			(2.78)
Index for Benefits associated with NTMs	0.130			0.292*
	(1.46)			(1.67)
Index for Obstacles associated with NTMs		-0.475		
		(1.63)		
Index for Compliance with Standard and Technical Regulation			-0.446**	
			(2.27)	
Index for Finance or Foreign Exchange Problems				1.348
				(1.36)
Observations	99	99	99	99
R-squared	0.47	0.34	0.33	0.49

Table 2: Probit Analysis for Firms

Future Trade	Model 1	Model 2	Model 3	Model 4
	Coefficient	*Coefficient*	*Coefficient*	*Coefficient*
Education	1.498**	1.493***	1.976***	1.221**
	(2.40)	(2.62)	(3.73)	(2.43)
Years of Experience	0.070	0.148	0.150	0.081
	(0.56)	(1.36)	(1.14)	(0.77)
Index on India's Rank for Firms preferred trade Destination	0.466	0.447	0.530	0.458
	(1.17)	(1.02)	(1.11)	(1.08)
Dummy for Potential Trade in Next 10 years (1 for ASEAN and 0 otherwise)	0.342***	0.252**	0.345***	0.231***
	(2.62)	(2.52)	(3.99)	(2.59)
Dummy for Difficulties in Market Access in ASEAN (1 for Yes and 0 otherwise)	-0.064	-0.022	-0.005	-0.028
	(0.45)	(0.18)	(0.04)	(0.23)
Index for Problems relate to NTMs	-0.897	-0.712	-1.203	
	(1.41)	(1.25)	(1.35)	
Index for Benefits associated with NTMs	0.983*	1.049**	0.755	
	(1.92)	(2.34)	(1.23)	
Harmonization of S&T	-0.399			
	(1.30)			
Index for Different Types of NTMs			-0.017***	
			(2.88)	
Index for Finance or Foreign Exchange Problems				-0.772
				(1.53)
Observations	47	48	48	48
Pseudo R-squared	0.36	0.31	0.45	0.26

Appendix 6 : Descriptive Statistics

Table 3: Descriptive Statistics for All Profile Types

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Future Trade	130	0.723077	0.449209	0	1
Education	237	1.940928	0.614696	1	3
Years of Experience	237	3.556962	1.742394	1	6
Index for Problems relate to NTMs	239	0.43067	0.5087	0	1.697674
Index for Benefits associated with NTMs	239	0.465885	0.563916	0	1.88189
Index for Obstacles associated with NTMs	239	0.536096	0.638771	0	1.912698
Harmonization of S&T	131	1.320611	0.704569	1	3
Index for Compliance with Standard and Technical Regulation	239	0.429054	0.503272	0	1.688
Index for Finance or Foreign Exchange Problems	239	0.375647	0.490433	0	1.968504
Index for Different Types of NTMs	239	32.70737	59.29681	0	211.7385

Table 4: Descriptive Statistics for Export and Import Firms

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Future Trade	130	0.723077	0.449209	0	1
Education	237	1.940928	0.614696	1	3
Years of Experience	237	3.556962	1.742394	1	6
Dummy for Potential Trade in Next 10 years (1 for ASEAN and 0 otherwise)	239	0.271967	0.445907	0	1
Dummy for Difficulties in Market Access in ASEAN (1 for Yes and 0 otherwise)	97	3.608247	1.630163	1	6
Index for Problems relate to NTMs	239	0.43067	0.5087	0	1.697674
Index for Benefits associated with NTMs	239	0.465885	0.563916	0	1.88189
Harmonization of S&T	131	1.320611	0.704569	1	3
Index for Finance or Foreign Exchange Problems	239	0.375647	0.490433	0	1.968504
Index for Different Types of NTMs	239	32.70737	59.29681	0	211.7385

Table 5: Correlation Coefficient of Variables

	Future Trade	Education	Years of Experience	Reasons Index	Benefits Index	Harmonization	Standard and Technical Regulation	Finance or Foreign Exchange Index	NTM in Importing Countries Index
Future Trade	1								
Education	0.35	1.00							
Years of Experience	0.11	0.04	1.00						
Index for Problems relate to NTMs	0.01	0.05	0.22	1.00					
Index for Benefits associated with NTMs	0.20	0.11	-0.02	0.43	1.00				
Index for Obstacles associated with NTMs	-0.14	0.10	-0.16	-0.01	0.01	1.00			
Harmonization of S&T	0.17	0.18	0.30	0.45	0.39	-0.05	1.00		
Index for Compliance with Standard and Technical Regulation	0.19	0.00	0.13	0.30	0.31	0.05	0.42	1.00	
Index for Finance or Foreign Exchange Problems	-0.35	-0.44	-0.19	-0.25	-0.24	0.14	-0.17	-0.04	1.00

