

Unveiling Trade Potential: An Ex-Ante Analysis of the Sri Lanka - Thailand Free Trade Agreement



International Economics Series: No.16

SEPTEMBER 2023

ASANKA WIJESINGHE
NILUPULEE RATHNAYAKE



INSTITUTE OF POLICY STUDIES OF SRI LANKA



Asanka Wijesinghe

is a Research Fellow at the Institute of Policy Studies of Sri Lanka (IPS) with research interests in international trade. He is particularly interested in the impact of adjustment costs of trade, gravity modelling in trade, and the political economy of trade policy.

Asanka holds a BSc in Agricultural Technology and Management from the University of Peradeniya, an MS in Agribusiness and Applied Economics from North Dakota State University, and an MS and PhD in Agricultural, Environmental and Development Economics from The Ohio State University.

His latest research focused on the cost efficiency of import dependency for calories, impact of trade policy on the global value chain participation of the South Asian countries, and ex-ante analyses of the impact of free trade agreements.



Nilupulee Rathnayake

is a Research Officer working on Macro, Trade and Competitiveness research at IPS. She holds an MSc in Development Economics from the University of Nottingham, United Kingdom, and a BA in Economics from the University of Colombo, Sri Lanka. She is a Commonwealth Scholar who received the Commonwealth Shared Scholarship offered by the Commonwealth Scholarship Commission, UK in 2021/2022 to pursue her postgraduate studies. Nilupulee topped her batch at the Department of Economics, University of Colombo, and won two gold medals: 'Professor of Economics Gold Medal' and 'M W Jayasooriya Memorial Prize for Economics'.

Please address orders to:

Institute of Policy Studies of Sri Lanka

100/20, Independence Avenue, Colombo 7, Sri Lanka.

Tel: +94 11 2143100 Fax: +94 11 2665065

Email: ips@ips.lk

Website: www.ips.lk

Blog 'Talking Economics': www.ips.lk/talkingeconomics

Twitter: [www.twitter.com/TalkEconomicsSL](https://twitter.com/TalkEconomicsSL)

YouTube: <https://www.youtube.com/user/IPSSrilankavideo>

Facebook: www.facebook.com/instituteofpolicystudies

Instagram: https://www.instagram.com/talkingeconomics_ips/

LinkedIn: <https://www.linkedin.com/company/institute-of-policy-studies-of-sri-lanka>

International Economics Series

No.16

**Unveiling Trade Potential:
An Ex-Ante Analysis of the
Sri Lanka -Thailand Free
Trade Agreement**

**ASANKA WIJESINGHE
AND
NILUPULEE RATHNAYAKE**

SEPTEMBER 2023



Institute of Policy Studies of Sri Lanka

Contents

1. Introduction	10
2. Sri Lanka-Thailand in the Global Trade System and Bilateral Trade	12
2.1 Sri Lanka-Thailand bilateral trade	17
3. Methods and Data	24
3.1 Partial equilibrium analysis	24
3.2 Offensive lists	28
3.3 Data	29
4. Results	30
4.1 Existing tariffs of Sri Lanka-Thailand bilateral trade	30
4.2 Tariff overhang: Policy space for trade policy uncertainty	43
4.3 Export gains, revenue effect, and welfare effect of an FTA between Sri Lanka and Thailand	49
4.3.1 Trade effect from the elimination of tariffs	49
4.3.2 Revenue, trade diversion, and trade creation effects of a Sri Lanka-Thailand FTA	61
4.4 Offensive lists	65
5. Conclusion	69

List of Figures

Figure 1: Sri Lanka's exports to the world and Herfindhal-Hirschman Index (product level) 2012-2021	13
Figure 2: Thailand's exports to the world and Herfindhal-Hirschman Index (product level) 2012-2021	13
Figure 3: Product Complexity Index (PCI) of top 10 exports by Sri Lanka and Thailand	14
Figure 4: Ranking by Economic Complexity Index (ECI) of Sri Lanka and Thailand from 1995 to 2020	14
Figure 5: Location of Sri Lanka and selected trade partners on the ECI-EOI matrix (The bubble size is proportionate to the per capita income in purchasing power parity (PPP). All indicators are for 2019)	16
Figure 6: Sri Lanka-Thailand bilateral trade: 2010-2021	19
Figure 7a: Sri Lanka's imports from Thailand by sector	19
Figure 7b: Thailand's imports from Sri Lanka by sector	20
Figure 8: Trade Intensity Index between Sri Lanka and Thailand	22
Figure 9: Trade complementarity Index between Sri Lanka and Thailand	22
Figure 10: Distribution of imports from Sri Lanka and tariff revenue for Thailand across tariff bands (scale of the Y axis is different across panels)	33
Figure 11: Distribution of imports from Thailand and tariff revenue for Sri Lanka across tariff bands (scale of the Y axis is different across panels)	37
Figure 12: Coverage of bound tariff rates of Sri Lanka and Thailand: 1995-2020	44
Figure 13: Top 10 products with the highest imports gain in the scenario of Sri Lanka cutting tariffs on imports from Thailand	55
Figure 14: Top 10 products with the highest imports gain in the scenario of Thailand cutting tariffs on imports from Sri Lanka	59
Figure 15: Effect of an FTA on Sri Lanka- Thailand bilateral trade	60
Figure 16: Comparison of Sri Lanka's trade deficit with Thailand in pre-FTA and post-FTA scenarios	61
Figure 17: Top 10 countries affected by trade diversion to Thailand if Sri Lanka eliminates existing tariffs for Thailand in a Sri Lanka-Thailand FTA	62
Figure 18: Sectoral composition of trade diversion across countries if Sri Lanka eliminates existing tariffs for Thailand in a Sri Lanka-Thailand FTA	63
Figure 19: Top 10 countries affected by trade diversion to Sri Lanka if Thailand eliminates existing tariffs on Sri Lanka in a Sri Lanka-Thailand FTA	64

Figure 20: Sectoral composition of trade diversion across countries if Thailand eliminates existing tariffs on Sri Lanka in a Sri Lanka-Thailand FTA	64
Figure A.1: Export Similarity Index for Sri Lanka and Thailand-2021	80
Figure A.2: The effectively applied tariffs (weighted average) faced by Thai exports to Sri Lanka by major export sectors	80
Figure A.2.1: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports	81
Figure A.2.2: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports	82
Figure A.2.3: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports	83
Figure A.2.4: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports	84
Figure A.2.5: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports	85
Figure A.2.6: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports	86
Figure A.3: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Thailand to Sri Lanka: Sub-sectors within agricultural exports	87
Figure A.4: Distribution of the effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand by major sectors	88
Figure A.5.1: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: Sub-sectors within manufacturing exports	89
Figure A.5.2: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: Sub-sectors within manufacturing exports	90
Figure A.5.3: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: Sub-sectors within manufacturing exports	91
Figure A.5.4: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: Sub-sectors within manufacturing exports	92
Figure A.6: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: Sub-sectors within agricultural exports	93

List of Tables

Table 1: Timeline of Sri Lanka-Thailand FTA negotiations	11
Table 2: Sri Lanka and Thailand exports to the world: Number of products lines and Revealed Comparative Advantage (RCA)	16
Table 3: Diversification indexes 2021: Bilateral trade between Sri Lanka and Thailand	18
Table 4: Composition of Sri Lanka -Thailand bilateral trade-2021	20
Table 5: Trade complementarity (exports/imports) between Sri Lanka and selected trade partners	23
Table 6: Summary of tariffs and trade statistics: Sri Lanka and Thailand	32
Table 7: Thailand tariffs on Sri Lanka's exports (tariff year=2021, trade year = 2020)	34
Table 8: Exports and import values of each chapter in textiles: Sri Lanka 2021	35
Table 9: Export and import values for each chapter in textiles: Thailand 2021	35
Table 10: Tariffs on imports from Thailand by Sri Lanka (tariff year=2019, trade year 2017)	38
Table 11: Comparison between tariffs for Sri Lanka-Thailand bilateral trade	41
Table 12: Summary statistics for bilateral bound rates and binding overhang/water	44
Table 13: Binding coverage by ISICrv4 section (Sri Lanka's tariffs on Thai exports)	45
Table 14: Binding coverage by ISICrv4 sections (Thailand's tariffs on Sri Lanka exports)	45
Table 15: Tariff overhang by the band: Sri Lanka's exports to Thailand	46
Table 16: Tariff overhang by the band Thailand's exports to Sri Lanka	47
Table 17: Comparison of the coverage of partial equilibrium simulations for 2017 and 2020	50
Table 18: Gains of trade after Sri Lanka eliminates tariffs on Thailand exports to Sri Lanka	51
Table 19: Composition of simulated imports by Thailand from Sri Lanka	56
Table 20: Composition of imports without no simulation results from SMART	56
Table 21: Gains of trade after Thailand eliminates tariffs on Sri Lanka exports to Thailand	57

Table 22: Top 10 products with the largest export gains for Sri Lanka in the wearing apparel sector	58
Table 23: Summary of Sri Lanka's offensive list by GTAP group	65
Table 24: Top 10 products in Sri Lanka's offensive list, ordered by possible exports gains by an FTA	66
Table 25: Summary of Thailand's offensive list by GTAP group	66
Table 26: Top 10 products in Thailand's offensive list, ordered by possible export gain by an FTA	67
Table A.1: Sri Lanka's top ten exports to the world in 2021 (values are in USD Mn)	75
Table A.2: Thailand's top ten exports in 2021 (values are in USD Bn)	75
Table A.3: Top trade partners of Sri Lanka in 2021	76
Table A.4: Top trade partners of Thailand in 2021	76
Table A.5: Analysis of NA tariff overhang: Sri Lanka's exports to Thailand. Export value and the effectively applied tariffs are given in parentheses	77
Table A.6: Analysis of NA tariff overhang: Thailand's exports to Sri Lanka. Export value and the effectively applied tariffs are given in parentheses	77
Table A.7: GTAP sector source elasticities between import sources	78
Table C.1: Offensive list of Sri Lanka	96
Table C.2: Offensive list of Thailand	105

Acknowledgements

The authors thank Prof. O. G. Dayaratna-Banda, Professor, Department of Economics, University of Peradeniya, and Dr. Athula Narampanawa, Senior Lecturer, Department of Economics, University of Griffith for reviewing this study. They are thankful to Dr. Nisha Arunatilake, Research Director IPS, for her speedy and quality review process and coordination. They also thank the participants of the IPS in-house seminar, including Dr. Dushni Weerakoon, Executive Director IPS, for the valuable insights and comments. The editorial support by Gayendri Karunaratne and the support from Dinali Perera and Githma Chandrasekara are gratefully acknowledged for bringing out this publication. The authors appreciate the maps produced by Chaya Dissanayake, Research Assistant at the IPS, which has enhanced the publication.

Abbreviations

AHS	Effectively Applied Tariff
BND	Bound Tariff
BRCA	Bilateral Revealed Comparative Advantage
COI	Complexity Outlook Index
ECI	Economic Complexity Index
EII	Export Intensity Index
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GOSL	Government of Sri Lanka
GTAP	Global Trade Analysis Project
HHI	Herfindhal-Hirschman Index
HS	Harmonised System
III	Import Intensity Index
IPR	Intellectual Property Right
ISFTA	India-Sri Lanka Free Trade Agreement
ISICr4	International Standard Industrial Classification Revision-Four
MFN	Most Favoured Nation Tariff
PCI	Product Complexity Index
RCEP	Regional Comprehensive Economic Partnership
ROO	Rules of Origin
SMART	Single Market Partial Equilibrium Simulation Tool
SRCA	Standard Revealed Comparative Advantage
SSLFTA	Singapore-Sri Lanka Free Trade Agreement
TCI	Trade Complementarity Index
TII	Trade Intensity Index
WITS	World Integrated Trade Solutions
WTO	World Trade Organization

Unveiling Trade Potential: An Ex-Ante Analysis of the Sri Lanka -Thailand Free Trade Agreement

Executive Summary

Sri Lanka and Thailand are engaged in expedited negotiations for a free trade agreement (FTA) to enhance bilateral trade, facilitate trade activities, and promote investments. An ex-ante analysis employing a partial equilibrium analysis framework is conducted to assess the potential benefits and drawbacks of the agreement. The analysis considers existing tariffs, bound tariffs, binding overhangs, and the development of offensive lists for both countries. Simulations are performed for 47 Global Trade Analysis Projects (GTAP) sectors, utilising sector-specific Armington elasticities to enhance the accuracy of the estimates.

Examining current tariffs reveals that both countries maintain higher tariffs in specific sectors, where the partner country holds a comparative advantage. For instance, Thailand imposes higher tariffs on Sri Lanka's wearing apparel and tea exports. In comparison, Sri Lanka has higher tariffs on Thailand's vehicles and parts, rubber products, and light-electronics exports. Additionally, Thailand faces considerable uncertainty in trade policy due to Sri Lanka's lower binding coverage, and agricultural exports experience a binding overhang of 33.1%.

The partial equilibrium analysis estimates a 38% increase in Sri Lanka's exports to Thailand if tariffs are eliminated. With this, the wearing apparel and tea sectors will benefit from the most significant export gains. In comparison, Thailand is projected to achieve a 27.8% export effect, lower than Sri Lanka's gains in relative terms. However, due to the uneven trade balance favouring Thailand in the base year, Sri Lanka's post-FTA deficit will be 26% higher. To ensure the success of the FTA, it would be necessary to reduce tariffs on products where both countries have a comparative advantage and address trade policy uncertainty.

Sri Lanka's offensive list consists of 154 products, primarily in the manufacturing of wearing apparel, tea products, rubber and plastic products, and electric equipment. Thailand's offensive list includes 147 products, such as rubber products, household electric equipment (e.g., refrigerators, air-conditioners), malt extracts, and vehicles and parts. Given the significance of the currently protected industries domestically, substantial political manoeuvring is essential to secure an FTA with significant trade effects. Prioritising products involved in bilateral production value chains for tariff phase-out, sequencing tariff phase-out, and identifying necessary adjustment measures will enhance the political feasibility of the FTA.

1. Introduction

Negotiating a free trade agreement (FTA) between Sri Lanka and Thailand was initiated in 2018, albeit the third round of negotiations took place in January 2023. The initial framework established in 2018 anticipated that the FTA would result in a giant leap with a threefold increase in bilateral trade by 2020, reaching a value of United States Dollars (USD) 1.5 Billion (Bn).¹ Prior to the coronavirus (COVID-19) pandemic, the bilateral trade between Sri Lanka and Thailand reached approximately USD 455 Million (Mn) in 2019. During that year, Thailand's exports to Sri Lanka amounted to USD 375 Mn, while imports from Sri Lanka accounted for USD 80 Mn. Recognising the importance of enhancing their trade relationship, Sri Lanka and Thailand have expedited their trade negotiations, focusing on a comprehensive FTA encompassing various aspects, such as trade in goods and services, rules of origin,

Knowledge of potential trade gains, revenue losses, offensive lists, and welfare effects of an FTA is instrumental for trade negotiators, policymakers, and business communities to produce an effective FTA. An *ex-ante* generation of such knowledge is the primary objective of this study.

investments, customs procedures, and trade facilitation. Knowledge of potential trade gains, revenue losses, offensive lists, and welfare effects of an FTA is instrumental for trade negotiators, policymakers, and business communities to produce an effective FTA. An *ex-ante* generation of such knowledge is the primary objective of this study.

In early 2023, the Government of Sri Lanka (GOSL) moved to fast-track the FTA, showing that it was keen on obtaining preferential market access to Thailand. Following the change of the President in 2022 amid the mayhem and Sri Lankan people's protests, the GOSL renewed its commitment to pursuing additional FTAs and expressed a willingness to resume previously stalled negotiations. These FTAs are crucial to the broader economic strategy of promoting export-led growth. The GOSL has demonstrated a strong interest in establishing FTAs with East Asian nations like Thailand and becoming a member of the Regional Comprehensive Economic Partnership (RCEP). Furthermore, the political authorities

of Sri Lanka have recommended implementing necessary measures to operationalise the Singapore-Sri Lanka Free Trade Agreement (SSLFTA).

Thailand has also committed to accelerating FTA negotiations with Sri Lanka, aiming to complete the discussion rounds by the beginning of 2024.² Thailand is keen to tap Sri Lanka as a gateway to expand Thai exports to South Asia. The GOSL, too, expresses a similar interest in using an FTA with Thailand as a gateway to the East Asian market and RCEP countries. Furthermore, Thailand has expressed its desire to establish Sri Lanka as a distribution centre for Thai exports to the Middle East, according to media reports. Optimistically, Thai officials believe "*Sri Lanka is also interested in importing more food, household appliances, furniture and home furnishings.*"³

1 In 2018, Thailand exported USD 434 Mn worth of goods to Sri Lanka and imported USD 83 Mn worth of goods. A detailed analysis of existing bilateral trade is available in the later parts of this paper.

2 Media reports quoting Auramon Supthaweethum, Director General of the Trade Negotiations Department, that in the third round of discussions held in January 2023 "...the two countries agreed on a timeframe to conclude the negotiations by the beginning of 2022..." (Bangkok Post. (2023, January 18). *Thailand Set to Step Up FTA Negotiations with Sri Lanka*. Retrieved July 19, 2023, from Bangkok Post: <https://www.bangkokpost.com/business/2485250/thailand-set-to-step-up-fta-negotiations-with-sri-lanka>)

3 Bangkok Post. (2023, January 18). *Thailand Set to Step Up FTA Negotiations with Sri Lanka*. Retrieved July 19, 2023, from Bangkok Post: <https://www.bangkokpost.com/business/2485250/thailand-set-to-step-up-fta-negotiations-with-sri-lanka>

Against this backdrop, where the mutual interests of both countries regarding trade ties seem promising, this research aims to conduct an ex-ante analysis to examine the economic implications of an FTA between Sri Lanka and Thailand. Given the limited availability of data and analytical tools for services trade, the focus of this study predominantly centres on the analysis of goods trade. The primary objective is to estimate the potential trade, revenue, and welfare effects of implementing an FTA between Sri Lanka and Thailand while identifying key products with substantial trade prospects for both countries. The specific objectives include estimating the increase in export volume, assessing the impact on tariff revenue and welfare using partial equilibrium analyses, and formulating offensive lists highlighting priority sectors for securing preferential market access.

Table 1: Timeline of Sri Lanka -Thailand FTA negotiations

Year	Event
2016	Sri Lanka and Thailand expressed interest in an FTA when the Thai Deputy Prime Minister visited Sri Lanka.
	The two countries signed a memorandum of understanding on technical cooperation, a letter of intent on cooperation in small and medium-sized enterprise development, and a joint programme on tourism.
2018 (May)	The Thai cabinet has approved the framework for FTA talks with Sri Lanka. These include goods trade, services trade, investment, and comprehensive economic cooperation.
	Under the framework, the two countries aimed to sign an FTA to triple bilateral trade to USD 1.5 Bn in 2020.
2018 (July)	The first round of negotiations was held.
2018 (September)	The second round of negotiations between the two nations was held in Bangkok, Thailand.
	During the second round, the representatives of the two governments discussed the issues concerning market access, service trade, and further economic cooperation between the two countries. They created seven working panels to evaluate and discuss issues pertinent to an FTA.
2023	Sri Lanka expressed willingness to reopen trade talks with Thailand.
2023 (January)	The third round of talks between the two countries was held in Colombo, Sri Lanka.
	The two countries agreed on a deadline for the negotiations to be completed by the beginning of 2024.

Source: Authors' compilation using various communications by the two governments and news reports.

The organisation of the paper is as follows. The second section includes a detailed analysis of Sri Lanka-Thailand bilateral trade patterns and structure. The third section provides the methodology and describes the data, focusing on partial equilibrium analysis and the offensive lists. The fourth section includes the results of partial equilibrium analysis and offensive lists. A detailed descriptive analysis of bound tariff rates and existing trade policy uncertainty in the form of tariff overhang-the difference between bound tariff rate and applied tariff rate for a product- is presented at the beginning of the section. The final section marks the conclusion, discussing the key results and implications, focusing on challenges for an FTA and suggestions for future research.