Table 6: Correlation Coefficient of Variables for Export and Import Firms

	Future Trade	Education	Years of Experience	Firm's Experience in Exporting/ Importing	Trading Destinations in ASEAN	Market Access in ASEAN	Reasons Index	Benefits Index	Harmonization	Finance or Foreign Exchange Index	NTM in Importing Countries Index
Future Trade	1										
Education	0.39	1.00									
Years of Experience	0.08	0.10	1.00								
Dummy for Potential Trade in Next 10 years (1 for ASEAN and 0 otherwise)	0.24	-0.17	-0.16	-0.02	1.00						
Dummy for Difficulties in Market Access in ASEAN (1 for Yes and 0 otherwise)	-0.13	0.04	0.11	-0.08	-0.16	1.00					
Index for Problems relate to NTMs	0.09	0.07	0.12	0.12	0.05	-0.04	1.00				
Index for Benefits associated with NTMs	0.15	0.11	-0.05	0.11	0.05	-0.11	0.67	1.00			
Harmonization of S&T	-0.26	-0.06	-0.37	-0.23	-0.15	0.16	-0.20	-0.02	1.00		
Index for Finance or Foreign Exchange Problems	0.36	0.23	-0.03	-0.07	-0.01	0.00	0.40	0.54	0.06	1.00	
Index for Different Types of NTMs	-0.39	0.05	-0.04	-0.10	-0.11	0.22	-0.40	-0.45	0.20	-0.33	1.00

Appendix 7: Special Trading Concerns for SPS and TBT Reasons

Table 7: STC's Raised Against ASEAN for SPS Reasons

Number of Specific Trade Concern	Title	Member(s) raising the concern	Member(s) supporting the concern	Member(s) maintaining the measure	First date raised	Last date raised	Dates subsequently raised	Subject keywords	Status	Date reported as resolved
4	Measures related to BSE	Switzerland		Argentina; Australia; Austria; Belgium; Brazil; Canada; Chile; Czech Republic; France; Germany; Italy; Netherlands; Poland; Romania; Singapore; Slovak Republic; Slovenia; Spain; United States of America	5/1/1996	3/1/1999	10 times	Animal health; Human health; International Standards / Harmonization; Risk assessment; Zoonoses;	Resolved	3/1/1999
21	Fresh fruit and vegetables	Australia; United States of America		Indonesia	3/1/1997		0 times	Plant health; Transparency;	Not reported	
66	Notifications related to dioxin	Switzerland		Malaysia; Singapore	7/1/1999		0 times	Food safety; Human health;	Resolved	7/1/1999
82	Restrictions on importation of fresh fruit	New Zealand		Indonesia	11/1/2000	7/1/2001	2 times	Control, Inspection and Approval Procedures; Plant health;	Resolved	10/26/2001
111	FMD restrictions	Argentina	Brazil	Indonesia	10/1/2001	10/1/2005	6 times	Animal health; International Standards / Harmonization;	Not reported	
119	Notification on Chinese fruit imports	China		Philippines	3/1/2002		0 times	Plant health;	Partially resolved	
132	Import restrictions on dairy products	Argentina		Indonesia	6/1/2002	3/1/2004	4 times	Animal health; International Standards / Harmonization;	Resolved	3/1/2004