2. Sri Lanka -Thailand in the Global Trade System and Bilateral Trade

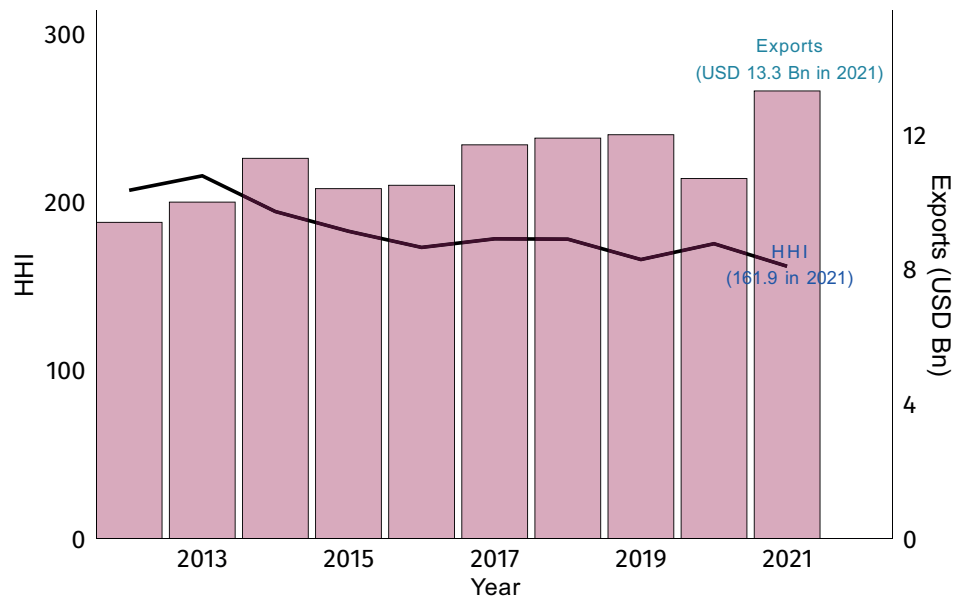
The primary focus of this section is Sri Lanka-Thailand bilateral trade. Yet, a few key features of the total export and import baskets of the two countries warrant attention. First, the total exports of Sri Lanka to the world concentrate on a few products compared to the substantial diversity of the export basket of Thailand (Tables A.1 and A.2 in Appendix A). The top 10 exports contributed 32.2% of total exports in 2021, while the comparable value of Thailand was just 20.1%. A more sophisticated indicator like the Herfindhal-Hirschman Index (HHI) of export baskets for both countries confirms that Thailand is more diverse in exports (Figures 1 and 2).⁴ In 2021, the HHI of Sri Lanka's export basket was 161.9, while in the same year, the HHI of the Thai export basket was just 79. The lower the HHI lesser the concentration of the export basket.

Second, the higher product concentration of Sri Lanka coupled with another unfavourable trade condition, produced products' low-technology content. The export basket of Sri Lanka comprises agricultural and low-tech manufacturing products like ready-made garments (Table A.1 in Appendix A). In contrast, Thailand possesses a more diverse export basket. Figure 3 illustrates the Product Complexity Index (PCI) for the top 10 exports of Sri Lanka and Thailand. Sri Lanka's top 10 export products, except for solid or cushion tyres of rubber Harmonised System (HS) 401290), have relatively lower PCI values. Key exports from Sri Lanka, such as tea and ready-made garments, are somewhat less complex.

Contrarily, major Thai exports, such as data processing machines and electric circuits, are notably complex, particularly within HS chapters 84 and 85. This is also reflected in the Economic Complexity Index (ECI) and the corresponding country rankings (Figure 4), indicating that Thai production exhibits a higher complexity level than Sri Lanka. The ECI serves as a measure of the complexity and diversity of a country's export portfolio. Countries with extensive knowledge, specialised expertise, and complex production capabilities tend to manufacture more sophisticated products, increasing the ECI.

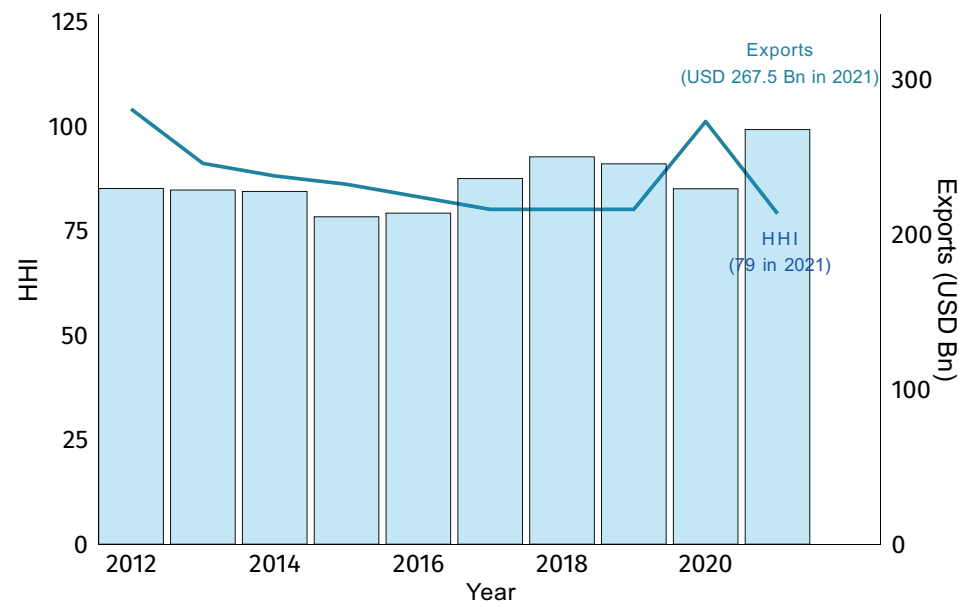
4 $HHI = \sum_{i=1}^n s_i^2$ where s_i the market share of each product line. The advantage of HHI over the concentration ratio measure is that HHI considers the relative size distribution of the largest product lines. Squaring the market share gives more weight to the largest product lines.

Figure 1: Sri Lanka's exports to the world and Herfindhal-Hirschman Index (product level) 2012-2021



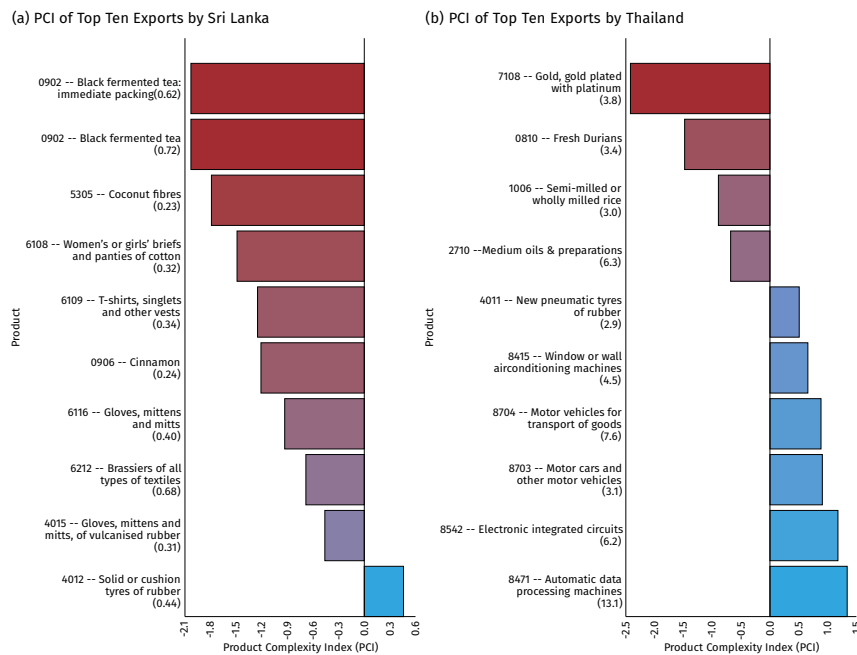
Source: Authors' illustration using Trade Map, ITC data.

Figure 2: Thailand's exports to the world and Herfindhal-Hirschman Index (product level) 2012-2021



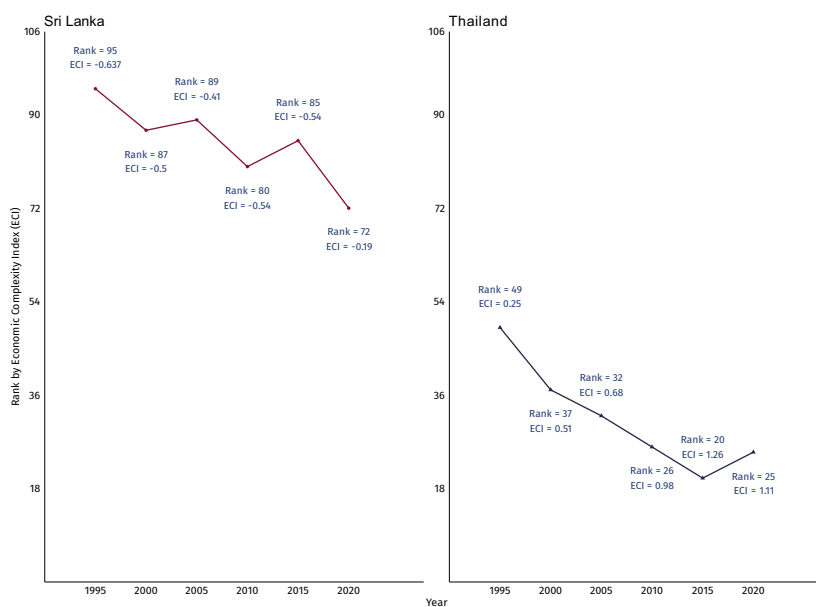
Source: Authors' illustration using Trade Map, ITC data

Figure 3: Product Complexity Index (PCI) of top 10 exports by Sri Lanka and Thailand



Source: Authors' illustration using Trade Map, ITC data and the Atlas of economic complexity, Harvard University.

Figure 4: Ranking by Economic Complexity Index (ECI) of Sri Lanka and Thailand from 1995 to 2020



Source: Authors' illustration using data from Atlas of economic complexity, Harvard University.

Overall, Thailand is dissimilar from a typical trade partner which has FTAs with Sri Lanka, from the perspective of the complexity of production. The only exception is Singapore, yet the SSLFTA is currently not operational. Most South Asian countries have a low ECI, as shown in Figure 5. Pakistan, Bangladesh, and Sri Lanka are in the lower left quadrant. The first vertical

and horizontal lines represent the 75th and 90th percentiles of ECI and the Complexity Outlook Index (COI), respectively. India, the principal trade partner and an FTA partner of Sri Lanka, has a lower ECI but is ranked as the country with the highest COI. The COI measures how many complex products are near a country's current set of productive capabilities. It captures the ease of diversification for a country where a high COI reflects an abundance of nearby complex products. These nearby complex products rely on similar capabilities or know-how as current production (Harvard University, 2023). Thailand, Singapore, and the US- the countries Sri Lanka has entered into FTA or has shown a willingness- are located in the lower right quadrant. These countries have higher existing ECI.

An FTA with a country having a diverse and complex production structure can probably brings some advantages to Sri Lanka and is not without challenges.⁵ A trade agreement with Thailand is likely to provide a low-cost source for a wide range of imports for Sri Lanka. A more diverse import partner with preferential market access implies more products are available relatively cheaply. However, such a possibility can also raise a red flag for import-competing domestic industries from the distributional and adjustment cost perspectives. Moreover, the potential for a widened trade deficit can be a concern, given the persistent balance of payments crisis Sri Lanka faces. Thus, the FTA negotiations might be a delicate task for the GOSL and require a sensible and far-sighted approach.

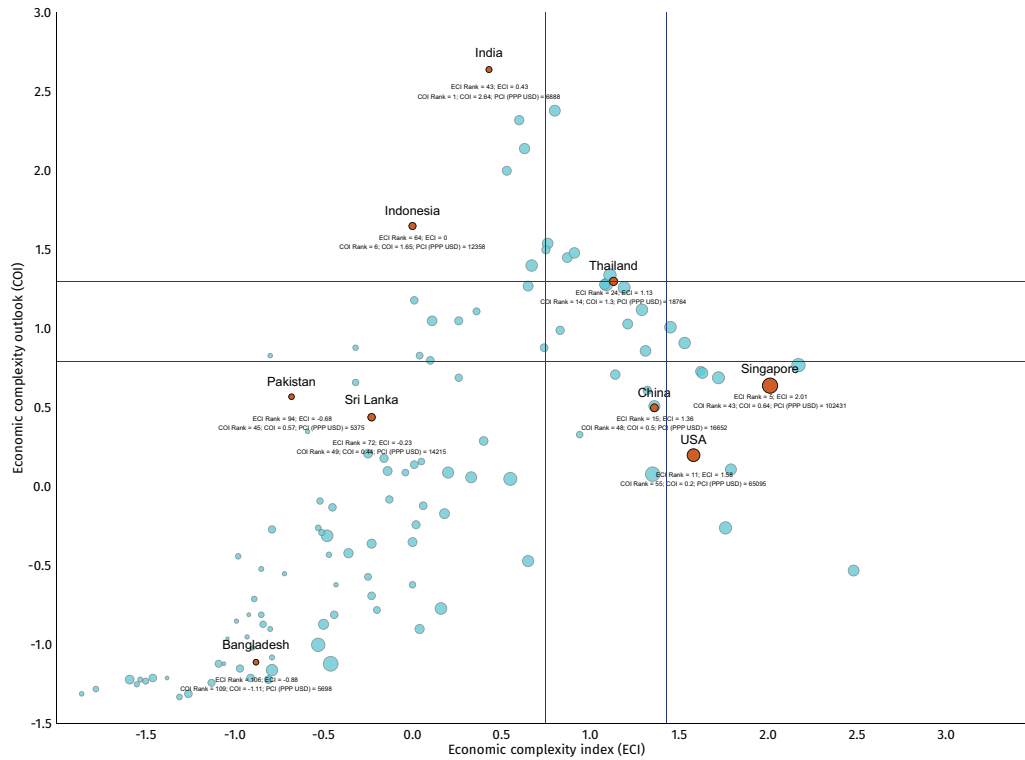
A significant opportunity for Sri Lanka is joining the supply chain of relatively complex electronic components classified in HS chapters 84 and 85. Crucially, Sri Lanka may have the opportunity for Thailand's investments in electronic component production regarding the above-explained HS chapters. Sri Lanka can use enhanced market access to Thailand as a gateway to expand the nascent but growing export sector in electronic component production. From Thailand's perspective, as Sri Lanka's comparative advantage lies in low-tech manufacturing like ready-made garments and rubber products, Thailand can source their imports from Sri Lanka. Such reciprocal benefits are feasible if the trade agreement is designed strategically.

A trade agreement with Thailand is likely to provide a low-cost source for a wide range of imports for Sri Lanka. A more diverse import partner with preferential market access implies more products are available relatively cheaply. However, such a possibility can also raise a red flag for import-competing domestic industries from the distributional and adjustment cost perspectives.

Realising the trade potential lies in the depth and breadth of an FTA between two countries. The trade impact of an FTA that improves market access through the intensive – degree of tariff cuts for a product line- and the extensive- number of product lines under tariff cuts- margins might be higher. Expanding coverage on additional policy areas, including bilateral flows of investments and labour and the protection of intellectual property rights (IPRs), boosts the benefits of an FTA. For this purpose, deep trade agreements facilitate such a broader coverage. The coverage of deep trade agreements goes beyond the tariffs on goods trade, expanding to additional areas like investment and labour flows, IPRs protection, and safeguarding the environment.

⁵ As shown in Table 2, Thailand has a revealed comparative advantage in 1,127 products which are close to twofold of the number of product lines that Sri Lanka has a comparative advantage.

Figure 5: Location of Sri Lanka and selected trade partners on the ECI-EOI matrix
(The bubble size is proportionate to the per capita income in purchasing power parity (PPP). All indicators are for 2019)



Source: Authors' illustration using data from Atlas of economic complexity, Harvard University and World Development Indicators, World Bank

Table 2: Sri Lanka and Thailand exports to the world: Number of products lines and Revealed Comparative Advantage (RCA)

Country	Number of products exported to the world	Number of products with RCA
Sri Lanka	3,289	613
Thailand	4,813	1,127

Source: Authors' compilation using WITS trade indicators.

Sri Lanka vs. Thailand Exports Revealed Comparative Advantage (RCA)



Source: Authors' illustration using WITS data.

2.1 Sri Lanka-Thailand bilateral trade

Bilateral trade between Sri Lanka and Thailand was USD 415.5 Mn in 2021. However, the COVID-19 impact on global trade in 2021 could slightly underestimate the average trade statistics of the two countries. In the pre-pandemic period, Sri Lanka-Thailand bilateral trade was close to USD 500 Mn. The three-year average of bilateral trade- 2017, 2018, and 2019- was USD 496 Mn. In 2017, 2018,⁶ and 2019 average exports from Sri Lanka to Thailand were USD 78.7 Mn, while the exports from Thailand to Sri Lanka were USD 416.7 Mn.

A notable feature is that the bilateral trade balance is always unfavourable for Sri Lanka. On average, the bilateral trade deficit in recent years stood at USD 338 Mn (Figure 6). Sri Lanka exports fewer products to Thailand compared to the number of product lines exported by Thailand to Sri Lanka. Thailand had more products with a revealed comparative advantage (RCA) exceeding unity-, which may explain the higher number of product lines exported by Thailand to Sri Lanka. Thailand exports almost twice the number of products that Sri Lanka exports to the world, with a RCA (Table 2).

Sri Lanka earned 42.9% of bilateral export revenue from three products at HS-six digits in 2021. The comparable value for Thailand is considerably low, which was 13.0%. Again, the concentration indicator, HHI, for Sri Lanka-Thailand trade shows that Thailand's exports are relatively diverse compared to Sri Lanka's exports to Thailand (Table 3). Limited expansion of the comparative advantage of Sri Lanka across product lines manifests the extent of concentration in the export basket. Lowered tariffs through an FTA can make marginally less

⁶ As export data of 2018 are not available for Sri Lanka in Trade Map, mirror data are used to calculate the average.

competitive products competitive in the Thai market, increasing Sri Lanka's export volume to Thailand. This way, Thai export volume to Sri Lanka will also witness a similar effect.

Table 3: Diversification indexes 2021: Bilateral trade between Sri Lanka and Thailand

Index	Sri Lanka	Thailand
Concentration ratio (top three)	42.9	13.0
Herfindahl-Hirschman Index	1,098.1	158.9

Notes: Sri Lanka's exports to Thailand are highly concentrated in a few products, as revealed by the concentration ratio (top three). The Herfindahl-Hirschman Index also confirms it. Conversely, Thailand's exports to Sri Lanka are more diverse.

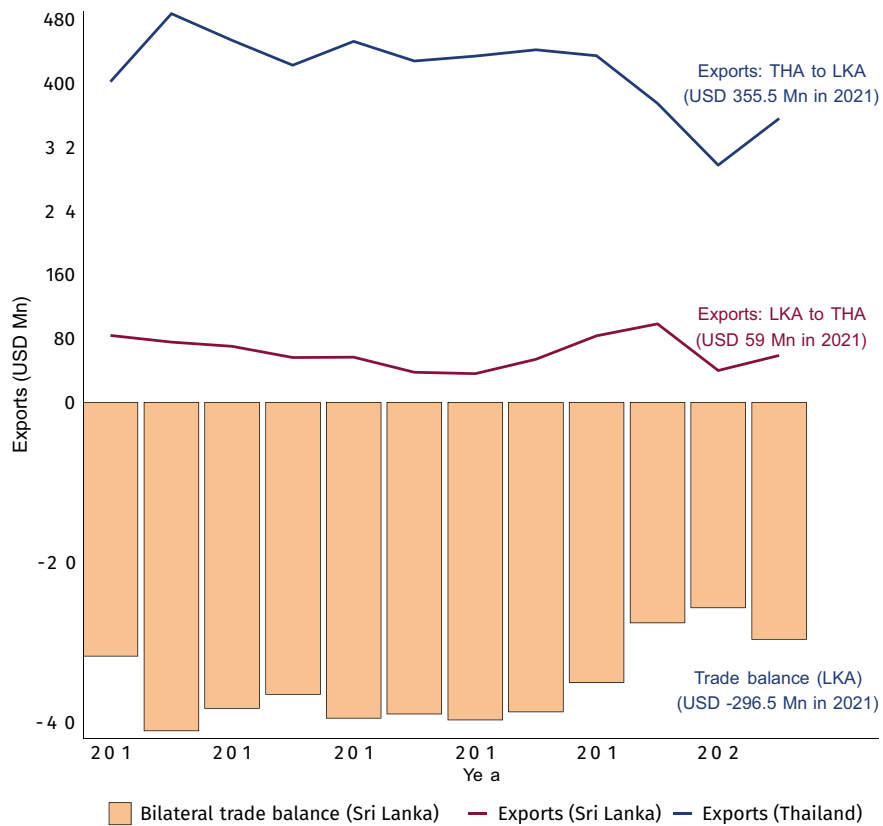
Source: Authors' calculations using Trade Map data.

Figures 7a and 7b show the import distribution by Sri Lanka and Thailand from each other across the three major economic activities, i.e., agriculture, mining, and manufacturing. Manufacturing products dominate each country's imports basket, Sri Lanka and Thailand. The manufacturing share of Sri Lanka's imports from Thailand was 87.7 % of Sri Lanka's imports, while 69.5% of Thailand's imports from Sri Lanka were manufacturing. The bilateral trade in agriculture was low, and nearly a quarter of Thailand's imports from Sri Lanka were from the mining sector.

The existing exports from Sri Lanka to Thailand do not represent Sri Lanka's typical export basket. The contribution of traditional exports like ready-made garments, tea, rubber, and coconuts is relatively low, and gems, electrical equipment, wheat flour, and activated carbon contribute to a greater extent (Table 4). In 2021, Sri Lanka also imported gemstones worth USD 12 Mn from Thailand and exported USD 17.4 Mn of gems to Thailand. The gem industry of Sri Lanka may add value to the imported gems and re-exports to Thailand. Similarly, Thailand is a destination for processed wheat, as per the wheat milling industry of Sri Lanka. The principal exports to Thailand by Sri Lanka reveal that existing bilateral trade is based on value addition, participation in global value chains (for example, Sri Lanka exports intermediate products for the garment industry) through backward and forward linkages, and re-exports.

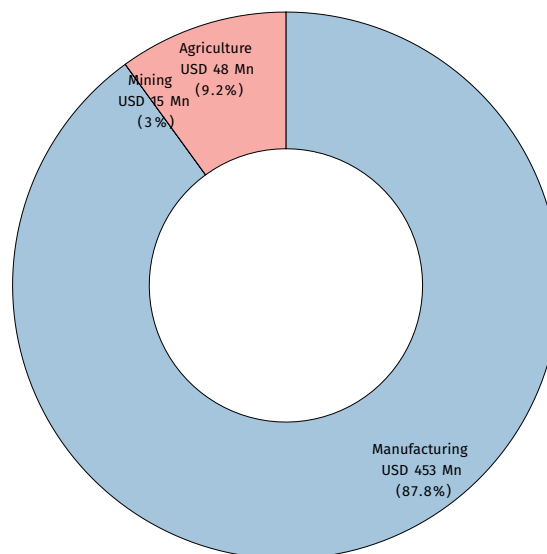
Technically specified natural rubber (HS 400122) and natural rubber latex (HS 400110) are the top exports from Thailand to Sri Lanka. Both products are essential raw materials in the value-added rubber industry of Sri Lanka. Technically specified natural rubber is mainly used for the production of rubber tyres. Notably, three of the top 10 exported products from Thailand to Sri Lanka are rubber-related in HS chapter 40. Another intermediate product exported by Thailand to Sri Lanka is cement clinkers, a raw material for cement production. Sri Lanka also imports agricultural machinery like combined threshers from Thailand. Cane or beet sugar and dried fish are Thailand's primary consumption goods exports to Sri Lanka.

Figure 6: Sri Lanka-Thailand bilateral trade: 2010-2021



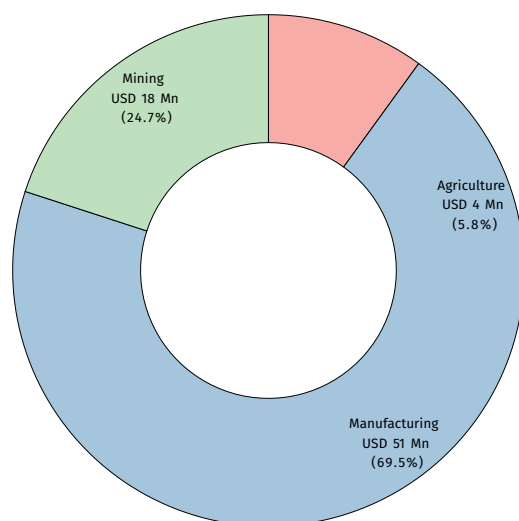
Source: Authors' calculations and illustrations using data from Trade Map, ITC.

Figure 7a: Sri Lanka's imports from Thailand by sector



Source: Authors' calculations and illustrations.

Figure 7b: Thailand's imports from Sri Lanka by sector



Source: Authors' calculations and illustrations.

Table 4: Composition of Sri Lanka-Thailand bilateral trade-2021

Exports: Sri Lanka to Thailand			Exports: Thailand to Sri Lanka		
HS code	Product	Value	HS code	All products	Value
710391	Rubies, sapphires and emeralds	17.4	400122	Technically specified natural rubber (TSNR)	18.6
600410	Knitted or crocheted fabrics, of a width of > 30 cm	4.1	400110	Natural rubber latex	15.4
110100	Wheat or meslin flour	3.8	170199	Cane or beet sugar	12.1
490700	Unused postage, revenue or similar stamps	3.7	710391	Rubies, sapphires and emeralds	12.0
600622	Dyed cotton fabrics, knitted or crocheted, of a width of > 30 cm	3.0	030559	Dried fish	11.9
030617	Frozen shrimps and prawns	2.8	843351	Combine harvester-threshers	11.2
853225	Fixed electrical capacitors, dielectric of paper or plastics	2.2	271019	Medium oils and preparations	10.8
854370	Electrical machines and apparatus	1.5	252310	Cement clinkers	9.2
380210	Activated carbon	1.5	400121	Smoked sheets of natural rubber	8.7
830810	Hooks, eyes and eyelets, of base metal (used in clothing)	1.1	842952	Self-propelled mechanical shovels, excavators etc.	7.9
	Rest of the products	17.8		Rest of products	237.8
	Total	59.0		Total	355.5

Source: Authors' calculations and illustrations using data from Trade Map, ITC.

As discussed above, the bilateral trade relations between Sri Lanka and Thailand are quite asymmetric. The Trade Intensity Index (TII) determines whether the value of trade between two countries is greater or smaller than would be expected based on their importance in world trade. A slight modification of the TII yields the Export Intensity Index (EII) and Import Intensity Index (III) by replacing total trade with exports and imports, respectively. For example, EII is the ratio between the share of one country's exports to a respective partner country and the percentage of world exports going to the partner.⁷ Figure 8 shows the calculated EII and III for Sri Lanka and Thailand. The dashed line in each plot represents value one for the intensity Index. If the Intensity Index is higher than one, bilateral trade flow is more significant than expected, given the partner country's importance globally. Accordingly, Sri Lanka's exports to Thailand are not larger than expected, given Thailand's significance in world exports, measured by the share of world exports to Thailand. From 2010 to 2021, the EII remained below the unity.

Similarly, Thailand's imports from Sri Lanka are not larger than expected, given the importance of Sri Lanka's global imports. However, Thailand's exports to Sri Lanka and Sri Lanka's imports from Thailand are more significant than expected, as revealed by the intensity Indexes. The Index value is always above the unity. All in all, the existing bilateral trade patterns show that Thailand is a sizeable import source for Sri Lanka, and Sri Lanka is a significant export destination for Thailand.

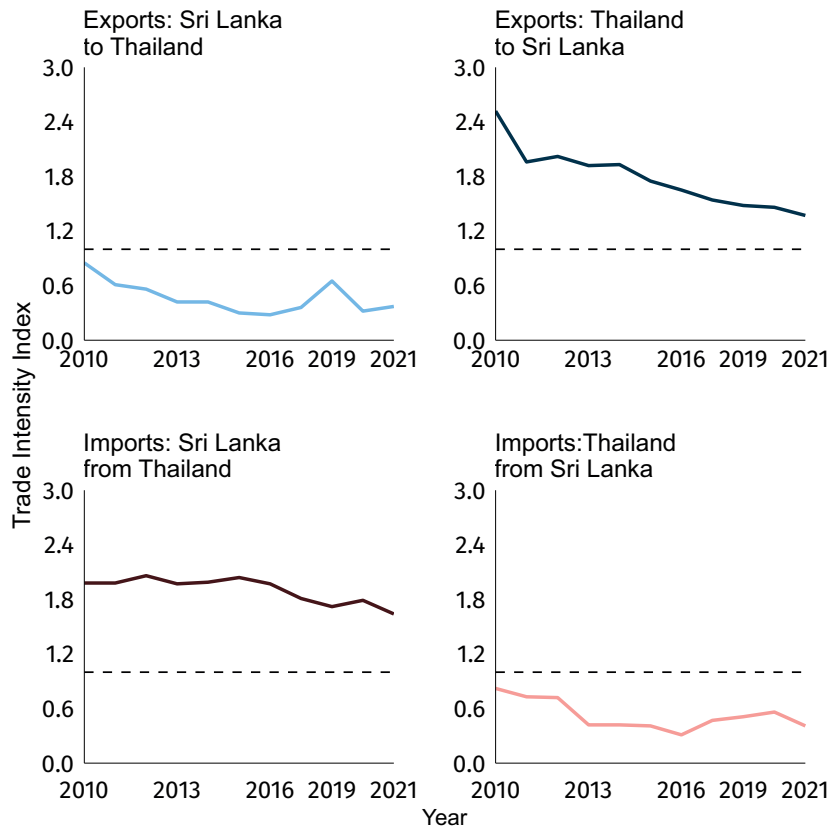
The logical outcome of such a trade relationship is an unfavourable trade balance for Sri Lanka. Sri Lanka might expect to increase exports and cut down the deficit, given that the overall trade imbalance also stands unfavourable for Sri Lanka. However, Thailand may expect to increase its exports to Sri Lanka, particularly food, household appliances, furniture, and home furnishings.⁸ As an FTA is inevitably a reciprocal agreement, the shrinking of the trade balance depends on the impact of tariff cuts on bilateral trade. The Trade Complementarity Index (TCI) sheds light on the prospects of enhanced trade between two countries. Export and import sides can be measured by introducing some modifications to the Index.⁹ A more significant match is noticeable between Thailand's export profile and Sri Lanka's import profile than the match between Sri Lanka's export profile and Thailand's import profile (Figure 9). It implies that the prospects of increased Thailand exports to Sri Lanka are high when tariffs are lowered. However, the increase will depend on the current level of tariffs and the distribution of tariff cuts across the products. In addition, to capitalise on the existing complementarity, Thailand should be more competitive in Sri Lanka than its competitors.

7 Equation B.3 in the appendix B explains the calculations of TII

8 See the news article that quotes Auramon Supthaweethum, Director General of the Trade Negotiations Department, Thailand (Bangkok Post. (2023, January 18). *Thailand Set to Step Up FTA Negotiations with Sri Lanka*. Retrieved July 19, 2023, from Bangkok Post: <https://www.bangkokpost.com/business/2485250/thailand-set-to-step-up-fta-negotiations-with-sri-lanka>)

9 If there is no match, the Index value is zero. In case the export and import shares exactly match, the Index takes the value of 100. For the equation see equation B.4 in Appendix B:

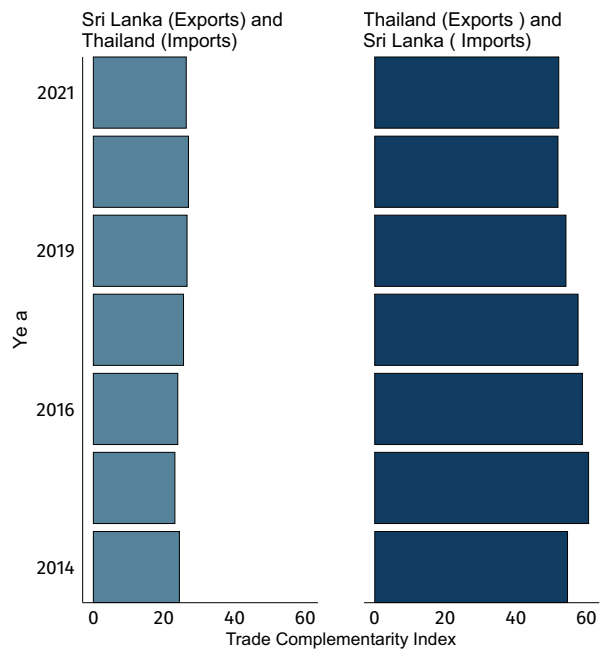
Figure 8: Trade Intensity Index between Sri Lanka and Thailand



Notes: The dashed line shows the unity.

Source: Authors' calculations using data from Trade Map, ITC.

Figure 9: Trade complementarity Index between Sri Lanka and Thailand



Source: Authors' calculations using data from Trade Map, ITC.

The values of TCI are comparable among the countries. Table 5 provides TCI values between Sri Lanka and trade partners Sri Lanka has FTAs or considering agreements with. The export profile of Sri Lanka has a relatively better match with the Thai import profile compared to the import profiles of India, Pakistan, and Singapore. From the imports side, the import profile of Sri Lanka matches the other export profiles except for Pakistan. The highest match is with India's export profile. India is the second largest import source for Sri Lanka. The Thai export profile matches 56% with the import profile of Sri Lanka, which is higher than the comparable values for China, Pakistan, and Singapore.

However, notably, TCI alone does not explain the bilateral trade flows. Even if there is a match between export and import profiles, a country must enjoy a cost advantage to enhance trade using the available market access. For example, although the TCI between exports by China and imports by Sri Lanka is lower than the comparable values with India and the US, China is the leading import source for Sri Lanka. The main reason is the significant cost advantage of China in producing electrical equipment, fabrics, cotton, apparel accessories, and other base metals used as raw materials in ready-made garments and other industries. An FTA will help Thai exports be price competitive in Sri Lanka, paving the way to capitalise on the existing trade complementarity. However, the magnitude of capitalisation of the market access depends on the relative price of Thai exports after Sri Lanka eliminates the current tariff for Thai products. The gains will be much higher for the products that face higher existing tariffs. The following sub-section discusses the existing tariffs in bilateral trade between Sri Lanka and Thailand.

Table 5: Trade complementarity (exports/imports) between Sri Lanka and selected trade partners

Sri Lanka's trade partner	Complementarity: Sri Lanka's exports and partner's imports	Complementarity: Partner's exports and Sri Lanka's imports
Thailand	26.5	54.1
India	23.0	65.4
Pakistan	22.6	27.7
USA	28.8	61.7
China	22.3	48.0
EU	30.1	54.7
Singapore	21.4	45.7

Source: Authors' compilation using the trade performance indicators, WITS.

3. Methods and Data

The study analyses existing bilateral tariffs and trade policy uncertainty in detail. In addition, it analyses the potential trade gains, revenue, losses, and welfare gains from eliminating existing tariffs. Finally, offensive lists-product lists with trade potential and capacity to expand are produced for Sri Lanka and Thailand.

Among various types of tariffs-for example, effectively applied tariffs (AHS), most favoured nation tariffs (MFN), and bound tariffs (BND)- AHS tariff proxies the existing trade costs between Sri Lanka and Thailand. Bound coverage and binding overhang (refer Box 2) can gauge trade policy uncertainty. Thus, descriptive statistics of AHS, MFN, and BND tariffs and trade distribution were calculated across the existing AHS tariff bands and tariff overhang bands. The current tariff analysis was done across major International Standard Industrial Classification Revision-Four (ISICr4) sectors and sub-sectors.

3.1 Partial equilibrium analysis

Partial equilibrium analysis is a useful tool that uses widely available data for ex-ante trade policy analysis. This study uses the in-built partial equilibrium modelling tool, Single Market Partial Equilibrium Simulation Tool (SMART), in World Integrated Trade Solutions (WITS) (Amjadi et al., 2011; Jammes & Olarreaga, 2005; Laird & Yeats, 1986). It generates sectoral export changes, welfare changes, and revenue changes as responses to a tariff change. Importantly, SMART decomposes the trade effect into trade creation and diversion effects. Trade creation is the immediate increase in imports following a tariff cut for goods exported by a particular country.

A tariff reduction for a variety imported from the partner country causes a reduction in the Price Index of the composite good in the preference-granting country.¹⁰ As the price reduction entails a revenue effect, consumers in the preference-granting region can reach an increased consumption level for the same expenditure. The outcome is increased imports from the country which receives preferential access. The imperfect substitution assumption for the varieties avoids a “big-bang” solution, i.e., total trade goes to the most competitive supplier.

Suppose that two countries, A and B, export the same good, which is an imperfect substitute for each other, to a third market, C. In that case, a preferential tariff from C to A affects the relative price of the varieties. The preferential tariff reduces the relative price of the variety from country A relative to region B. For a given composite consumption level, the outcome is that the consumers in country C increase the consumption of the variety from country A at the expense of country B. Country A now realises increased exports to C. In contrast, country B realises a loss of exports to C. This is the trade diversion effect. Thus, the total trade effect of a tariff cut is the sum of trade creation and diversion effects.

This study simulates trade gains by tariff elimination for Global Trade Analysis Projects (GTAP) product groups. Among the 65 sectors, 47 are relevant to the goods trade. Therefore, the simulations were run for each sector of the 47 sectors separately. An integral part of the partial equilibrium analysis is determining the values of the elasticities used for counterfactual analysis. Mainly three types of elasticities are necessary: export supply elasticity, import elasticity, and Armington elasticity. For the supply side, supply elasticity is taken as infinite. Infinitely elastic supply implies that for increased demand, quantity adjusts, and there is no

¹⁰ Varieties are the same products which are imperfect substitutes, exported by different countries.

price effect. This assumption is not overly strong as it is plausible for Sri Lanka and Thailand to have spare capacity to export products.¹¹

On the demand side, a representative agent maximises welfare through a two-stage optimisation process. First, given a general price Index, the agent allocates spending on the composite good. The relationship between demand and price Index changes is given by import demand elasticity. In the second stage, they divide the allocated spending among different varieties within the composite good. The Armington substitution elasticity governs the relationship between variety-specific spending allocation and the relative price change. SMART uses 1.5 as the default, although the empirically estimated elasticities are generally much higher. Feenstra, Luck, Obstfeld and Russ (2018) report that Armington elasticity between foreign varieties is 4.4. The existing studies show that the estimated effects are highly sensitive to the Armington elasticity motivating the use of more appropriate elasticities (Wijesinghe & Yogarajah, 2022a). The sensitivity of the estimates to Armington elasticities motivates the current study to simulate the effects of tariff cuts by GTAP sectors. The GTAP sectors have better reliable Armington elasticities. However, it should be noteworthy that the GTAP sectoral Armington elasticities are not country-specific. Therefore, when the Armington elasticities differ between Sri Lanka and Thailand, it results in varying trade and welfare effects. However, utilising the GTAP sectoral Armington elasticity values instead of default values is the methodologically superior option, as it improves the accuracy of the estimates and represents the best available option.

The sensitivity of the estimates to Armington elasticities motivates the current study to simulate the effects of tariff cuts by GTAP sectors. The GTAP sectors have better reliable Armington elasticities. However, it should be noteworthy that the GTAP sectoral Armington elasticities are not country-specific.

The GTAP database contains two sets of source substitution or Armington elasticities, which relates to the substitution between domestic products and imports and between imports from different regions (Hertel & van der Mensbrugghe, 2016). The required Armington elasticity for a SMART-based partial equilibrium analysis is the second set of elasticities: i.e., the ones for substitution between imports from diverse regions or countries. As in the GTAP model, this study also assumes that in cross-regional behaviour, all agents in all regions display the same substitution elasticity for each commodity. The estimates of the elasticities of substitution among imports from different sources, obtained by Hertel et al. (2007), are used in the GTAP mode. This study uses the same set of elasticities as the GTAP database. The simple average of these trade elasticities is 7.0. The GTAP elasticities are given in Table A.7 in Appendix A.

Discussing what is not estimated by the partial equilibrium analysis is vital. First, the partial equilibrium models, as the name for the class of model implies, do not capture trade effects from intersectoral linkages. For example, suppose Thailand eliminates tariffs for ready-made garments in a future Sri Lanka-Thailand FTA. Now Sri Lanka can export more ready-made garments to Thailand. A partial equilibrium model estimates the increased trade effect. Thailand is also a supplier of fabrics used in the ready-made industry in Sri Lanka. Due to the overall increase of ready-made garment production in Sri Lanka in response to increased import demand from Thailand, Sri Lanka needs to import more fabrics. Accordingly, Thailand may experience increased exports of fabrics to Sri Lanka. The partial equilibrium models

¹¹ There is a caveat, however, as for developing countries especially, supply constraints are argued to be an important factor why even available preferences under FTAs are not made use of. A counterargument is that underutilisation is due to restrictive ROOs and cumulation rules that the EU imposes under GSP+. Overall, the estimated trade gains are not abnormally high implying the infinite export supply elasticity is plausible.

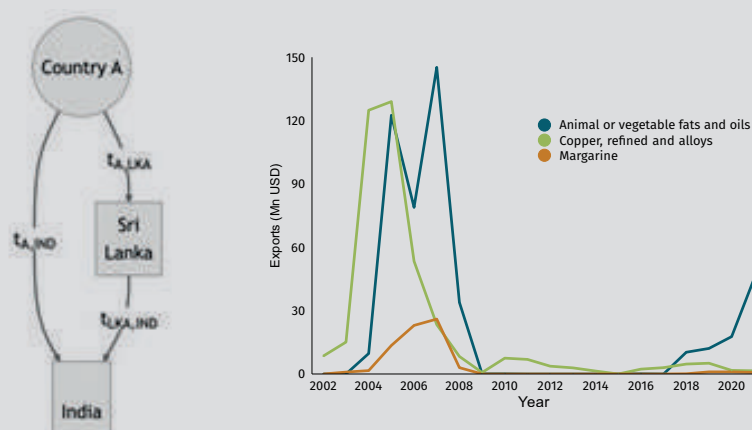
cannot estimate such increases or the accompanying revenue and welfare effects from trade through input-output linkages.