146	Ban on hormones in animal production	United States of America	Australia; Canada; Mexico	Indonesia	11/1/2002		0 times	Food safety; Human health;	Resolved	10/16/2013
150	Certification of meat and dairy products	Canada	Australia; European Union; Korea, Republic of; New Zealand; United States of America	Philippines	11/1/2002	4/1/2003	1 times	Control, Inspection and Approval Procedures; Food safety; Human health;	Resolved	4/1/2003
215	Public Health Regulation 11	United States of America	Japan; New Zealand	Thailand	3/1/2005	10/1/2005	2 times	Control, Inspection and Approval Procedures; Food safety; Human health; International Standards / Harmonization; Members' Regulatory information; Transparency;	Not reported	
234	Suspension of importation of live poultry and poultry carcasses	Mexico		Thailand	10/1/2005		0 times	Animal health; Human health; International Standards / Harmonization; Zoonoses;	Not reported	
243	Lack of recognition of pest-free areas	United States of America	Australia	Indonesia	10/1/2006	10/18/2007	3 times	International Standards / Harmonization; Plant health; Risk assessment; Pest or Disease free Regions / Regionalization;	Partially resolved	
244	Importation of live animals and meat products	Brazil	Argentina; Australia; New Zealand	Indonesia	10/1/2006	2/28/2007	1 times	Animal health; Human health; International Standards / Harmonization; Risk assessment; Zoonoses;	Not reported	
266	Price list for inspections	Brazil	Australia; European Union; New Zealand; Uruguay	Malaysia	4/2/2008		0 times	Control, Inspection and Approval Procedures; Other concerns;	Not reported	
279	Import restrictions on pork products due to influenza A/ H1N1	Mexico	Australia; Brazil; Canada; Dominican Republic; United States of America	Armenia; Bahrain, Kingdom of; China; Gabon; Indonesia; Jordan; Suriname	6/23/2009	10/28/2009	1 times	Animal health; Human health; Other concerns; Provisional Measures;	Not reported	
280	New meat import conditions	European Union		Indonesia	6/23/2009	10/28/2009	1 times	Animal health; Food safety; Human health; Zoonoses; Pest or Disease free Regions / Regionalization;	Not reported	

286	Import restrictions on poultry meat	Brazil		Indonesia	10/28/2009	10/16/2013	2 times	Animal health; Pest or Disease free Regions / Regionalization;	Not reported	
294	Import restrictions on plant and plant products	Brazil	Japan	Malaysia	3/17/2010	10/14/2015	1 times	Plant health;	Not reported	
305	Import restrictions on beef and recognition of the principle of regionalization	Brazil		Indonesia	10/20/2010	10/19/2011	2 times	Animal health; Human health; Pest or Disease free Regions / Regionalization;	Not reported	
314	Ban on offals	European Union; United States of America	Australia; Canada; Chile; New Zealand	Viet Nam	3/30/2011	10/16/2013	8 times	Food safety; Human health; Sufficiency of scientific evidence;	Not reported	
320	Restrictions on imported fresh meat	United States of America	Canada; European Union	Philippines	6/30/2011	10/19/2011	1 times	Food safety; Human health;	Not reported	
323	Import restrictions on pork and pork products	European Union	Canada; United States of America	Malaysia	10/19/2011	10/16/2013	2 times	Animal health; Food safety; Human health;	Not reported	
326	Restrictions on table grapes, apples and pears	South Africa	Senegal	Thailand	10/19/2011	10/18/2012	1 times	Plant health; Risk assessment; Territory protection;	Partially resolved	11/2/2017
330	Indonesia's port closures	China; European Union; New Zealand; United States of America	Argentina; Australia; Canada; Chile; Japan; Korea, Republic of; South Africa; Chinese Taipei; Thailand; Uruguay	Indonesia	3/27/2012	3/26/2015	7 times	Control, Inspection and Approval Procedures; Food safety; Plant health;	Partially resolved	10/16/2013
414	Indonesia's food safety measures affecting horticultural products and animal products	Philippines		Indonesia	10/27/2016		0 times	Food safety; Human health; Risk assessment;	Not reported	
343	Permits on horticultural products	United States of America	New Zealand	Indonesia	10/18/2012		0 times	Control, Inspection and Approval Procedures; Food safety; Transparency;	Not reported	

391	Malaysia's import restrictions related to approval of poultry meat plants	Brazil		Malaysia	7/15/2015		0 times	Control, Inspection and Approval Procedures; Undue delays;	Not reported	
398	Viet Nam's restrictions on fruit due to fruit flies	Chile		Viet Nam	10/14/2015		0 times	International Standards / Harmonization; Plant health; Pest or Disease free Regions / Regionalization;	Resolved	11/2/2017
399	Viet Nam's restrictions on plant products	Chile		Viet Nam	10/14/2015		0 times	Plant health; Risk assessment;	Partially resolved	7/13/2017
401	Undue delays in Viet Nam's approval process for dairy and meat products	Chile		Viet Nam	10/14/2015		0 times	Animal health; Control, Inspection and Approval Procedures; Undue delays;	Not reported	
418	Viet Nam's suspension of groundnut seed imports	Senegal		Viet Nam	3/22/2017	11/2/2017	2 times	Plant health; International Standards / Harmonization; Pests; Seeds; Risk assessment;	Not reported	
421	Thailand's import restriction on papaya seeds	Chinese Taipei		Thailand	3/22/2017	3/1/2018	3 times	Plant health; Risk assessment; Pests; International Standards / Harmonization;	Not reported	
435	Viet Nam's draft amendment to Circular 24 on MRLs for veterinary drugs	United States of America	Canada; New Zealand	Viet Nam	3/1/2018		0 times	Food safety; Maximum residue limits (MRLs); International Standards / Harmonization; Human health; Sufficiency of scientific evidence; Veterinary drugs;	Not reported	
438	Viet Nam's market access requirements for ''white'' offals	United States of America	New Zealand	Viet Nam	3/1/2018		0 times	Undue delays; Certification, control and inspection; Control, Inspection and Approval Procedures; International Standards / Harmonization;	Not reported	

Source: Compiled from http://spsims.wto.org

Table 8: STC's Raised Against India for SPS Reasons

Number of Specific Trade Concern	Title	Member(s) raising the concern	Member(s) supporting the concern	Member(s) maintaining the measure	First date raised	Last date raised	Dates subsequently raised	Subject keywords	Status	Date reported as resolved
61	Import restrictions on bovine semen	Canada; European Union	United States of America	India	3/1/1999	4/1/2003	5 times	Animal health; Human health; International Standards / Harmonization; Zoonoses;	Partially resolved	11/2/2017
62	Restrictions on imports of horses	European Union		India	3/1/1999	10/1/2006	1 times	Animal health; International Standards / Harmonization;	Not reported	
185	Restrictions due to avian influenza	European Union; United States of America	Australia; Canada; China	India	3/1/2004	10/19/2011	16 times	Animal health; Human health; International Standards / Harmonization; Zoonoses;	Not reported	
186	Phytosanitary import restrictions	European Union; United States of America	Canada; Chile; New Zealand	India	3/1/2004	10/1/2004	2 times	International Standards / Harmonization; Plant health;	Partially resolved	
192	Non-notification of various SPS measures	United States of America	Australia; European Union; New Zealand	India	6/1/2004	6/1/2005	3 times	Other concerns; Transparency;	Not reported	
200	Ban on food grade wax	United States of America		India	10/1/2004		0 times	Food safety; Human health; International Standards / Harmonization; Transparency;	Resolved	10/16/2013
240	Biotech labelling and import approval process regulations	United States of America	Argentina; Brazil; Canada	India	6/1/2006		0 times	Food safety; Genetically modified organisms; Human health; Technical Barriers to Trade; Transparency;	Not reported	
253	Export certification requirements for dairy products	United States of America		India	6/27/2007	10/18/2007	1 times	Food safety; Human health; International Standards / Harmonization;	Not reported	
347	Import restrictions on apples, pears and citrus	Argentina	Chile; European Union	India	3/21/2013		0 times	Plant health; Risk assessment; Undue delays;	Not reported	

Number of Specific Trade Concern	Title	Member(s) raising the concern	Member(s) supporting the concern	Member(s) maintaining the measure	First date raised	Last date raised	Dates subsequently raised	Subject keywords	Status	Date reported as resolved
358	India's import conditions for pork and pork products	European Union	Canada	India	10/16/2013	10/14/2015	6 times		Not reported	
371	India's import requirements for blueberries and avocados	Chile		India	7/9/2014		0 times	Plant health;	Not reported	
397	India's amendment to its import policy conditions for apples; Restriction to Nhava Sheva port	Chile; New Zealand	European Union; United States of America	India	10/14/2015	10/27/2016	2 times	Control, Inspection and Approval Procedures;	Partially resolved	3/16/2016
403	India's amended standards for food additives	European Union	Chile; New Zealand; United States of America	India	10/14/2015	3/16/2016	1 times	Food safety; Human health; International Standards / Harmonization;	Not reported	
417	India's import requirements for teak tree wood	Panama	Ecuador	India	10/27/2016		0 times	International Standards / Harmonization; Risk assessment; Plant health;	Not reported	
427	India's fumigation requirements for cashew nuts	Senegal	Burkina Faso; Colombia; Kenya; Madagascar; Mozambique; Nigeria; Russian Federation; Togo; Ukraine; United States of America	India	7/13/2017	11/2/2017	1 times	Pesticides; Plant health;	Not reported	
434	India's fumigation requirements for teak tree wood	Colombia	Belize; Costa Rica; Liberia	India	11/2/2017		0 times	Pests; Plant health; Pesticides;	Not reported	