Second, there is a possibility of FDI movement to the countries which gain tariff preference from an FTA. For example, the dissimilarities in external tariffs may pave the way for tariff arbitrage, causing firms to move to an FTA partner country and causing trade deflection. That kind of trade effect is not captured in the partial equilibrium modelling. Copper and vanaspati exports by Sri Lanka to India under India-Sri Lanka Free Trade Agreement (ISFTA) illustrate the tariff arbitrage opportunity of trade agreements (Box 1).

Box 1: The boom and collapse of *vanaspati* oil (hydrogenated vegetable oil) and copper exports under the India-Sri Lanka Free Trade Agreement (ISFTA)

Under India-Sri Lanka free trade agreement (ISFTA), an opportunity for tariff arbitrage arose in *vanaspati*- a cooking oil derivative of palm oil- oil and copper product exports. In the case of *vanaspati* oil, Sri Lanka's external tariff for palm oil- a raw material for *vanaspati* products- was lower than India's external tariff for palm oil (B1.1 left panel). In addition, Sri Lanka received preferential tariffs for *vanaspati* products under ISFTA. Entrepreneurs used this opportunity for tariff arbitrage, and firms under Indian investments were established in Sri Lanka as Board of Investment (BOI) projects. The outcome was a boom of *vanaspati* and bakery shortening exports from Sri Lanka to India, which hurt the Indian domestic producers (Figure B1.1 right-hand panel).

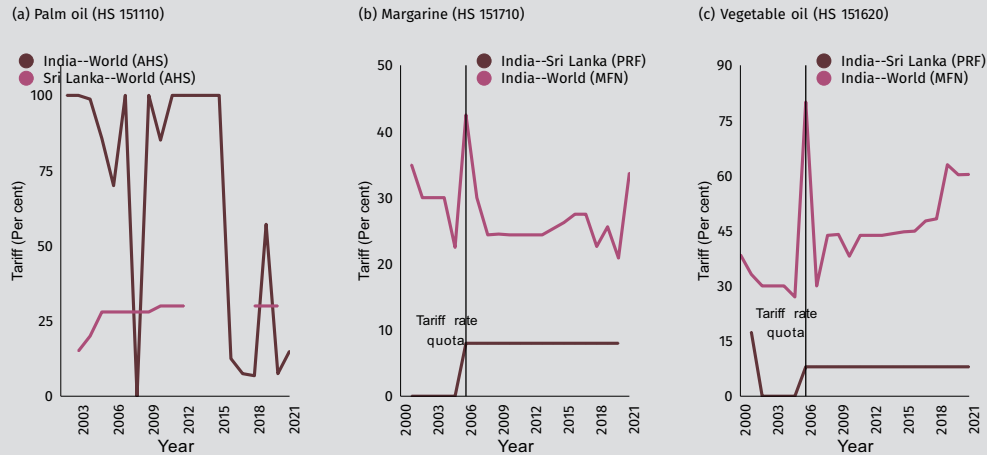
Figure B1.1: Trade deflection through tariff arbitrage (left) and the boom and collapse of *vanaspati* and copper exports to India by Sri Lanka (right)



Notes: The external tariffs of palm oil by India and Sri Lanka are given by $t_{A,IND}$ and $t_{A,LKA}$ respectively. India's tariff for vegetable oils under ISFTA is given by $t_{LKA,IND}$. External tariffs were such that $t_{A,IND} > t_{A,LKA}$ providing an opportunity for tariff arbitrage.

Source: Authors' illustration using tariff data from WITS.

Figure B1.2: External tariff differential for crude palm oil and the preferential tariff of India on vanaspati and bakery shortenings under ISFTA



Note: The external tariff differential for crude palm oil disappeared after tariff reforms in India in 2008. The reforms were partly caused by rising consumer prices in 2008 and lobbying by domestic vanaspati producers.

Source: Authors' illustration using tariff data from WITS.

The complaints from the domestic producers and rising consumer prices in 2008 led India to take a series of actions, including lowering the external tariff for palm oil and enforcing rules of origin (ROOs).¹² Once India's external tariff for palm oil was lowered, Sri Lanka's vanaspati exports were no longer competitive in India, which caused a drastic collapse of the exports (Kelegama, 2017; Kelegama & Karunaratne, 2013; Mukherji & Iyengar, 2013). Preferential access may provide opportunities for new products as vanaspati exports under ISFTA. However, such opportunities highly depend on the difference in external tariffs, which fluctuate based on domestic policy changes. The economic cost of trade deflection should also be considered, as the trade is deflected from a competitive producer purely due to tariff arbitrage. In preferential trade agreements, ROO can be used to reduce trade deflection by imposing conditions to identify originating and non-originating goods.

Third, certain products do not yield simulation results in SMART. No estimated import elasticities available for product(s) or the exporting country has no history of exporting those products are some possible reasons. However, the bulk of the products yield simulated outcomes. Fourth, partial and general equilibrium models employed to estimate trade effects *ex-ante* assume full utilisation of trade preferences and full implementation of the agreement once enforced, which are rare in practice. Many FTAs follow the gradual phasing-out of existing tariffs, and general regulatory barriers like ROOs and domestic capacity constraints restrict full utilisation.

12 Tariff changes are recorded here: (Government of India: Department of Food and Public Distribution. (n.d.). Archives; Major decisions in respect of sugar since 1998. Retrieved July 19, 2023, from DFPD: <https://dfpd.gov.in/archiver.htm#:~:text=2008%2C%20import%20duty%20on%20Crude,Mustard%2FRapeseed%20Oil%20has%20been>)

3.2 Offensive lists

Offensive lists were prepared separately for both Sri Lanka and Thailand using four specific sets of criteria. This divulges a country's most potential products for bilateral trade expansion to be prioritised during trade negotiations. To be included in the offensive list of reporter countries, 1). the partner country must import a product from anywhere in the world, 2). it must be produced by the reporter country with a further expanding capacity, 3). the partner country must have a tariff on that particular product, and 4). the reporter country must demonstrate a comparative advantage in exporting that product.

The length of the list and the products included can vary depending on its application, and this report follows the method used by Graham, Kravchenko, Ratna, & Mikic (2018) using six-digit HS codes. However, depending on countries' specific circumstances, these criteria and threshold values can be altered as necessary. Applying the above criteria for Sri Lanka's potential offensive list against Thailand was processed as described next. The same procedure was also used on Thailand's list. The first criterion specifies that the product must be an imported good from Thailand from anywhere in the world. This indicates the interest of Thailand in buying the product. Thus, the average value of Thailand's total imports from the world in each HS six-digit code for 2019, 2020 and 2021 (latest available data) was considered. Thailand must have reported at least USD 1 Mn value to include that particular product in the offensive list of Sri Lanka. The second criterion expects the product to be produced within Sri Lanka with a further expanding capacity. This criterion was proxied using a simple proxy: the history of exports. This infers that a product which Sri Lanka cannot be exported is irrelevant to be considered in bilateral trade negotiations between Sri Lanka and Thailand. Therefore, the products that exceeded the average USD 1 Mn threshold value for Sri Lankan exports to the world in 2019, 2020, and 2021 were considered in producing the offensive list. To see the trade gain after a tariff removal, the product must be one which Thailand has already tariffed, and thus, Thailand's tariff rates in 2021 were used to fulfil the third criterion. Therefore, the products with zero bound tariffs were excluded from the list, and one can also remove lower tariffs using a threshold to tighten the list further; however, we only excluded the zero-tariffed products.

Fourthly, the comparative advantage. This shows how good an economy is in producing a particular product. Hence, Sri Lanka must have demonstrated a comparative advantage in each product to include it in Sri Lanka's offensive list. The Balassa Index of RCA was utilised for this purpose. If the Index value is greater than unity, the product was considered as it has the comparative advantage to include in the list. When it is measured for exports in general, it is known as Standard Revealed Comparative Advantage (SRCA) (Equation B. 2 -Appendix B), which suggests a product has a comparative advantage if an economy's exports of that product relative to its total exports are greater than world's exports of that particular product against world's total exports. The Index can also be measured bilaterally, which then identifies as Bilateral Revealed Comparative Advantage (BRCA). However, suppose the partner country uses a tariff to discourage product imports from the reporter country. In that case, it does not accurately demonstrate the capacity to expand or the comparative advantage. Therefore, we endured SRCA, which adequately gauges a country's potential for expanding its production capacity.

3.3 Data

The MFN, AHS, and BND tariff data are obtained from the WITS database. Trade data at HS-six-digit disaggregation is from two databases, WITS and Trade Map. Tariff data, bilateral trade data and data for exports by Sri Lanka and Thailand to the world were used to analyse the tariffs, binding overhang, and construct the offensive lists. Trade data and tariff data are at HS-six digits disaggregation. The WITS has the facility to retrieve data for the tariffs imposed by individual countries on a partner.¹³ The data availability is contingent upon the existence of a non-zero trade. For example, 584 HS-six-digit level products were exported by Sri Lanka to Thailand in 2020. The WITS provides tariff data for these 584 products, contingent upon AHS and MFN data availability. For some products, tariff data do not exist. The tariff database may also pick a different trade year. For example, the latest data for Thai tariffs on Sri Lanka is 2021, but the latest trade year available in the dataset is 2020.

The tariff data were mapped to tariff bands in tariff analysis. In addition, aggregate trade by the tariff band was also calculated. A mapping from HS-six-digit codes to ISICr4 sectors and sub-sectors was done to construct the industry groups for tariff analysis. For this mapping, a concordance between HS-six digits and ISICr4 was used. The partial equilibrium analysis used in-built trade data for 2021 and the import elasticities for each product at HS-six digits. As mentioned earlier, Armington elasticities from the GTAP database were used for the source elasticities (Table A.7 in Appendix A).

The partial equilibrium model, SMART, does not simulate every HS code a country imported in a given year. Various factors, including missing tariff data and import elasticities, can be behind it. A post-simulation exercise was conducted to find the HS codes that are not simulated and to investigate the reason behind being omitted from simulations. Sri Lanka-Thailand AHS and MFN tariff data did not exist for some products. However, there may be existing tariffs for the world. If a positive MFN tariff exists, eliminating tariffs should produce a trade gain and welfare effect. However, if the existing MFN for the world is zero, there will likely be no trade or welfare effect from an FTA. For the products with tariffs but no simulation results, the causal factor for omission can be missing elasticity values. Again, if the existing tariffs are zero, trade and welfare effects will be zero.

An alternative estimation was performed to increase the simulation coverage, estimating the trade gains for products with positive tariffs. Using the average import increase of the GTAP sector, which is calculated from the simulated product groups, it was roughly estimated the increase of trade. This step ensured that the partial equilibrium results conveyed a realistic estimate for trade gains. However, the simulated products and the products with zero MFN-bilateral or individual country to the world- represent more than 90% of the imports by Sri Lanka and Thailand from each other, professing the credibility of the estimates.

¹³ In WITS tariff data, the reporting country is the importer, and the partner is the exporter. In general trade data the reporter is the exporter, when export data is considered.

4. Results

4.1 Existing tariffs of Sri Lanka-Thailand bilateral trade

Among many other factors, tariffs are the most critical trade cost determinant of cross-border trade (Piermartini & Yotov, 2016; Yotov et al., 2016; Wijesinghe & Yogarajah, 2022b;). One major objective of an FTA is to reduce or eliminate the border tariff expecting it will enhance bilateral or regional trade. The trade gains from signing an FTA depend on the extensive and intensive margins of the tariff cuts. Thus, discussions on the existing tariff levels applicable to Sri Lanka-Thailand bilateral trade are informative. The analysis uses WITS data at HS-six digits. The WITS reports data from the “importer” perspective, i.e., WITS reports tariffs data as “importer’s tariff on the partner/exporter.”¹⁴ Apart from this, the WITS reports various types of tariffs, and an explanation is available in Box 2.

In 2020, Thailand imported 584 products from Sri Lanka. The average import value per product was USD 124,500 (USD 0.12 Mn). The simple average of AHS on products imported from Sri Lanka was 16.1% (Table 6). The maximum AHS was 94%, which applied to cane sugar (HS 170199). Zero tariffs were applicable for 94 product lines. The 75th percentile was 30%, implying that 75% of the tariffs were below 30%. The data show that about 57 products are without a reported tariff value.¹⁵ Thailand's trade-weighted average tariff on Sri Lanka was 4.02%.¹⁶ The discrepancy between the weighted and simple average of tariff roots can be seen in the variation of trade value across tariff bands, i.e., higher/lower trade value in lower/higher tariff bands (Table 7). Figure 10 reveals that the largest tariff revenue for Thailand comes from the [30,40) tariff band.

The tariff revenue to imports ratio is high in the [90,100) tariff band. Still, the tariff revenue from that tariff band is the second largest contributor to the tariff revenue of Thailand in its trade with Sri Lanka. The highest import volumes from the products under the [0,10) tariff band imply that lower tariffs might induce Thailand imports from Sri Lanka (Figure 10 and Table 7). The above discussion points attention to three crucial tariff bands, i.e., [0,10), [30,40), and [90,100).

A noteworthy observation with implications for Sri Lanka-Thai trade negotiation is that Sri Lanka's major exports with high comparative advantage are under relatively higher tariff bands imposed by Thailand.

Table 7 provides vital information for each tariff band, including the import value, simple mean of AHS, major products by value imported from Sri Lanka, and the number of imported product lines. The key exports from Sri Lanka to Thailand, rubies and precious stones are within the [0,10) tariff band. The simple average of the tariffs in this band is 2.2%. Thailand imports 179 products from Sri Lanka under this lowest tariff band. It is the highest number of products compared with the other tariff bands. The observed pattern of the high volume of trade and higher number of products in the lowest tariff band is a naive indicator of the positive impact of lower tariffs.

A noteworthy observation with implications for Sri Lanka-Thai trade negotiation is that Sri Lanka's major exports with high comparative advantage are under relatively higher tariff bands imposed by

[illegible]

15 These products may not have simulation results from SMART.

16 The trade-weighted average tariff is calculated by dividing the tariff revenue by total trade.

Thailand. For example, ready-made garment exports are within the [30,40) tariff band. Various tea products- black and green tea- are within the highest tariff band [90,100). An FTA most likely increase exports of currently traded products if the products with comparative advantages for the member countries are included in the tariff cuts, ignoring the other trade-inducing effects like tariff arbitrage (Wijesinghe & Yogarajah, 2022b, 2022a). Thus, Sri Lanka should negotiate tariff cuts for ready-made garments and agricultural exports like tea, which are heavily taxed in Thailand. The fact that Thailand is an exporter of textiles, having exported USD 6.2 Bn worth of textiles in 2021. This included wearing apparel, fabrics, cotton, and silk, which are likely to make Thailand reluctant to liberalise these sectors. The HS chapter 61 and 62 exports of Sri Lanka, a significant competitor of Thailand in ready-made garments, were USD 1.6 Bn and USD 0.7 Bn, respectively. Thailand is also a net exporter in these product chapters.



Against this backdrop, high tariffs on textile imports reveal that Thailand is defensive in the sector, which brings substantial export revenue to the country. Thus, Sri Lanka's attempts to get tariff concessions for these products might have met with some resistance from Thailand. However, to capitalise on market access based on comparative advantage, Sri Lanka must gain tariff concessions for textile products if an FTA is to be successful from the perspective of increasing exports. With a tariff advantage after entering into an FTA, Sri Lanka will then be capable of replacing "less competitive" exporters in the Thai market -trade diversion- experiencing a positive trade gain from lowered tariffs.

A close look at the composition of textiles imports and export data for Sri Lanka shows the possibility of a mutually beneficial arrangement avoiding a zero-sum outcome from tariff cuts. Both countries are net exporters in HS chapters 61 and 62 (Tables 8 and 9). However, Thailand is a net exporter in HS chapters 55 and 56, and Sri Lanka is a clear net importer in these HS chapters. HS chapter 55-man-made staple fibres- and chapter 56-wadding, felt, and nonwovens- are raw materials for the garment industry. Suppose Thailand is willing to reduce tariffs for ready-made Sri Lankan garments, particularly for chapters 61 and 62, in which Sri Lanka has a comparative advantage. In that case, Thailand gets an opportunity to increase the exports of raw materials to Sri Lanka, as now the demand in Sri Lanka for textile raw materials rises. However, the extent of the capitalisation of this opportunity depends on Thai competitiveness among the suppliers of Sri Lanka in post-FTA tariff scenarios.¹⁷

Table 6: Summary of tariffs and trade statistics: Sri Lanka and Thailand

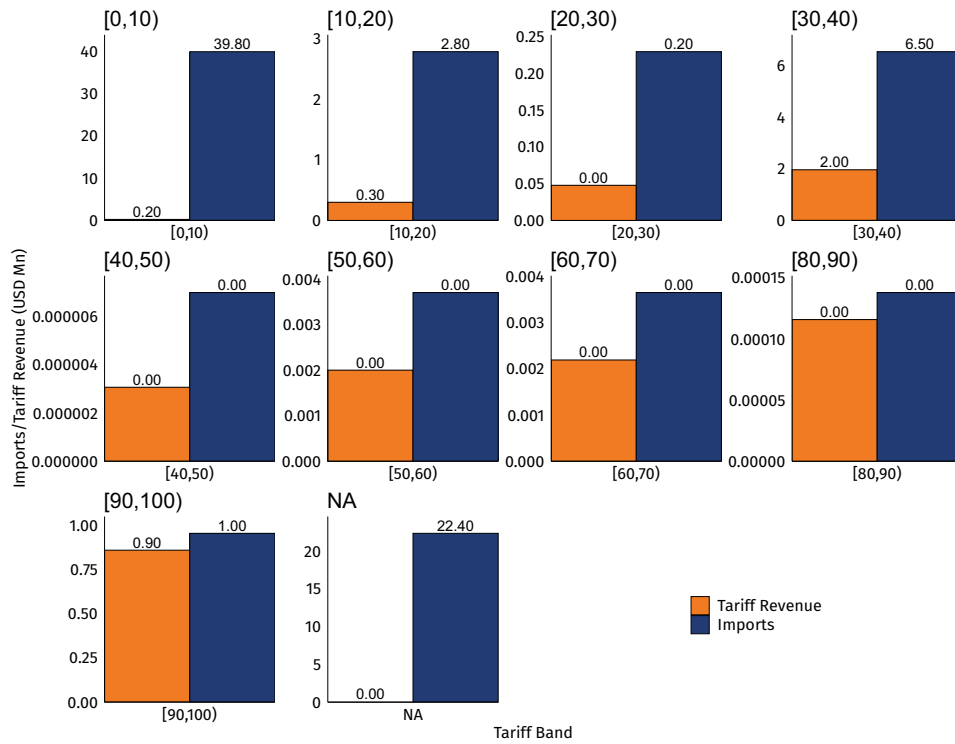
Variable	Mean	Standard Deviation	Median	Minimum	Maximum	NAs	1st Q	3rd Q
Thailand tariffs for Sri Lanka (%)	16.1	14.6	10.0	0.0	94.0	57	5.0	30.0
Thailand's imports from Sri Lanka in 2020-average per product (USD '000)	124.5	1,053.6	0.8	0.001	17,833.3	-	0.1	11.5
Sri Lanka tariffs for Thailand (%)	9.2	11.8	0.0	0.0	30.0	11	0.0	15.0
Thailand's exports to Sri Lanka average per product 2020 (USD '000)	295.2	1,167.3	21.0	1.0	19,568.0	-	5.0	

Notes: Unit is a product at HS-six digits. Thailand imported 584 products from Sri Lanka in 2021. Sri Lanka imported 895 products from Thailand in 2019. Tariff years are different on the availability of data at WITS.

Source: Authors' calculations using WITS and Trade Map data.

17. It should be noted that a partial equilibrium analysis cannot estimate this kind of trade gains through value chains.

Figure 10: Distribution of imports from Sri Lanka and tariff revenue for Thailand across tariff bands (scale of the Y axis is different across panels)



Source: Authors' illustrations and calculations using data from WITS.

Table 7: Thailand tariffs on Sri Lanka's exports
(tariff year=2021, trade year = 2020)

Tariff Band (AHS, weighted average)	Imports from Sri Lanka -2020 (USD Mn)	Mean AHS, weighted average	Major products (HS code -- Description (value in USD Mn))	Number of products at HS-six digits
[0,10)	39.8	2.2	710391 --Rubies, sapphires and emeralds (17.8); 710399 --Other precious stones (4.4); 854470 -- Optical fibre cables (3.7)	179
[10,20)	2.8	10.7	850431 -- Electrical transformers others: power handling capacity <1 Kva (0.6); 401290 -- Solid tyres (0.5); 401699 -- Articles of vulcanised rubber nes. (0.4)	120
[20,30)	0.2	20.8	030617 -- Other shrimps and prawns (0.07); 400400 -- Waste, parings and scrap of rubber (0.04); 160510 -- Crabs (0.02)	56
[30,40)	6.5	30.0	621210 -- Brassières (0.9); 621290 -- Braces, suspenders, garters and similar articles (0.6); 610990 -- T-shirts, singlets, tank tops and similar garments (0.6)	160
[40,50)	0.0	44.5	Small quantities of 110620 -- Sago roots or tubers of head; 21011-- Extracts, essences	2
[50,60)	0.0	52.5	Smaller quantities of 080111 -- Desiccated; 090412 -- Pepper crushed or ground	2
[60,70)	0.0	60.0	Smaller quantities of 220300 -- Beer made from malt; 220890 Other spirituous beverages	2
[70,80)	NA	NA	NA	
[80,90)	0.0	84.0	220299 -- Other non-alcoholic beverages	1
[90,100)	1.0	90.8	090240 -- - Other black tea (fermented) (0.7); 090230 -- Black tea (fermented) (0.1); 090210 -- Green tea (not fermented) (0.1)	5
Not known	22.4	Not known	271000 -- Petroleum oils and oils obtained (16.1), 110100 -- Wheat or meslin flour (5.3), 580421 -- Man-made fibres (0.45)	57
Total	72.7			584

Authors' calculations using Trade Map data.