Source: Compiled from http://spsims.wto.org

Table 9: STC's Raised Against ASEAN for TBT Reasons

Title	Member(s) subject to STC	Member(s) raising STC	First date raised	Last date raised	Number of times sub-sequently raised
Indonesia - Technical Guidelines for the Implementation of the Adoption and Supervision of Indonesian National Standards for Obligatory Toy Safety (ID 328)	Indonesia	Canada; Japan; Mexico; United States of America; European Union	11/10/2011	6/20/2018	19
Indonesia - Halal Product Assurance Law No. 33 of 2014 (ID 502)	Indonesia	Australia; Brazil; New Zealand; United States of America; European Union; Canada	3/9/2016	6/20/2018	7
Indonesia - Regulation of the Chairman of NADFC RI No.14 of 2016 on The Safety and Quality Standard of Alcoholic Beverages (ID 561)	Indonesia	Mexico	6/20/2018		0
Indonesia - Indonesian National Standard SNI 2973: 2011 and the certification requirements for the import of biscuits, as notified under the WTO Agreement on technical barriers to trade on 20th April 2016 (ID 564)	Indonesia	Switzerland	6/20/2018		0
Indonesia – Ministry of Health Regulation 30/2013 on the inclusion of sugar, salt and fat content information, as well as health messages on the label of processed foods (ID 389)	Indonesia	Australia; Brazil; Canada; Guatemala; Mexico; Switzerland; United States of America; European Union	6/17/2013	11/10/2016	10
Indonesia - MOI 69/2014 Article 3: LCR Requirements for LTE Devices - Requirement that Domestic Component Level (TKDN) of LTE TDD & FDD broadband services equipment (ID 472)	Indonesia	Australia; Brazil; Canada; Chinese Taipei; Japan; United States of America; European Union	6/17/2015	11/10/2016	4
Indonesia - Regulation of the Minister of Agriculture No. 139/Permentan/PD.4, 10 December 2014, concerning Importation of Carcass, Meat and/or Processed Meat Products into the Territory of the Republic of Indonesia, and Regulation of the Minister of Agriculture No. 02/Permentan/PD.4, 10 January 2015, concerning the Amendment of the Regulation of the Minister for Agriculture No. 139/Permentan/PD.4, 10 December 2014 (ID 461)	Indonesia	Australia; Brazil; Canada; European Union	3/18/2015	6/15/2016	4
Indonesia – Regulation of Minister of Trade No. 10/M-DAG/PER/1/2014 concerning Amendment of Regulation of Minister of Trade No. 67/M-DAG/PER/11/2013 concerning Affixed Mandatory Label in Indonesian Language for Goods (ID 436)	Indonesia	Japan; Korea, Republic of; United States of America; European Union	6/18/2014	3/18/2015	2
Indonesia - Ministry of Trade Regulation 82/M-DAG/PER/12/2012 on imported cell phones, handheld and tablet computers (ID 388)	Indonesia	Canada; United States of America; European Union	6/17/2013	3/19/2014	2
Indonesia - Regulation number 84/ Permentan/PD.140/2013, on halal food (ID 397)	Indonesia	Brazil	10/30/2013		0
Indonesia - Mandatory Indonesia National Standard (SNI) for Glazed Ceramic (ID 400)	Indonesia	European Union	10/30/2013		0

Indonesia – Import permit regulations 60 for horticultural products from the Ministries of Agriculture and Trade (ID 363)	Indonesia	South Africa; United States of America; European Union	11/27/2012		0
Indonesia - Draft Decree of Minister of Industry on Mandatory Implementation of Indonesia National Standard for electrolysis tin coated thin steel sheets (ID 303)	Indonesia	Japan; Korea, Republic of; European Union	3/24/2011	6/13/2012	4
Indonesia – Draft modification to the technical regulation HK.00.05.52.4040 on food categories, published on 9 October 2006 (ID 350)	Indonesia	Mexico; South Africa	6/13/2012		0
Indonesia – Labelling Regulations (Ministry of Trade Regulation 62/2009 and 22/2010) (ID 279)	Indonesia	Australia; United States of America; European Union	11/3/2010	3/20/2012	4
Indonesia – Decree No. Kep-99/MUI/III/2009 relating to Halal certification (ID 253)	Indonesia	United States of America	11/5/2009	3/24/2011	3
Indonesia – Regulation of BPOM No. HK.00.05.1.23.3516 relating to distribution license requirements for certain drug products, cosmetics, food supplements, and food (ID 254)	Indonesia	United States of America; European Union	11/5/2009	11/3/2010	3
Indonesia - Mandatory Certification for Steel Products (ID 227)	Indonesia	Chinese Taipei; Japan; Korea, Republic of; European Union	3/18/2009	3/24/2010	2
Indonesia – Requirements for Rubber Hoses for LPG Gas Stoves (ID 198)	Indonesia	European Union	7/1/2008		0
Indonesia – Zinc Coated Steel Sheet (ID 199)	Indonesia	Korea, Republic of	7/1/2008		0
Indonesia – Mandatory Standard for Tyre (ID 118)	Indonesia	European Union	3/22/2005	6/16/2005	1
Indonesia – Regulation on Food Labelling and Advertisement (ID 60)	Indonesia	European Union	6/29/2001		0
Indonesia – Regulation on Consumer Protection	Indonesia	Egypt; United States of America	7/21/2000	11/10/2000	2
Malaysia – Draft Protocol for Halal Meat and Poultry Production (ID 317)	Malaysia	Argentina; Brazil; Turkey; United States of America; European Union	6/15/2011	6/13/2012	3
Malaysia - Conformity Assessment Procedures for Steel Products (ID 229)	Malaysia	Japan	3/18/2009	6/25/2009	1
Malaysia – Hologram Stickers on Pharmaceutical Products (ID 119)	Malaysia	United States of America; European Union	3/22/2005	6/16/2005	1
Philippines – Ceramic wall and floor tiles (ID 149)	Philippines	European Union	11/9/2006	7/5/2007	2
Singapore - Plain Packaging for Tobacco Products (ID 484)	Singapore	Dominican Republic; Guatemala; Indonesia	11/4/2015		0
Thailand -- Draft Notification of the Alcoholic Beverages Control, Re: Rules, Procedure and condition for Labels of Alcoholic Beverages, issued under B.E. (ID 427)	Thailand	Australia; Canada; Chile; Guatemala; Japan; Mexico; New Zealand; South Africa; United States of America; European Union; Argentina	6/18/2014	6/20/2018	12
Thailand - New certification requirements under the Thai Ministry of Finance's Ministerial Notification on Importation of Spirits into the Kingdom of Thailand (B.E 2560) (ID 556)	Thailand	Australia; United States of America; Japan; European Union; New Zealand	3/21/2018	6/20/2018	1

Thailand - Milk Code - Draft Act on Controlling to the Marketing Promotion on Food for Infant and Young Children and Other Related Products BE (ID 503)	Thailand	Australia; New Zealand; United States of America; European Union; Canada	3/9/2016	6/14/2017	4
Thailand - Draft Thai Industrial Standard for Ceramic Tiles (TIS 2508-2555) (ID 401)	Thailand	European Union	10/30/2013	6/18/2014	2
Thailand - Certificate Requirement and Administrative Measure Relating to Importation of New Pneumatic Tyres of Rubber into the Kingdom of Thailand B.E. 2555 (2012) (ID 369)	Thailand	Japan; European Union	3/6/2013		0
Thailand – Health warnings for alcoholic beverages (ID 259)	Thailand	Argentina; Australia; Canada; Chile; Mexico; New Zealand; Switzerland; United States of America; European Union	3/24/2010	3/20/2012	6
Thailand – Mandatory Certification for Steel Products (ID 230)	Thailand	Chinese Taipei; Japan; Korea, Republic of	3/18/2009	3/24/2010	3
Thailand – Labelling Requirement for Snack Foods (ID 159)	Thailand	Australia; Canada; United States of America; European Union	3/21/2007	11/5/2008	5
Thailand – Mandatory Standards on Carbon Dioxide for Medical Use (ID 66)	Thailand	Switzerland	10/9/2001	6/21/2002	2
Thailand – Mandatory Standards on Cold Reduced Carbon Steel Coil (ID 67)	Thailand	Switzerland	10/9/2001	6/21/2002	2
Thailand – Ministerial Rule on the Disclosure of Ingredients in Cigarettes and Cigars (ID 19)	Thailand	United States of America; European Union	6/20/1997	10/3/1997	1
Viet Nam – Alcoholic Beverages (ID 532)	Viet Nam	Mexico	3/29/2017	6/20/2018	1
Viet Nam - Cybersecurity Measures (ID 544)	Viet Nam	Japan; United States of America; New Zealand; European Union; Canada	11/8/2017	6/20/2018	2
Viet Nam: Decree on the regulation on conditions for automobiles manufacturing, assembling importing and automotive warranty & maintenance services (ID 549)	Viet Nam	Japan; United States of America; Thailand; European Union; Canada; Russian Federation	11/8/2017	6/20/2018	2
Viet Nam – Decree No 38 Detailing the Implementation of Some Articles of Food Safety Law (ID 356)	Viet Nam	Australia; Canada; Chile; New Zealand; United States of America; European Union	6/13/2012	6/17/2013	3
Viet Nam – Regulations relating to liquor production and trading (ID 349)	Viet Nam	Australia; Canada; Chile; Mexico; New Zealand; South Africa; United States of America; European Union	6/13/2012	11/27/2012	1
Viet Nam – Conformity assessment procedures for alcohol, cosmetics, and mobile phones (Notice regarding the import of alcohol, cosmetics and mobile phones, No.: 197/TB-BCT (6 May 2011) and Ministry of Finance No.: 4629/BTC-TCHQ on the importation of spirits and cosmetics (7 April 2011) (ID 316)	Viet Nam	Australia; Canada; Chile; New Zealand; United States of America; European Union	6/15/2011	6/13/2012	3
Viet Nam – Alcoholic Beverages (ID 267)	Viet Nam	Australia; Chile; Mexico; United States of America; European Union	6/23/2010	11/3/2010	1