Table 8: Exports and import values of each chapter in textiles: Sri Lanka 2021

Chapter	Chapter label	Exports (USD Mn)	Imports (USD Mn)	Net export/ import
50	Silk	0.1	22.1	-22.0
51	Wool, fine or coarse animal hair	0.0	13.8	-13.8
52	Cotton	29.8	688.8	-659.0
53	Other vegetable textile fibres	237.0	28.1	208.9
54	Man-made filaments	27.6	424.5	-396.9
55	Man-made staple fibres	39.0	428.7	-389.8
56	Wadding, felt and nonwovens; special yarns	68.1	76.4	-8.4
57	Carpets and other textile floor coverings	8.7	7.4	1.2
58	Special woven fabrics; tufted textile fabrics; lace	68.2	290.2	-222.0
59	Impregnated, coated, covered or laminated textile fabrics	12.5	104.2	-91.8
60	Knitted or crocheted fabrics	139.8	1,121.4	-981.6
61	Articles of apparel and clothing accessories, knitted or crocheted	3,337.4	74.1	3,263.2
62	Articles of apparel and clothing accessories, not knitted or crocheted	1,973.4	113.9	1,859.5
	Textiles	5,941.5	3,393.7	2,547.7

Source: Authors' calculations using Trade Map data

Table 9: Export and import values for each chapter in textiles: Thailand 2021

Chapter	Chapter label	Exports (USD Mn)	Imports (USD Mn)	Net export/ import
50	Silk	10.3	6.2	4.1
51	Wool, fine or coarse animal hair	33.2	74.1	-40.9
52	Cotton	357.9	567.6	-209.8
53	Other vegetable textile fibres	19.0	15.3	3.6
54	Man-made filaments	674.9	880.6	-205.8
55	Man-made staple fibres	1,279.1	326.3	952.8
56	Wadding, felt and nonwovens	594.4	347.1	247.4
57	Carpets and other textile floor coverings	119.9	52.5	67.4
58	Special woven fabrics; tufted textile fabrics	202.2	168.6	33.6
59	Impregnated, coated, covered or laminated textile fabrics	189.0	633.6	-444.6
60	Knitted or crocheted fabrics	407.8	451.0	-43.2
61	Articles of apparel and clothing accessories, knitted or crocheted	1,559.5	441.4	1,118.1

62	Articles of apparel and clothing accessories, not knitted or crocheted	729.7	620.3	109.5
	Textiles	6,176.9	4,584.6	1,592.3

Source: Authors' calculations using Trade Map data.

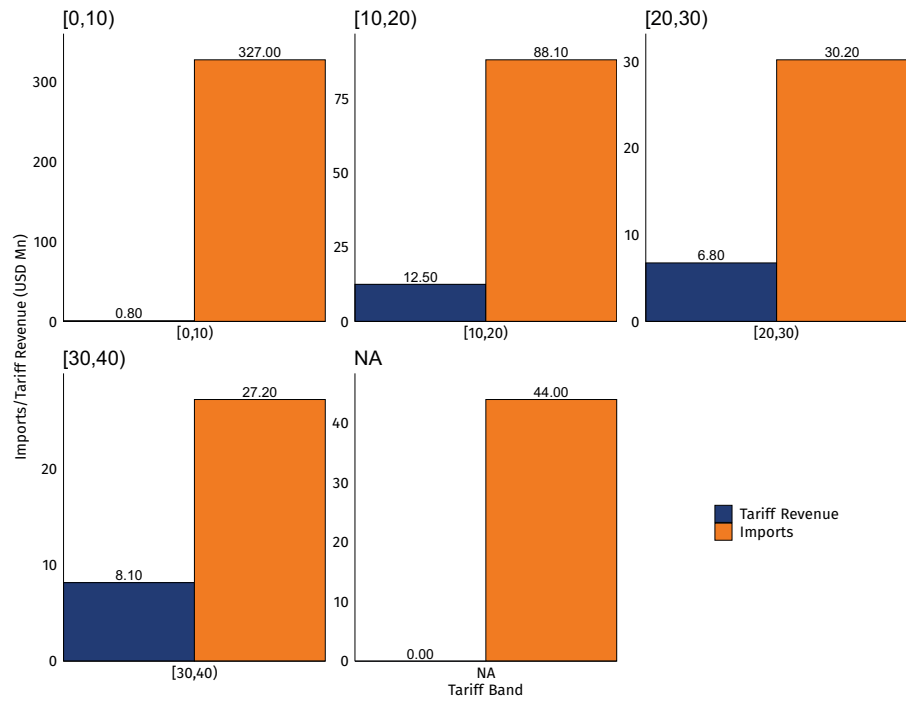
The applied tariffs on Sri Lanka black tea (HS 090240 and 090230) and green tea (HS 090210) exports to Thailand are within the tariff band [90,100). Thailand is a smaller player in the tea export market. In 2021, Thailand exported about 3,500 metric tons of tea valued at approximately USD 24 Mn. Contrarily, Sri Lanka is a dominant player exporting 283,000 metric tons of tea valued at USD 1.4 Bn in 2021. Thus, Thailand may maintain a higher protection level for safeguarding the relatively smaller Thai tea industry from more competitive exporters like Sri Lanka.

Table 6 shows that the simple average of tariffs imposed by Sri Lanka on imports from Thailand is 9.2% compared to Thailand's 16.1% tariff average on imports from Sri Lanka. Sri Lanka imports a wide variety of products from Thailand. In 2017, Sri Lanka imported 1,822 product lines at HS-six digits from Thailand. The number of products imported in 2020 was 895. The average value of imports per product from Thailand was USD 0.3 Mn in 2020. During the pandemic, Sri Lanka's imports from Thailand plummeted from USD 516 Mn in 2017 to USD 297 Mn in 2020. A drastic drop was evident in imported product lines too. Tariff analysis was done by considering pre-pandemic tariff and trade values to capture the tariffs and trade patterns in an average year (Table 10). The maximum tariff rate of Sri Lanka on Thai imports was 30%, while 75% of products were under less than 15% tariff. However, the trade-weighted average tariff on Thai imports stood at 5.5%, 1.5 percentage points higher than the Thai trade-weighted tariffs on Sri Lanka.¹⁸

Table 10 also shows that Sri Lanka imposes a few tariff bands on imports from Thailand, and the highest tariff band is [30,40). Most imported products by value fell within [0,10) tariff band. The number of product lines imported under this tariff band in 2017 was 1,081. The highest tariffs by Sri Lanka were on lead acid, air-conditioning machines, and rigid tubes and pipes. Motor vehicles for transport goods, tyres, and parts for air-conditioning machines tariffs were within the [20,30) tariff band. On average, Sri Lanka imposed a 14.6% tariff within the tariff band [10,20), on smoked sheets of natural rubber and natural rubber latex. Higher tariffs on motor vehicles and household electronic equipment could be due to revenue concerns as these products are relatively luxurious. As Sri Lanka produces rubber products, tariffs on rubber sheets and natural latex seem to have been protectionist.

¹⁸ The most informative tariff type might be the simple averages. Weighted averages are weighted by realised trade which is distorted by the existing tariffs. A potential exporter looks at the applicable tariff rate for a specific product rather than the weighted average of tariffs.

Figure 11: Distribution of imports from Thailand and tariff revenue for Sri Lanka across tariff bands (scale of the Y axis is different across panels)



Source: Authors' illustration using data from WITS

Table 10: Tariffs on imports from Thailand by Sri Lanka
(tariff year=2019, trade year 2017)

Tariff band (AHS, weighted average)	Imports from Thailand -2017 (USD Mn)	Mean AHS, weighted average	Major products (HS code -- description (value in USD Mn))	Number of products at HS-six digits
[0,10)	327.0	0.4	030559 -- Dried fish, even salted but not smoked (43.0); 252310 -- Cement clinkers (36.7); 550410 -- Staple fibres of viscose rayon	1081
[10,20)	88.1	14.6	400121 -- Smoked sheets of natural rubber (21.4); 190190 -- Malt extract; food preparations of flour, groats, meal, starch or malt extract (14.6); 400110 -- Natural rubber latex (11.2)	330
[20,30)	30.2	22.7	870421 -- Motor vehicles for the transport of goods (22.1); 841590 -- Parts of air conditioning machines (1.7); 401120 -- New pneumatic tyres, of rubber, of a kind used for buses and lorries (1.4)	60
[30,40)	27.2	30.0	850710 -- Lead-acid, of a kind used for starting piston engine (3.0); 841510 -- Window or wall air conditioning machines (2.2); 391721 -- Rigid tubes, pipes and hoses, of polymers of ethylene (1.6)	332
NA	44.0		170199 -- Cane or beet sugar and chemically pure sucrose, in solid form (28.4); 271000 -- Petroleum oils and oils obtained (8.0), 170114 -- Raw cane sugar, in solid form (4.2)	11
Total	516.4			1822

Source: Authors' calculations using data from WITS.

A large binding overhang makes a country's trade policies less predictable. On average, the binding overhang is smaller in industrial countries and often substantially significant in developing countries. For example, Sri Lanka has a higher binding overhang in agriculture sector imports.

This study also analyses tariffs across the ISICr4 major and sub-sectors (four digits). The results are presented in histograms in Appendix A. Figure A.2 depicts the distribution of product lines at HS-six digits across tariff bins for major ISICr4 sectors, respective to Sri Lanka's tariffs on Thailand. Most products under tariffs that Sri Lanka imports from Thailand are manufacturing products. Each panel reports the mean MFN, AHS, and bound tariff (BND) rates applicable to each sector. Bound tariffs are specific commitments individual World Trade Organization (WTO) member governments make, and it is the maximum MFN tariff level for a given product.

Bound tariff levels allow member countries to increase or decrease applicable tariffs, subject to the bound rate (Box 2). The binding overhang is the gap between the bound and applied rates.¹⁹ A large binding overhang makes a country's trade policies less predictable. On average, the binding overhang is smaller in industrial countries and often substantially significant in developing countries. For example, Sri Lanka has a higher binding overhang in agriculture sector imports.

Box 2: Different tariff types

Most Favoured Nation (MFN) Tariffs

MFN tariff is the one that WTO member countries commit to impose on all their trading partners who are also WTO members. The applied MFN can be different from the maximum MFN rates.

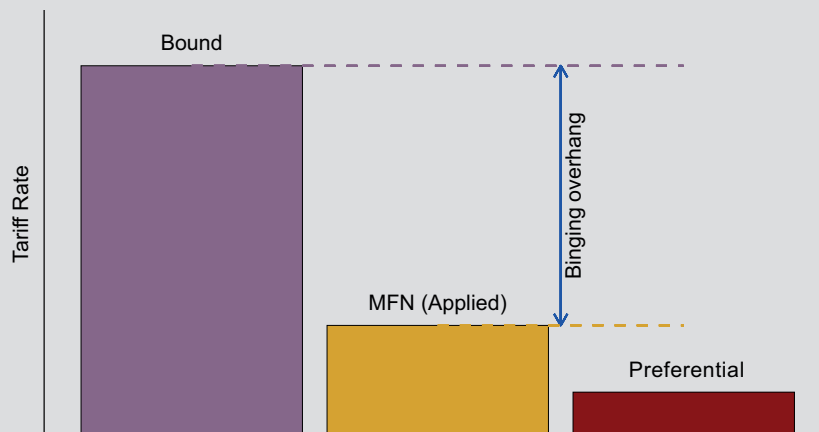
Preferential Tariffs

Member countries in preferential trade agreements and customs unions apply tariffs lower than MFN rates on each other. In addition to these reciprocal trade arrangements, non-reciprocal trade arrangements—for example, GSP+—apply lower or zero tariffs on beneficiary countries. All sorts of these tariffs are preferential tariffs.

Bound Tariffs (BND)

The bound tariff is the maximum MFN tariff level for a commodity line. The bound tariff rates are specific commitments made by countries that join the WTO or when WTO members negotiate tariff levels with each other during trade rounds. The countries form agreements about bound tariff rates rather than applied rates.

- *The binding overhang is the gap between the bound and applied MFN rates.*
- *The binding coverage of the share of tariff lines with WTO-bound rates also varies across countries.*



Effectively Applied Tariffs (AHS)

An AHS is defined as the lowest available tariff. If a preferential tariff exists, it will be used as the AHS.

Source: Authors' compilation using WITS.

¹⁹ Applied rates might be MFN rates or preferential rates if the two countries are mutual partners in a trade agreement. In the context of current study, applied rate is equal to the MFN rate.

The manufacturing exports from Thailand to Sri Lanka face a 9.0% AHS rate on average, equal to the average MFN rate. Most manufacturing products are subject to zero tariffs, but about 250 are subject to 15 or 30% tariffs. The mean bound tariff in the manufacturing sector is 24.5, implying that the binding overhang in the manufacturing sector is much smaller than in the agriculture sector, where the binding overhang is, on average, 31.3%. It implies that, on average, Sri Lanka can make discretionary decisions to increase tariffs by 31.3 percentage points in the agriculture sector. Thus, Thailand faces much uncertainty in exporting agricultural products to Sri Lanka. A sub-sectoral analysis provides a detailed picture of the sectors with higher tariffs and binding overhangs. Similar histograms were developed for sub-sectors in manufacturing and agriculture. These are the ISICr4, four-digit sectors for which the term sub-sector is used in the remaining parts of the paper. As there are many sub-sectors, discussion of each is not possible. For brevity, only the important ones are discussed here.

Figure A.2.1 depicts the distribution of tariffs for 16 sub-sectors of the manufacturing sector. Sri Lanka has a 30% tariff on several product lines in manufacturing other food products, other manufacturing, and processing and preserving fruits and vegetables. In addition, fewer products in manufacturing bakery products, cocoa, sugar, confectionery, dairy products, grain mill products, macaroni and similar food, animal feeds, vegetable and animal fats, and soft drinks are subject to a 30% tariff. Notably, most of these are food-related manufacturing.

The second set of manufacturing sub-sectors is depicted in Figure A.2.2. In this set, the sub-sectors with more product lines under 30% of tariffs are the manufacture of luggage and handbags, plastic products, and soap and detergents. Most of the products in the manufacturing of wearing apparel are under zero tariffs, while the sub-sector faces a mean tariff of 1.7%. Raw materials used in the ready-made garment industry may be under zero tariffs. Likewise, the third set of sub-sectors presented in Figure A.2.3 reveals that manufacturing of knitted and crocheted apparel (mean AHS=0), manufacturing of knitted and crocheted fabrics (mean AHS=0), manufacture of made-up textile articles (mean AHS=2.2), manufacture of man-made fibres (mean AHS=0), manufacturing of other textiles (mean AHS=0.6), and weaving textiles (mean AHS=0.1) have zero tariffs for most of the imported product lines. Many of these sub-sectors have a mean BND less than or equal to 20%. Overall, Sri Lanka maintains a low tariff regime for apparel sector products with a binding overhang capped at 20%. Consequently, lowering tariffs by an FTA may not increase Thai textiles exports significantly to Sri Lanka.²⁰ A partial equilibrium analysis will provide accurate estimates for increased trade due to tariff cuts.

Another important observation is that the Thai household exports, like the products in the sub-sectors of glass and glass products (mean AHS=14.3 with mean BND=47.5) and other porcelain and ceramic products (mean AHS 19.8), are under high tariffs by Sri Lanka (Figure A.2.4). Manufacturing of cutlery, hand tools, and general hardware (mean AHS=7.7, mean BND 60), manufacturing of domestic appliances (mean AHS=10.6, mean BND=50), manufacturing of other fabricated metal products (mean AHS=17.4, mean BND=50), manufacturing of electric lightening equipment (mean AHS=13.0, and mean BND =53.9), manufacturing of furniture (mean AHS=30, mean BND=50), manufacturing of bicycles (mean AHS=18.5, and mean BND=50) and manufacturing of parts and accessories for motor vehicles (mean AHS 26.7, and mean BND=45) are also under high tariffs (Figures A.2.5, and A.2.6). The bound tariff rate is also significantly high, resulting in a considerable binding overhang rate. A

²⁰ However, as discussed, an increase in demand for textile raw materials may increase demand for Thai textile exports to Sri Lanka.

generalisation of these tariffs is that Sri Lanka has higher tariffs and bound tariffs on furniture, household equipment like ceramics, and motor vehicle parts. Higher tariffs reduce bilateral trade, while higher bound tariff rates increase trade policy uncertainty. It should be noted that, as discussed in the introduction, Thailand expects to gain preferential access to furniture, household appliances, and equipment.

Sri Lanka has a higher tariff rate on Thai imports in sub-sectors within the agriculture sector (Figure A.3). Growing of cereals-except rice-(mean AHS 18.8), citrus (mean AHS=30), non-perennial crops (mean AHS=22.5), fruits and nuts (mean AHS=20), vegetables and melons, roots, and tubers (mean AHS=25.6), and tropical and subtropical fruits (mean AHS=30) have higher applied tariffs and 50 % binding tariff for most sub-sectors. Given the importance of the agriculture sector to Sri Lanka concerning the employed high labour force, lowering these tariffs will be a politically challenging task. The next paragraphs discuss the distribution of Thailand's tariffs on exports by Sri Lanka.

Sri Lanka's manufacturing exports to Thailand face a 16.6% average AHS and an average bound rate of 26%. On average, the binding overhang is 9.6% in manufacturing exports. The histogram peaks at a 30% tariff, implying 30% is the median or the tariff rate with the highest number of products. The tariff structure for agricultural exports is close to the manufacturing sector tariffs (Figure A.4 in Appendix A). Table 11 compares Sri Lanka and Thailand tariffs for manufacturing and agriculture sectors.

In the manufacturing sector, Sri Lanka faces a higher tariff than Thailand. However, Sri Lanka's trade policy uncertainty towards Thailand, captured by the binding overhang, is higher. Agriculture sector tariffs are quite similar for both countries. Still, Thailand faces significant trade policy uncertainty as Sri Lanka's average bound rate in the agriculture sector is 50%, implying an average binding overhang of 31.3%. The comparable value for Thailand is 10.2%. It should also be reiterated that the binding coverage is higher in Thailand than in Sri Lanka. Thus, in trade negotiations, Sri Lanka may attempt to lower manufacturing sector tariffs. At the same time, Thailand is incentivised to negotiate for a more predictable trade policy from Sri Lanka, i.e., lowered bound rates and increased binding coverage.

Table 11: Comparison between tariffs for Sri Lanka -Thailand bilateral trade

Sector	Exporter	AHS (%)	BND (%)
Manufacturing	Sri Lanka	16.6	26.0
	Thailand	9.0	24.5
Agriculture, fisheries, and forestry	Sri Lanka	16.8	27
	Thailand	18.7	50.0

Note: As an importer, Thailand's tariff year is 2020, and Sri Lanka's tariff year is 2017.

Source: Authors' calculations using WITS tariff data.

The sub-sectoral tariff structure Sri Lanka faces has substantial variations (Figure A.5.1 to A.5.4). Thailand keeps high tariffs on food processing sub-sectors. Processing and preserving of fruit and vegetables (AHS=54.0, BND=54.0), manufacturing of sugar (AHS=94.0, BND=94.0), manufacturing of other food products (AHS=38.8, BND=56.6), and manufacturing of grain mill products (AHS=30.0, BND=40.0) are examples. The Thai agriculture and food processing industry contributes to a quarter of the national economy and is a net exporter (Box 3). The high tariffs are protectionist tariffs for the sector, and it is unlikely that Thailand would be willing to lower these. Another important manufacturing sub-sector is wearing apparel, except fur apparel.