Source: Compiled from http://tbtims.wto.org

Table 10: STC's Raised Against India for TBT Reasons

Title	Member(s) subject to STC	Member(s) raising STC	First date raised	Last date raised	Number of times subsequently raised
India -- Pneumatic tyres and tubes for automotive vehicles (ID 133)	India	Japan; Korea, Republic of; United States of America; European Union	3/15/2006	6/20/2018	35
India - New Telecommunications related Rules (Department of Telecommunications, No. 842-725/2005-VAS/Vol.III (3 December 2009); No. 10-15/2009-AS-III/193 (18 March 2010); and Nos. 10-15/2009-AS.III/Vol.II/(Pt.)/(25-29) (28 July 2010); Department of Telecommunications, No. 10-15/2009-AS.III/Vol.II/(Pt.)/(30) (28 July 2010) and accompanying template, "Security and Business Continuity Agreement") (ID 274)	India	Canada; Japan; United States of America; European Union	11/3/2010	6/20/2018	23
India - Electronics and Information Technology Goods (Requirements for Compulsory Registration) Order, 2012 (ID 367)	India	Canada; Japan; Korea, Republic of; Norway; Switzerland; United States of America; European Union; Russian Federation	3/6/2013	6/20/2018	16
India - The Stainless Steel Products (Quality Control) Order, 2015 (ID 486)	India	European Union	11/4/2015	6/20/2018	8
India - Draft Food Safety and Standards (Alcoholic Beverages Standards) Regulations, 2015 (ID 494)	India	Australia; Canada; Chile; Guatemala; Japan; Mexico; New Zealand; South Africa; Switzerland; United States of America; European Union	3/9/2016	6/20/2018	7
India — Amended regulation on toy imports (ID 546)	India	European Union; China; United States of America; Mexico; Canada; Hong Kong, China	11/8/2017	6/20/2018	2
India - Testing and Certification of telegraph (The Indian telegraph (Amendment) Rules, 2017) (ID 558)	India	United States of America	6/20/2018		0
India - E-waste (Management) Rules, 2016 (ID 515)	India	Japan; Korea, Republic of; United States of America	11/10/2016	3/29/2017	1
India – Food Safety and Standards Regulation - Food labelling requirements (ID 298)	India	Australia; Canada; Chile; Japan; New Zealand; Switzerland; United States of America; European Union	3/24/2011	6/15/2016	11
India – Labelling Regulations for Canola Oil (ID 413)	India	Australia; Canada	3/19/2014	6/15/2016	7
India - Secondary cells and batteries containing alkaline or other non-acid Electrolytes (ID 482)	India	Korea, Republic of; United States of America	11/4/2015		0