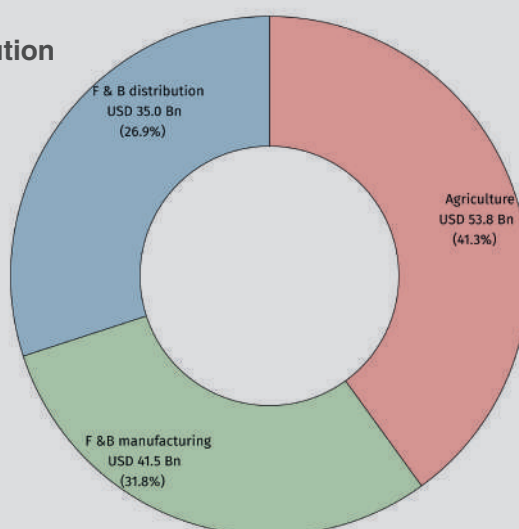
Close to 120 product lines at HS-six digit are under 30% tariffs, and Sri Lanka faces an average of 28.9% of AHS. The mean bound rate is 30.0%. The apparel industry of Sri Lanka has a considerable comparative advantage and production capacity. Lowering the high tariffs, resulting in reduced prices, can mean higher demand. Under this scenario, exports from Sri Lanka tend to increase. A partial equilibrium analysis will shed light on the potential gains. Several products are under high tariffs in the sub-sectors manufacturing knitted and crocheted apparel (AHS=30.0, BND=30.0), manufacturing furniture (AHS=18.8, BND=25.0), manufacturing of other porcelain and ceramic products (AHS=28.0, BND=NA) and manufacturing of footwear (AHS=25.0, BND=30.0). It is possible for Thailand to maintain higher tariffs to protect the domestic ready-made garment industry, which is a challenge for meaningful tariff cuts in an FTA.

The observed pattern of Thailand's high tariffs in food processing extends to the agriculture sector, significantly affecting Sri Lanka's exports (Figure A.6). Growing beverage crops, including Ceylon tea exports (a key export from Sri Lanka), face a mean AHS of 70%. In comparison, the bound rate is 90%. Growing spices, aromatics, drugs, and pharmaceutical crops also face a 19.5% AHS while the average bound rate is 24.3%. The marine fishing sector faces an average of 10% AHS, while some products face a 30% tariff.

Box 3: Agri-food sector of Thailand

Thailand has a vibrant agri-food sector which contributes to a quarter of the country's gross domestic product (GDP) (Oxford Economics, 2021). The sectoral contribution to GDP in 2019 was USD 130.3 Bn, generating 17.9 Mn employment or 48% of total employment. The Oxford Economics study shows that agriculture accounts for the largest portion of the Thai agri-food sector, accounting for 41% of its total contribution to GDP. In 2019, agriculture and the supply chain and consumer spending activities associated with it contributed USD 53.8 Bn to the Thai GDP. Food and beverage manufacturing makes USD 41.5 Bn contributions to GDP (Figure B3.1).

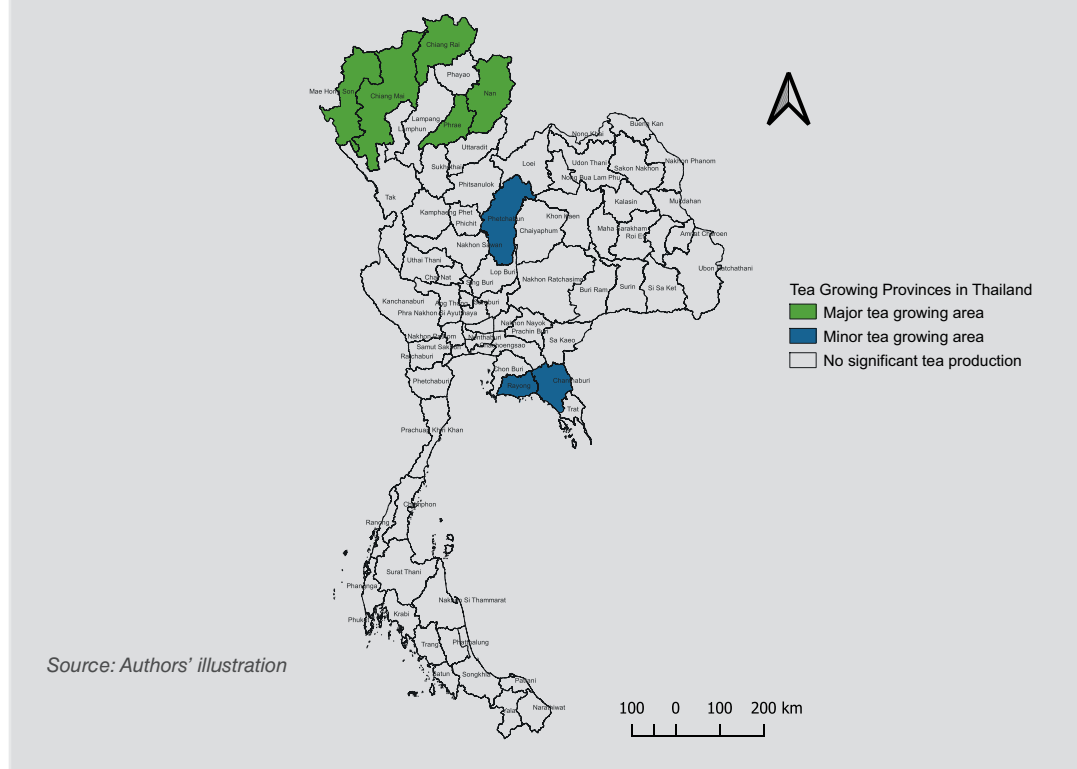
Figure B3.1. Economic contribution of Thai agriculture and food manufacturing and distribution



Source: Authors' illustration

Thailand is a net importer of tea. In 2020 Thailand imported USD 26.1 Mn while exporting USD 23.5 Mn worth of tea. Major export destinations for Thai tea are Laos, US, and Indonesia. Major supplying markets to Thai are China, Vietnam, and Japan. On average, Thailand has an 87.6 per tariff for tea. The main tea cultivation areas are in Northern Thailand (Figure B3.2).

Figure B3.2: Geographical concentration of Thai tea industry



4.2 Tariff overhang: Policy space for trade policy uncertainty

An important feature of trade agreements is increasing the predictability of the trade policy. One of the key aspects of the WTO process is the determination of bound tariffs rather than the applied tariffs (Nicita et al., 2014; Osnago et al., 2015). The difference between the bound and applied tariffs is called a “binding overhang” or “tariff water” (Box 2). Essentially, binding overhang provides the policy space for a country to set their tariff at non-cooperative levels (Nicita et al., 2014). This study analyses the bilateral trade tariff overhang for Sri Lanka and Thailand. Table 12 reports the summary statistics for bilateral bound and binding overhang rates. The binding coverage of Thailand is 20 percentage points higher than Sri Lanka. Thailand has better binding coverage than Sri Lanka (Figure 12). Similarly, the average binding overhang is higher in Sri Lanka. The binding overhang of Sri Lanka is 17.5%. In Thailand, the binding overhang is 8.9% on average.

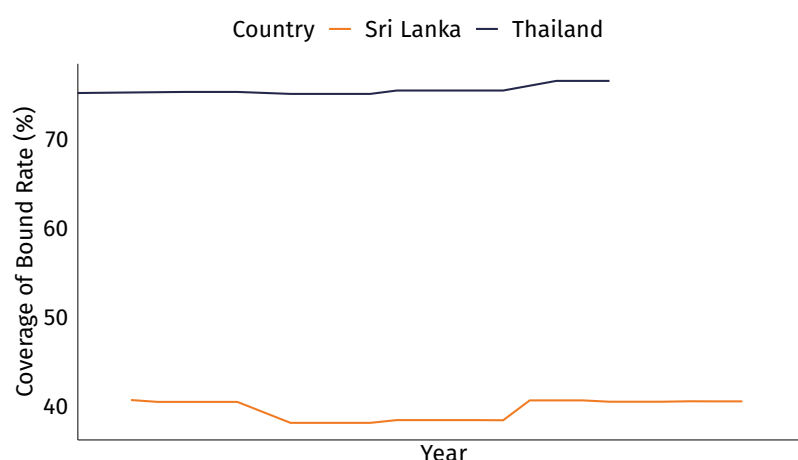
Table 12: Summary statistics for bilateral bound rates and binding overhang/water

Importer (Partner)	Variable	Simple mean	Trade weighted mean ²¹	Median	Min	Max	Standard Deviation	Coverage
Sri Lanka (Thailand)	Bound tariff (BND)	26.2	15.1	17.5	0	100	19.2	36.2
Sri Lanka (Thailand)	Binding overhang	17.5	9.6	17.5	-8.8	80	12.3	NR*
Thailand (Sri Lanka)	Bound tariff (BND)	25.8	5.8	30	0	94	13.3	57.7
Thailand (Sri Lanka)	Binding overhang	8.9	2.6	5.0	-7.5	30	10.03	NR*

Note: * denotes Not relevant.

Source: Authors' calculations using WITS data.

Figure 12: Coverage of bound tariff rates of Sri Lanka and Thailand: 1995-2020



Source: Authors' illustration using World Development Indicators (WDI) data.

Sector-wise binding coverages at ISICr4 major sectors are available in Tables 13 and 14. Table 13 shows the binding coverage applicable to Thailand's exports to Sri Lanka. Sri Lanka has a relatively higher binding coverage for agricultural imports from Thailand. The coverage, which stands at 84.3%, is twice the national binding coverage of Sri Lanka. However, most product lines are under low binding coverage as the manufacturing sector, the most traded sector in

21 A slight discrepancy of the trade weighted average of binding overhang exists and is contingent on the method used to calculate it. Reducing trade weighted mean of BND from trade weighted mean of AHS yields a different estimate compared to the trade weighted mean of binding overhang. The issue arises from the missing values of AHS. Even when BND rates are available, once there are no AHS data, the overhang can't be calculated. The trade weighted mean of binding overhang is reported in Table 12.

Sri Lanka-Thailand trade has just 35.3% binding coverage. Contrary, Thailand provides-

relatively high binding coverage for the manufacturing sector (Table 14). The manufacturing product lines exported by Sri Lanka to Thailand face 57.8% binding coverage, while Agricultural exports face 61.5 binding coverage.

Table 13: Binding coverage by ISICrv4 section (Sri Lanka's tariffs on Thai exports)

Sector	Coverage (%)	Number of products
Agriculture, forestry and fishing	84.3	51
Arts, entertainment and recreation	00.0	3
Information and communication	07.7	13
Manufacturing	35.3	1737
Mining and quarrying	06.3	16
Professional, scientific and technical activities	00.0	1
Water supply; sewerage, waste management and remediation activities	00.0	1

Source: Authors' calculations using WITS tariff data.

Table 14: Binding coverage by ISICrv4 sections (Thailand's tariffs on Sri Lanka exports)

Sector	Coverage of BND tariff	Number of products
Agriculture, forestry and fishing	61.5	26
Information and communication	25.0	8
Manufacturing	57.8	540
Mining and quarrying division	40.0	5
Transportation and storage	100.0	1

Source: Authors' calculations using WITS tariff data.

Table 15 shows the tariff overhang Sri Lanka faces at the Thailand border. Products are presented within the categories of tariff bands. A general pattern of greater trade in lower tariff overhang bands exists. For example, about 40% of Sri Lanka's exports to Thailand face low policy uncertainty of tariff overhang within [0,5). The mean overhang in the band is 0.2%. However, the "not known" category includes products that do not have a committed bound rate. The major share of Sri Lanka's exports to Thailand-USD 30.7 Mn or 42.2% are within this "not known" tariff overhang band. Thus, the correlation between policy uncertainty and trade is weak. However, most trade in the tariff not available (NA) band occurs in two product lines, petroleum oils (USD 16.1 Mn) and wheat or meslin flour (USD 5.3 Mn). These product lines also have not been recorded as AHS lines in the WITS database (Table A.5 in Appendix A).

Table 15: Tariff overhang by the band: Sri Lanka's exports to Thailand

Tariff overhang band	Exports (USD Mn)	Mean overhang	Products (HS code – description (Bound overhang))
[-10,-5)	0.1	-7.1	030617 -- Other shrimps and prawns (-7.5) ; 850440 -- Static converters (-6.67)
[-5,0)	0.8	-2.3	850450 – Other inductors (-2.34)
[0,5)	28.9	0.2	710391 – Rubies, sapphires and emeralds (4.4); 854470 – Optical fibre cables (0)
[5,10)	9.5	6.3	710399 -- Other precious stones (5); 030636 – Other shrimps and prawns (7.5); 710310 – Precious stones unworked or simply sawn (5)
[10,15)	0.8	10.6	030743 – Squids frozen (12.5); 847790 – Parts of machinery (10); 030752 – Octopus frozen (12.5)
[15,20)	0.3	15.6	190190 – Other food preparations (15); 621139 – Men's garments of other textile materials (15); 621133 – Men's garments of man-made fibres (15)
[20,25)	0.5	20.3	560819 – Twine, cordage, or rope (20); 842390 – Weighing machine weights of all kinds (20); 960310 – Brooms and brushes (20)
[25,30)	0.5	25.4	540269 -- Yarn (25); 600490 – Knitted or crocheted fabrics (25); 560790 Twine, cordage, rope and cable, whether or not plaited (25)
[30,35)	0.6	30.0	120930 – Seeds of herbaceous plants cultivated (30); 903180 – Other instruments: Measuring or checking instruments (30); 631090 – Used or new rags, scrap twine etc.(30)
Not known	30.7	Not known	271000 – Petroleum oils (NA); 110100 – Wheat or meslin flour (NA); 711719 – Imitation jewellery, nes (NA)

Notes: Three major exports at HS-six digits for each tariff overhang band are reported.

Source: Authors' calculation.

Table 16 records the tariff overhang bands of Sri Lanka and the top three products exported by Thailand in each band. Also, the number of trade products is summarised for each band. A similar pattern, as seen in Thailand's tariff overhangs- exists in Sri Lanka's tariff overhangs. More products and trade value occur in lower tariffs overhang bands, yet most trade occurs in the NA band. The analysis of the NA band is presented in Table A.6 of appendix A. Close to 81% of Thailand's exports in the NA band are manufacturing exports (cement clinkers and motor vehicles for goods transport). Cement clinkers are at zero tariffs with USD 36.7 Mn exports to Sri Lanka. Among agricultural products in NA bands, the key exports are smoked rubber sheets and natural rubber latex. Both products are under 15% of AHS tariffs.

The existing pattern of tariff overhang implies that the trade effect of eliminating trade policy uncertainty through increasing binding coverage and reducing binding overhang can't be directly predictable. However, it should be noted that trade takes place more in lower tariff

overhang bands and within the NA band in low tariff product lines. Thus, reducing bindings overhang by lowering the bound rate might induce more trade. In the subsequent sections, partial equilibrium analysis estimates the trade gain by eliminating existing tariffs. However, partial equilibrium analysis cannot estimate the trade gains by eliminating trade policy uncertainty, i.e., increasing binding coverage and lowering bound tariffs. One must rely on the existing empirical evidence in terms of policy measures required and FTA outcomes. There is overwhelming evidence that eliminating tariff overhang increases trade for both intensive and extensive margins (Box 4). As the existing Sri Lanka-Thailand bilateral trade takes place in an uncertain overhang band, substantial scope exists to eliminate trade policy uncertainty via an FTA between Sri Lanka and Thailand.

Thus, reducing bindings overhang by lowering the bound rate might induce more trade. In the subsequent sections, partial equilibrium analysis estimates the trade gain by eliminating existing tariffs.

Table 16: Tariff overhang by the band Thailand's exports to Sri Lanka

Tariff overhang band	Exports (USD Mn)	Mean overhang	Products (HS code – description (Bound overhang))	Number of product lines in each band
(-10,0]	2.0	-0.9	570241 -- -- Carpets of wool or fine animal hair (0), 560749 -- -Twine others (0), 540720 -- - Woven fabrics obtained from strip (0)	28
(0,10]	103.0	8.0	550410 -- - Staple fibres of viscose rayon (5), 600690 -- Knitted crocheted fabrics, nes (10), 842952 -- -- Machinery (10)	231
(10,20]	18.1	18.5	611120 -- -Babies garments of cotton (17.5), 210500 -- Ice cream and other edible ice (20), 480100 -- Newsprint, in rolls or sheets (17.5)	282
(20,30]	1.1	27.7	441700 -- Tools, tool bodies, tool handles, broom (27.5), 870899 -- Motor vehicle parts nes (21), 80899 -- Rodenticides and other biocides (30)	19
(30,40]	21.0	35.6	190190 -- Food preparations (35.5), 210690 -- Food preparations, nes (36), 190110 -- Preparations suitable for infants (32.5)	47

(40,50]	68.8	49.3	030559 -- Fish, dried others (50), 030554 -- Herrings (50), 100510 -- Corn seed (50)	37
(50,60]	0.7	58.1	350510 -- - Dextrins and other modified starches (52.5), 821520 -- Other sets of assorted kitchenware or tableware (60), 821510 -- Sets of assorted kitchenware or tableware (coated with precious metal) (60)	4
(70,80]	0.0	80.0	940510 -- Chandeliers and other electric ceiling (80)	1
Other ^a	35.6	50	170199 -- Cane or beet sugar (28.4,50);170114 -- Other cane sugar (4.0,50);170113 -- Cane sugar in solid form (3,50)	3
NA	266.2		NA	1170

Note: a. In this band, products have bound rates but applied tariff rates are not reported.
In this Table, three major exports at HS-six digits for each tariff overhang band are reported.

Source: Authors' calculations using Trademap and WITS data.

Box 4: Gains from FTAs through the elimination of trade policy uncertainty

Trade agreements-multilateral, regional, and bilateral eliminate trade uncertainty to a certain extent through binding tariff commitments. Bound tariff- the maximum Most Favoured Nation (MFN) tariff for a given product line- is a specific commitment made by individual countries in a trade arrangement such as the WTO. The applied tariff rates are often lower than the bound tariff rates.

Tariff overhang/Tariff water, WTO and FTAs

The gap between the bound and applied tariffs-MFN rate or the rates specified by a regional or bilateral trade agreement- is called the binding overhang or tariff water. For a product *i* at HS-six digits level:

$$\text{Tariff overhang/Tariff water} = \text{Bound rate} - \text{Applied tariff rate}$$

Osnago et al. (2015) and Groppo & Piermartini (2014) reported that 27% of world trade was either unbound or bound with a binding overhang greater than five percentage points. The global average level of the binding overhang was about 18, ranging from four percentage points in high-income countries to approximately 24% in low-and middle-income countries (LMICs). If a trade agreement like the WTO brings products under binding commitments, it is the first step towards reducing trade policy uncertainty. Still, the individual countries have a policy space to increase applied tariffs-non-discriminatorily within the WTO framework-up to the binding rates. An FTA between two countries can bind tariffs to a pre-agreed lower-narrowing the gap-, reducing the policy space for discretionary tariff hikes.

Trade effect of reducing trade policy uncertainty

Theoretically, the risk of tariff reversal acts as a fixed cost to enter to export market. Consequently, the risk of tariff reversal has a negative effect on the extensive margin of trade. Accordingly, under trade agreements, tariff commitments should be sufficient to remove the fixed cost and increase the number of products traded by countries. Reducing trade policy uncertainty alone is the likely motive to enter an FTA, as even when the applied tariff rates are not lowered, welfare gains from reducing uncertainty exist (Limão & Maggi, 2015; Maggi, 2014; Osnago et al., 2015). Empirical evidence shows that trade agreements reduce trade policy uncertainty and significantly decrease export volatility (Groppo & Piermartini, 2014; Mansfield & Reinhardt, 2008).

The empirical investigations estimate the trade effect of lowering the binding overhang on the number of exported products and the volume. In the Australian context, Handley (2014) estimated that entry into export is higher in sectors with low tariff overhang. Reducing tariffs to the free trade level would increase the number of traded products by 4.0%. However, if Australia reduced tariffs to zero and bound the zero-tariff level through WTO commitments, the number of traded products would increase by 11.0%. Removing the motives for caution and delay by binding tariffs causes an incremental impact. Empirical research finds similar effects when countries join WTO or EU (Handley & Limao, 2015; Handley & Limão, 2017). As the theory dictates, the effect of lowering tariff overhang on trade volume is also positive. A 1% decrease in tariff overhang is triggering an increase in export volume by 1%. On average, trade policy uncertainty is equivalent to tariff levels between 1.7 to 8.7 percentage points (Osnago et al., 2015).

4.3 Export gains, revenue effect, and welfare effect of an FTA between Sri Lanka and Thailand

4.3.1 Trade effect from the elimination of tariffs

In partial equilibrium analysis, the most critical step is the counterfactual analysis. Choosing an appropriate base year increases the accuracy of the estimates. A year representing the general bilateral trade flows is more accurate, as it is not affected by unforeseen economic, policy, and other shocks, for example, pandemics. The most recent year available in SMART is 2021. A deep look into the base year import data shows that, although the base year is 2021, import data subject to simulation is from 2020. The reason is that WITS reported tariff data and trade data using different years. Similarly, when 2019 is chosen as the base year, import values subject to simulations are for 2017.

Table 17 summarises the results of partial equilibrium estimates for Sri Lanka's exports to Thailand in two base years, 2021 and 2019. As explained earlier, the trade base years are 2020 and 2017, respectively. Sri Lanka imposed many import controls, which include temporarily suspending imports; possibly, the trading year 2020 is not representative of Sri Lanka's normal import volume from Thailand. As expected, the number of HS codes traded in 2020 was significantly lower than the number of HS codes traded in 2017. The percentage of product lines subject to simulations increases when the base trade year is taken as 2017. As the number of simulated products and value is higher in 2017, the results for 2017 will be discussed in detail.