India - Amendments in the import policy conditions applicable to apples (ID 487)	India	Australia; Chile; New Zealand; United States of America; European Union	11/4/2015		0
India – Drugs and Cosmetics Rules 2007 (ID 167)	India	Canada; United States of America; European Union	7/5/2007	6/17/2015	19
India – Mandatory Certification for Steel Products (ID 224)	India	China; Japan; Korea, Republic of; Mexico; European Union	3/18/2009	10/30/2013	12
India - Proposed Amendment to 2008 Hazardous Waste Law (ID 373)	India	United States of America	3/6/2013		0
India – Toys and Toy Products (Compulsory Registration) Order (ID 309)	India	Switzerland; United States of America; European Union	6/15/2011	6/13/2012	2
India – Prevention of Food Adulteration (ID 225)	India	United States of America; European Union	3/18/2009	3/20/2012	3
India – E-Waste (Management and Handling) Rules 2010 (ID 310)	India	United States of America	6/15/2011		0
India – Restriction on toys (ID 226)	India	China	3/18/2009	3/24/2010	3
India – Mandatory Certification of Ceramic Tiles (ID 168)	India	European Union	7/5/2007		0
India – Electrical products (ID 156)	India	European Union	3/21/2007		0
India – Protective Headgear (ID 157)	India	European Union	3/21/2007		0
India – Regulation on Medical Devices (ID 132)	India	United States of America; European Union	3/15/2006	11/9/2006	2
India – Labelling of Pre-packaged Consumer Products and Mandatory Quality Standards for 133 products (ID 54)	India	Australia; Canada; Japan; United States of America; European Union	3/30/2001	7/1/2004	7
India – Homologation of Vehicles (ID 104)	India	European Union	3/23/2004	7/1/2004	1
India – Regulation on Second Hand Vehicles and New Vehicles (ID 84)	India	European Union	10/17/2002	11/7/2003	1
India – Regulation of Import of Edible Food Products (ID 70)	India	European Union	3/15/2002	10/17/2002	1
India – Revisions of 1955 Prevention of Food Adulteration Act (ID 55)	India	Canada; United States of America	3/30/2001		0

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Appendix 8

AIC
ASEAN-India Centre at RIS

RIS
Research and Information System
for Developing Countries
विकासशील देशों की अनुसंधान एवं सूचना प्रणाली

Seminar on
ASEAN-India Non-Tariff Measures (NTMs)

G Parthasarathi Conference Hall, RIS
India Habitat Centre (IHC), Lodhi Road, New Delhi 110003
20 April 2018

Agenda

15.00 – 15.10 hrs.	Welcome by Dr Prabir De, Coordinator, ASEAN-India Centre (AIC) at RIS
15.10 – 15.20 hrs.	Special Remarks by Mr Anurag Bhushan, Joint Secretary (ASEAN ML), Ministry of External Affairs (MEA)
15.20 – 15.30 hrs.	Remarks by Dr Anil Jauhri, Chief Executive Officer (CEO), National Accreditation Board for Certification Bodies (NABCB)
15.30 – 16.00 hrs.	Presentation on AIC-RIS Study on ASEAN-India Non-Tariff Measures (NTMs) by Dr Prabir De and Dr Durairaj Kumarasamy
16.00 – 16.10 hrs.	Comments by Mr Pranav Kumar, Head, International Trade Policy Division, Confederation of Indian Industry (CII)
16.10 – 16.20 hrs.	Q&A
16.20 – 16.30 hrs.	Summing up and end of the programme

About the Report

India and ASEAN are the fastest growing regions in the world. Both of them have implemented the Free Trade Agreement (FTA) in goods since 2010. India and ASEAN are also gaining production linkages in electronics, automobiles, digital and financial services, etc. While the trade between them has grown over time, the rise in Non-Tariff Measures (NTMs) in their trade has been phenomenal. Exporters often consider NTMs as barriers to trade and compliance of NTMs requirements causes additional costs and time to export, in addition to the negative effect on competitiveness of their products exported. Therefore, easing the barriers to trade would certainly be leading to strengthen not only the economic relations between ASEAN and India but also their global integration.

This Report presents the perspectives of exporting and importing firms on ASEAN-India trade and their experiences on NTMs that are hindering the trade between ASEAN and India. It is essential to look at the firms' perspective on the NTM issues in order to identify and define the strategies that can address and overcome barriers to trade. The Study has used both primary and secondary data. The primary survey has provided special focus on SPS and TBT related issues, standard and technical regulations, procedural obstacles, barriers and suggestions to ease the burden of NTMs-related issues on exporters and importers. This Study has also reviewed awareness and perception on NTMs, FTAs and trade facilitation related issues. Based on the secondary data, this Study has used various methods to assess the incidence of NTMs and its impacts on ASEAN-India trade, both at the country and sectoral levels. The Report has also analysed the regulatory environment, identified the regulatory gaps and presented a series of recommendations in order to ease the burden of NTMs on ASEAN-India trade.

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