Table 17: Comparison of the coverage of partial equilibrium simulations for 2017 and 2020

Total imports by Sri Lanka from Thailand				
Year	Number of HS codes traded		Total imports	
2017	1825		518.3	
2020	1546		426.6	
Simulated imports				
Year	Number of HS codes simulated		Simulated imports by value	
	Number	Percentage	Value	Percentage
2017	1793	98.2	473.2	91.3
2020	1437	92.9	358.6	84.1
Imports with no simulation results				
Year	Number of HS codes with no simulation		Value of imports with no simulaiton	
	Number	Percentage	Value	Percentage
2017	32	1.8	45.1	8.7
2020	109	7.1	68	15.9

Source: Authors' estimates.

As discussed in the methods and data section, some HS codes do not yield simulated results due to a lack of elasticity or tariff data. For 2017, 32 out of 1825 HS codes were not simulated as shown in Table 17. Eleven out of 32 HS codes did not have tariff data. The WITS dataset has no AHS or MFN tariff data for Sri Lanka for these HS codes. Thus, even conducting a back-of-the-envelope calculation is infeasible for these HS codes as it is hard to determine whether there is a positive tariff. Among the 22 HS codes with tariff data-either bilateral or for the world- nine HS codes have zero tariffs. Zero tariffs imply that those HS codes will have no trade gain from an FTA. The remaining 13 HS codes were simulated using the average increase of imports in respective GTAP groups. The average increase was calculated for the products with positive import gain in each GTAP group. Finally, the number of simulated HS codes increased to 1815. The import value of simulated HS codes is USD 509.2 Mn. Likewise, 98.2% or USD 509.2 Mn out of USD 518.3 Mn were simulated.

Table 18 depicts simulation results for GTAP sectors with more than USD 100,000 in trade gains. The third column of Table 18 provides the baseline imports by Sri Lanka from Thailand. The fourth column reports the counterfactual imports value after eliminating existing tariffs. Percentage change is the increase of imports after tariff elimination as a percentage of existing baseline imports. Finally, the last column provides the top products that report the highest import gain from an FTA for each GTAP sector.

Table 18: Gains of trade after Sri Lanka eliminates tariffs on Thailand exports to Sri Lanka

Sector	GTAP code	Trade before	Trade after	Change	Percentage	Top three products (export gain is within parentheses)
Rubber and plastic products	rpp	49.229	84.645	35.415	71.9	400121-- Smoked sheets of natural rubber (16.075); 400110-- Natural rubber latex (5.797); 400122-- Technically specified natural rubber (2.335)
Motor vehicles and parts	mvh	27.905	55.673	27.768	99.5	870421--Motor vehicles for goods transport (20.625); 870322-- Passenger transport vehicles (1.987); 870332--Passenger transport vehicles-diesel (1.819)
Electrical equipment	eeq	13.641	25.424	11.783	86.4	850710--Lead-acid electric accumulators (5.21); 841821- - Refrigerators (2.70);850422--Liquid Dielectric Transformers (0.63)
Food products nec	ofd	77.622	87.308	9.686	12.5	190190--Malt extracts and food preparations of flour (5.211); 210690- - Food preparations: beverages and syrups (1.262); 230910-- Dog or cat food (0.491)
Machinery and equipment nec	ome	36.446	46.021	9.575	26.3	841510-- Air-conditioning machines (4.352); 841590-- Parts of air conditioning machines (2.732); 841581-- Air conditioners nes with reverse cycle (0.750) refrigeration(0.750)
Paper products, publishing	ppp	16.309	24.357	8.048	49.3	480256--Uncoated, paper, paperboard (2.452); 481920-- Folding cartons, boxes (1.758); 482110-- Printed paper labels (0.657)

Chemical products	chm	51.229	58.374	7.145	13.9	330499-- Beauty, make-up preparations (1.183); 330510-- Hair shampoos (0.727); 350691-- Adhesives based on polymers(0.650)
Non-metallic mineral products	nmm	42.747	49.999	7.252	17.0	680911--Paper or paperboard (3.33);681182-- Sheets of cellulose fibre cements (1.409); 691090-- Ceramic bathroom sanitary items (0.922)
Metal products	fmp	13.593	20.386	6.792	50.0	830890-- Clasps, and buckles (1.71); 731029--Tanks and cans (0.92); 731021-- Cans (0.57)
Manufactures nec	omf	12.269	17.318	5.050	41.2	960610--Press-fasteners (2.890) ; 960899-- Duplicating stylos, pen pencil holders, pen parts(0.743) ; 940320--Furniture, metal, nes (0.571)
Petroleum, coal products	pc	49.229	84.645	35.415	71.9	271019--Medium oils and preparations (3.802); 271012-- Light oils and preparations (0.06); 271099-- Waste oils (0.02)
Textiles	tex	71.869	73.672	1.803	2.5	580410-- Tullies and other net fabrics, plain (0.572); 560749--Twine cordage, rope and cable (0.346); 570320--Carpets and other textile floor covering (0.346)
Vegetables, fruits, nuts	vf	7.226	8.824	1.598	22.1	071331-- Beans: Vigna Mungo (1.230); 070310-- Onions and shallots (0.203) ; 080719-- Melons (except watermelons) (0.088)

Ferrous metals	is	3.983	5.064	1.082	27.2	730110--Sheet piling of iron or steel (0.718); 721631--Iron or non-alloy steel (0.116); 730799-- Tube, pipe fitting: iron or steel (0.084)
Wood products	lum	2.854	3.553	.699	24.5	441700-- Tools, broom handles,bodies, etc (0.359); 441820-- Doors and their frames (0.292); 441850 -- Shingles and shakes, of wood (0.024)
Computer, electronic and optical products	ele	6.560	7.121	.560	8.5	852872-- Reception apparatus for television (0.37); 851840-- Audio-frequency Electric Amplifiers (0.06); 910700--Time switches (watches) (0.04)
Leather products	lea	.316	.824	.509	161.2	420229-- cases and containers (0.238); 640620--Outer soles and heels, of rubber or plastics (0.070); 410799-- Leather (0.061)
Dairy products	mil	1.570	2.040	.470	29.9	210500--Ice cream and other edible ice (0.448); 40299-- Concentrated milk cream (0.022)
Metals nec	nfm	4.120	4.309	.188	4.6	741999-- Articles of copper (0.096); 761090- - Aluminium structures (0.027);761290-- Aluminium containers (0.016)
Meat products nec	omt	.230	.410	.180	78.2	160232-- Meat or offals of chicken (0.158); 160300- - Extracts and juices of meat (0.022)

Other Extraction	oxt	7.565	7.714	.149	2.0	250100-- Salt (0.111); 251749-- Granules of building stones (0.038)
Basic pharmaceutical products	bph	5.190	5.323	.133	2.6	300510-- Adhesive dressings (0.133)
Manufacturing of wearing apparel	wap	8.122	8.222	.100	1.2	392620--Apparel and clothing accessories (0.030); 420330 --Belts and bandoliers (0.029); 650400--Hats and other headgear plaited (0.020)
Total		509.2	651.0	141.8	27.8	

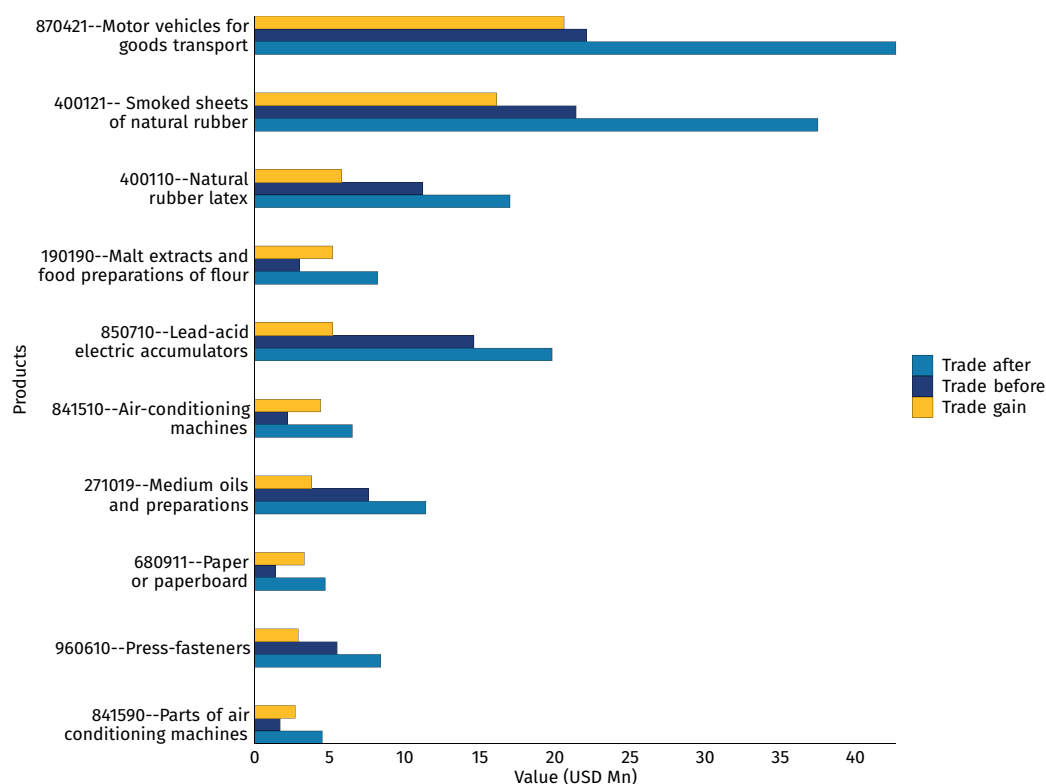
Note: Sectors with $\geq 100,000$ USD gain are reported.

Source: Authors' estimates

Assuming a scenario of total elimination of existing Sri Lanka tariffs on imports from Thailand, the current imports will grow by 27.8%. The base year imports worth USD 509.2 Mn will rise to USD 651.0 Mn in the counterfactual scenario by USD 141.8 Mn.

Assuming a scenario of total elimination of existing Sri Lanka tariffs on imports from Thailand, the current imports will grow by 27.8%. The base year imports worth USD 509.2 Mn will rise to USD 651.0 Mn in the counterfactual scenario by USD 141.8 Mn. The average increase masks significant variations of the sectoral trade effects. If there is a complete tariff elimination, Thailand's rubber and plastic products- the rpp GTAP sector- will grow by 71.9% or USD 35.4 Mn. Accordingly, the rubber and plastic sector will gain the most in the complete removal of tariffs by Sri Lanka. Smoked sheets of rubber, natural latex, and technically specified natural rubber are the products that gain the most from tariff elimination (Figure 13). Motor vehicles and parts, electrical equipment, and food products sectors also gain over USD 10 Mn from complete tariff elimination. Motor vehicles for goods transport will realise a substantial USD 20.9 Mn gain from tariff elimination. Rubber products, malt extracts, electric accumulators, air conditioning machines and parts, paper or paper boards, and medium oils are among the top 10 products.

Figure 13: Top 10 products with the highest imports gain in the scenario of Sri Lanka cutting tariffs on imports from Thailand



Source: Authors' illustration using SMART partial equilibrium simulations.

When Thailand is taken as the importer, simulations take 2021 as the base year. However, it should be noted that 2021 is the base year for tariffs. SMART uses Sri Lanka's exports to Thailand in 2020 as the base level in export simulations. Arguably, 2020 was affected by the COVID-19 pandemic, and it does not represent a typical trade year. However, when trade data were examined, Sri Lanka's exports to Thailand in 2020 were not exceptionally low. Moreover, the next available base year in the SMART software is 2015. Thus, simulations take 2020 as the base year for export data.

Tables 19 and 20 show details about the number of simulated HS codes by number and export value. Seventy-two out of 584 or 12.3% of HS codes do not yield simulation results. By value, the proportion of exports without a simulation result is about 34.4%. Notably, USD 16.1 Mn out of USD 25 Mn exports that do not yield simulation results come from one HS code, HS 271012, a petroleum product. Sri Lanka has exported this product in substantial quantity only in one year in the recent past. It was assumed that an FTA would not impact the exports of HS 271012. Thirty-five HS codes have zero existing tariffs implying that tariff cuts will not result in any gain. Here, USD 8 Mn exports for 36 HS codes with positive tariffs were subject to estimations using the average gains for relevant GTAP sectors using simulated results. In the aftermath of these corrections, the simulated trade stands at USD 72.7 Mn or 100% of the exports by Sri Lanka to Thailand.

Table 19: Composition of simulated imports by Thailand from Sri Lanka

Composition of simulation	Number of HS codes	Value (USD Mn)
Simulated imports from Sri Lanka	512	47.7
Percentage of simulated trade	87.7	65.6
Estimated simulations	72	25
Thailand's imports from Sri Lanka (2020)	584	72.7

Source: Authors' calculations.

Table 20: Composition of imports without no simulation results from SMART

Composition of imports with no simulation results	Number of HS codes	Value (USD Mn)
Imports with zero existing tariff	35	1.0
Petroleum imports (271012)	1	16.1
Estimated simulations	36	8.0
Total	72	25.0

Source: Authors' calculations.

Tariffs analysis showed that Sri Lanka's apparel and tea exports to Thailand are under high tariff rates. About 120 wearing apparel products at HS-six digits face a 30% tariff at the Thailand border. The average AHS for the wearing apparel sector is 28.9%. The tariffs for beverage crops like tea are even higher, at 90%. A tariff elimination should result in a significant export gain as Sri Lanka has a comparative advantage in these sectors. As expected, the partial equilibrium simulations summarised in Table 21 yield a 252% increase in Sri Lanka's manufacturing of wearing apparel exports to Thailand under zero tariff. The base year exports of the wearing apparel sector will increase by USD 16.1 Mn from USD 6.4 Mn to USD 22.5 Mn. The average percentage gain for the wearing apparel sector does not convey the significant impact of tariff cuts on Sri Lanka's exports to Thailand. At the individual product level, partial equilibrium estimates reveal larger percentage gains for products like women's or girls' swimwear (2067.2%), footwear like socks and stockings (2044.4%), and women's, girls' briefs or panties (477.2% gain). Out of 142 product lines analysed, 28 products will gain more than USD 100,000 from tariff elimination, while ten will gain USD 500,000 or more (Table 22).

Tea products within the "ofd" and "ocr" GTAP groups also realise a significant percentage change in exports. Fermented black tea (HS 090240) and fermented black tea in packages (HS 090230) gain by 480.5% and 213.5%, respectively. The absolute increase of fermented black tea (HS 090240) is USD 3.44 Mn. Another two sectors that will see nearly USD 1 Mn gains are electrical equipment and rubber and plastic products. Within the sector of electrical equipment, electrical transformers, electric inductors, and electric machines and apparatus will benefit the most from tariff cuts. Increased electric equipment to Thailand is an encouraging sign as diversifying into electric equipment is a way forward for Sri Lanka to increase the complexity of the export basket. The lowered tariffs might incentivise FDI into the vital electrical equipment sector. It is noteworthy that the partial equilibrium exercise captures the growth of exports in product lines with existing trade. Low tariffs and reduced trade policy uncertainty may increase the number of product lines produced. Solid tyres, articles of vulcanised rubber, and gloves are the major products in the rubber sector that gain in exports after a tariff cut.

Table 21: Gains of trade after Thailand eliminates tariffs on Sri Lanka exports to Thailand

Sector	GTAP code	Trade before (USD Mn)	Trade after (USD Mn)	Change	Percentage change	Top 3 products
Manufacturing of wearing apparel	wap	6.400	22.500	16.100	251.6	621210--Brassieres (1.9);610821--Women's, girls' briefs or panties (1.6);611241--Women's or girls' swimwear (1.3)
Food products nec	ofd	7.445	11.219	3.774	50.7	90230 --Fermented black tea in packages (0.27); 90210 - Unfermented green tea (0.25);190190-- Malt extract (0.07)
Crops nec	ocr	1.200	4.785	3.585	298.8	90240-- Fermented black tea (3.44); 121190-- Plants, parts,seeds & fruits (0.14)
Electrical equipment	eeq	5.478	6.489	1.011	18.5	850431-- Electrical transformers (0.58); 850450-- Electric inductors (0.17); 854370-- Electrical machines and apparatus (0.14)
Rubber and plastic products	rpp	1.568	2.515	0.947	60.4	401290-- Solid or cushion tyres (0.3); 401699-- Articles of vulcanised rubber (0.29); 401519-- Gloves (0.24)
Textiles	tex	1.960	2.558	0.598	30.5	560819 - Knotted netting of twine, cordage or rope and made-up nets (0.12); 540269 - Synthetic filament yarn (0.12); 630790 - Made up articles, of textile materials (0.072)
Mineral products nes	nmm	0.122	0.506	0.384	315.4	691110-- Ceramic tableware and kitchenware (0.35); 691190-- Ceramic Household and toilet articles (0.014)
Wood products ²²	lum	0.183	0.534	0.351	192.0	441990-- Tableware and kitchenware, of wood (0.38)

22 Simulations for GTAP sector "lum" did not yield a result for year 2020. Hence, the next available year in SMART, 2015 was used as base year and percentage change was taken to estimate trade gain for 2020.

Chemical products	chm	0.956	1.204	0.247	25.9	380210--Activated carbon (0.132); 381121--Oils or oils obtained from bituminous minerals (0.048); 330129--Essential oils (0.045)
Manufactures nec	omf	24.153	24.308	0.154	0.6	960310-- Brooms and brushes (0.05); 950629 - Waterskis, and surfboards (0.04); 960390-- Hand-operated mechanical floor sweepers (0.012)
Metal products	fmp	0.157	0.282	0.124	79.0	830810-- Hooks, eyes and eyelets (0.054); 830890-- Clasps (0.032); 831120-- Cored wire of base metal (0.013)
Fishing	fsh	2.118	2.241	0.122	5.8	Negligeable gains (fish and crustaceans)
Total		72.7	100.3	27.6	38.0	

Note: Sectors with $\geq 100,000$ USD gain are reported.

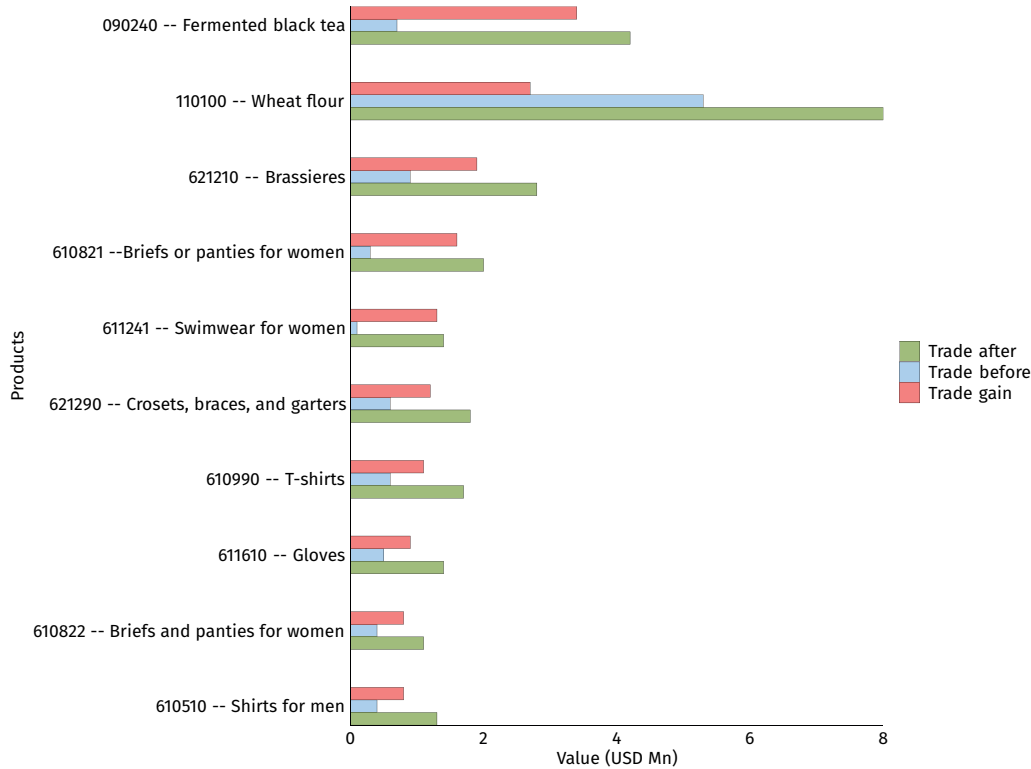
Source: Authors' estimates.

Table 22: Top 10 products with the largest export gains for Sri Lanka in the wearing apparel sector

HS code	Label	Trade before ('000 USD)	Trade after ('000 USD)	Gain ('000 USD)	Percentage gain
621210	Brassieres	888.6	2,755.1	1,866.4	210.0
610821	Women's briefs and panties	344.7	1,989.5	1,644.8	477.2
611241	Women's swimwear	63.8	1,382.9	1,319.1	2,067.3
621290	Braces, suspenders, and garters	592.3	1,781.0	1,188.7	200.7
610990	T-shirts	551.4	1,685.9	1,134.5	205.8
611610	Gloves	460.7	1,398.3	937.6	203.5
610510	Men's shirts	426.9	1,251.1	824.2	193.0
610822	Women's briefs and panties	395.3	1,146.5	751.2	190.0
620462	Women's trousers	125.4	712.9	587.6	468.7
620342	Men's trousers	158.0	656.2	498.3	315.4

Source: Authors' estimates.

Figure 14: Top 10 products with the highest imports gain in the scenario of Thailand cutting tariffs on imports from Sri Lanka



Source: Authors' illustration using SMART partial equilibrium simulations.

Overall, complete tariff elimination will increase Sri Lanka's exports to Thailand by 38 %, increasing the base year exports from USD 72.7 Mn to USD 100.3 Mn. The gains are substantial in the wearing apparel and beverage crop industry. An increase in exports in high-tech manufacturing is also an incentive for Sri Lanka to pursue an FTA with Thailand. For Thailand, the relative gain is about 27.8%, lower than Sri Lanka's gains. However, the absolute gain is large, close to USD 142 Mn, as baseline exports are nearly USD 0.5 billion (Figure 15). An important implication of the unequal gain stemming from the large difference in baseline exports is the increased trade deficit of Sri Lanka against Thailand.

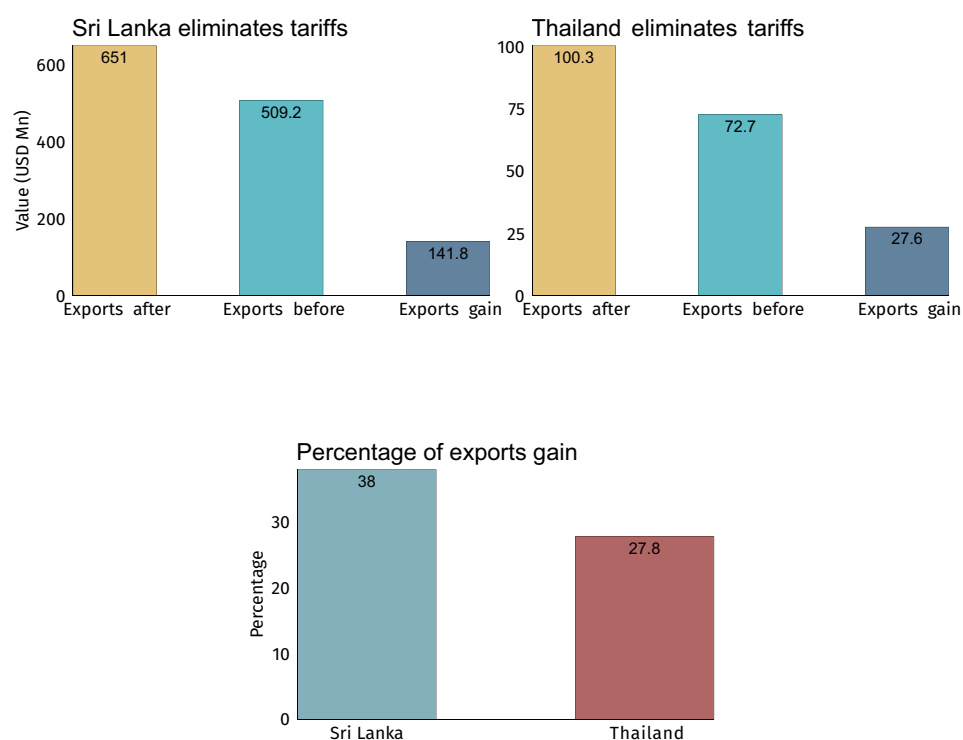
A back-of-the-envelope calculation was done using the percentage increases obtained from partial equilibrium analysis to roughly estimate the impact on the trade deficit. Such exercise is required as different base years were considered for the analysis. First, the three-year averages in the pre-COVID period-2017, 2018 and 2019- were taken for the calculation.²³ The pre-FTA trade deficit is USD 353.9 Mn. Second, the post-FTA export values for Sri Lanka and Thailand are calculated using the average export increases, 38%, and 27.8%, respectively,

Overall, complete tariff elimination will increase Sri Lanka's exports to Thailand by 38 %, increasing the base year exports from USD 72.7 Mn to USD 100.3 Mn. The gains are substantial in the wearing apparel and beverage crop industry.

²³ Sri Lanka does not report data for 2018 in Trade Map. Thus, the average of 2016, 2017, and 2019 was taken into account.

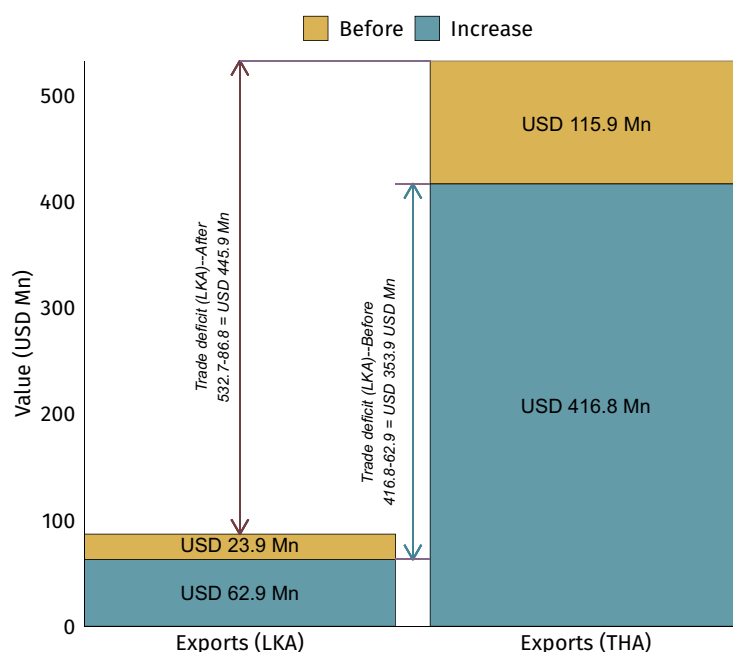
estimated from partial equilibrium analysis. The post-FTA deficit is USD 445.9 Mn, a 26% increase. The favourable trade balance for Thailand in the pre-FTA scenario, a result of close to 7:1 Thailand-Sri Lanka exports ratio bilaterally, results in a further increase in the post-FTA trade deficit. The trade deficit widens, although Sri Lanka gains more from an FTA when a percentage increase is concerned (Figure 16).

Figure 15: Effect of an FTA on Sri Lanka- Thailand bilateral trade



Source: Authors' illustration using partial equilibrium estimates

Figure 16: Comparison of Sri Lanka's trade deficit with Thailand in pre-FTA and post - FTA scenarios



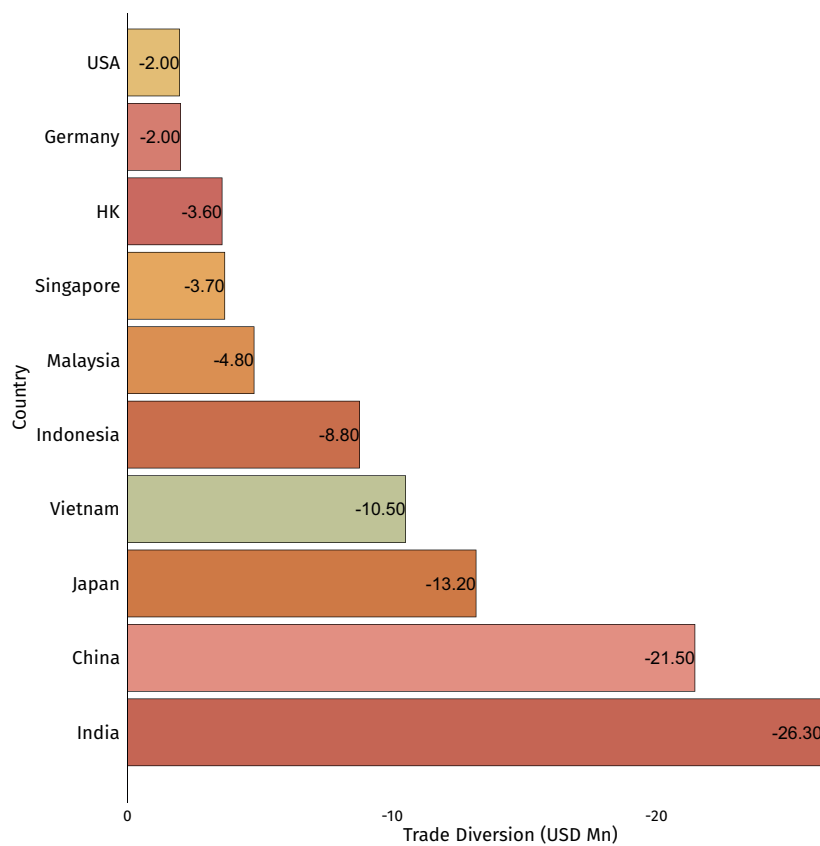
Source: Authors' estimates using partial equilibrium estimates.

4.3.2 Revenue, trade diversion, and trade creation effects of a Sri Lanka-Thailand FTA

Given the assumption that both countries completely remove tariffs immediately, the tariff impact of a Sri Lanka-Thailand FTA is straightforward. In the base year, Sri Lanka earned USD 28.2 Mn from taxing Thailand's exports to Sri Lanka. Thus, in a complete tariff elimination scenario, Sri Lanka's tariff loss is USD 28.2 Mn. The SMART estimates show that tariff revenue loss is highest in rubber and plastic products, motor vehicles and parts, and food products. Thailand earned USD 3.4 Mn in the base year from taxing Sri Lanka's exports to Thailand, implying the tariff loss will be USD 3.4 Mn. Other food products, wearing apparel, and other crops –“ofd”, “wap”, and “ocr” GTAP sectors, respectively, mainly contribute to the revenue loss.

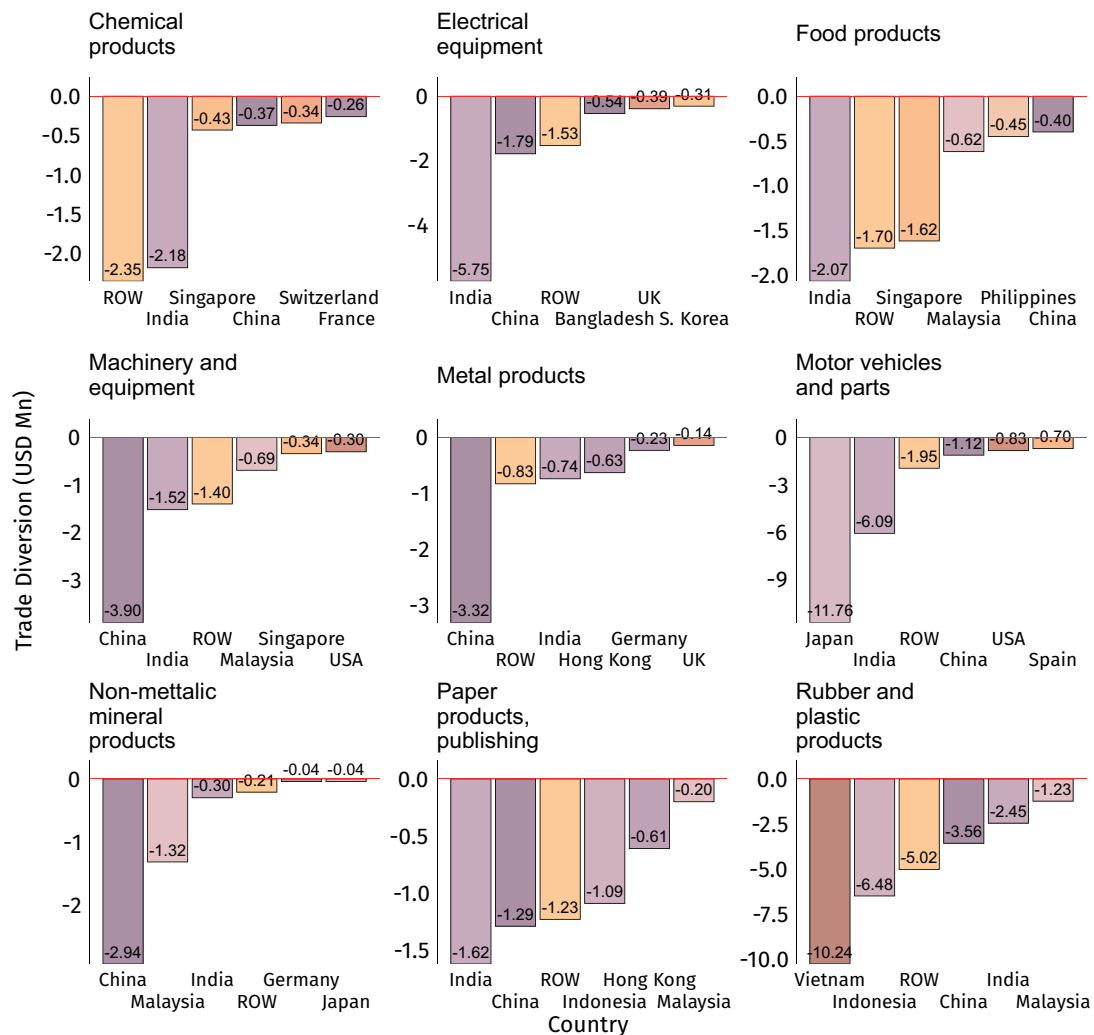
The SMART partial equilibrium model disaggregates total trade effect into trade creation and diversion effects. The results reveal that Sri Lanka-Thailand FTA has a large trade diversion effect, which will create a considerable efficiency loss. If Sri Lanka eliminates all the tariffs on Thailand's exports to Sri Lanka, Thailand will gain an additional USD 141.8 Mn in exports to Sri Lanka. Here, 20% of the export gain or equivalent to USD 28.3 Mn is due to trade creation, while 80% or USD 113.5 Mn, is from trade diversion. The preferential market access to Sri Lanka for Thailand discriminates against efficient producers exporting to Sri Lanka. These exporters will lose market share to Thailand in a Sri Lanka-Thailand FTA. The top 10 countries to lose includes Sri Lanka's major import sources like India and China. India will lose USD 26.30 Mn to Thailand in the wake of a Sri Lanka-Thailand FTA. In addition, China, Japan, Vietnam, and Indonesia will realise substantial market share losses (Figure 17). Figure 18 shows the distribution of sector-wise trade diversion across countries.

Figure 17: Top 10 countries affected by trade diversion to Thailand if Sri Lanka eliminates existing tariffs for Thailand in a Sri Lanka-Thailand FTA



Source: Authors' illustration

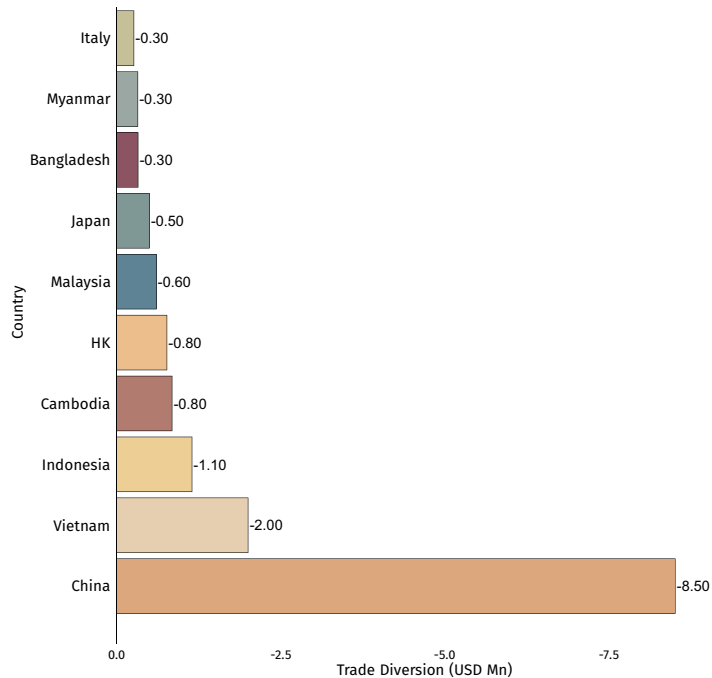
Figure 18: Sectoral composition of trade diversion across countries if Sri Lanka eliminates existing tariffs for Thailand in a Sri Lanka-Thailand FTA



Source: Authors' illustration.

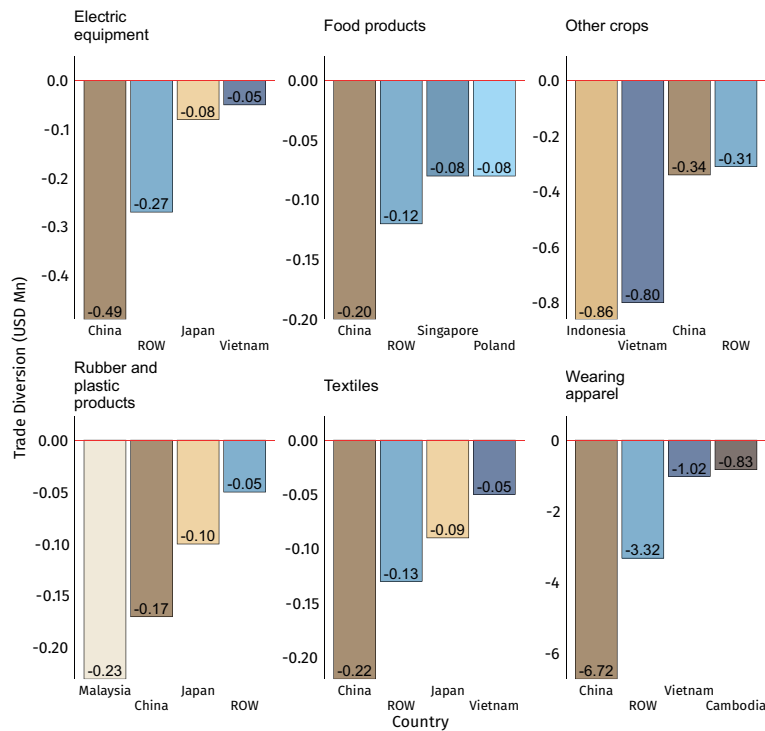
Likewise, due to preferential market access into Thailand under zero tariffs, Sri Lanka's export gain mainly comes from trade diversion. The trade diversion effect results in 73.9% or USD 20.41 Mn out of the USD 27.6 Mn export gain of Sri Lanka. Trade creation contributes only 26.1% of the export gain. China, Vietnam, Indonesia, Cambodia, Malaysia, and Japan will witness trade diversions of over USD 0.5 Mn each in a scenario that a Sri Lanka-Thailand FTA completely removes Thailand's border tariffs on Sri Lanka (Figure 19). Then, China will be affected the most as Sri Lanka can acquire a portion of China's wearing apparel exports. In the wearing apparel exports, where Sri Lanka gains the most from an FTA, China, Cambodia, and Vietnam will lose their market shares to Sri Lanka.

Figure 19: Top 10 countries affected by trade diversion to Sri Lanka if Thailand eliminates existing tariffs on Sri Lanka in a Sri Lanka-Thailand FTA



Source: Authors' illustration based on partial equilibrium estimates.

Figure 20: Sectoral composition of trade diversion across countries if Thailand eliminates existing tariffs on Sri Lanka in a Sri Lanka-Thailand FTA



Source: Authors' illustration based on partial equilibrium estimates.

4.4 Offensive lists

A summary of Sri Lanka's offensive list is presented in Table 23. At the HS-six-digit level, 154 products are of Sri Lanka's offensive interests. These products have a comparative advantage, the required production capacity for expansion, and face a tariff at the border of Thailand. Notably, 80.72% or USD 22.28 Mn of USD 27.6 Mn export gain from Thailand's tariff elimination comes from these 154 product lines in the offensive list of Sri Lanka. Thus, in trade negotiations, it is imperative for Sri Lanka to bargain for concessions for these products.

Most products in the offensive list belong to manufacturing wearing apparel. As discussed in this paper, Thailand has a nearly 30% border tariff on wearing apparel products. Provided that Sri Lanka has a comparative advantage in the sector, obtaining preferential access will significantly increase wearing apparel exports to Thailand. As the partial equilibrium analysis discussed above estimates, the sector gains USD 16.1 Mn or a 250% export growth. When the offensive list is sorted in ascending order by the export gains estimated by partial equilibrium analysis, 9 of the top 10 products are from the wearing apparel sector (Table 24).

Table 23: Summary of Sri Lanka's offensive list by GTAP group

Sector	GTAP code	Exports before (USD Mn)	Exports after (USD Mn)	Change (Mn)	Mean
Manufacturing of wearing apparel	wap	6.029	21.419	15.390	89
Rubber and plastic products	rpp	1.294	2.203	0.909	11
Textiles	tex	0.604	0.973	0.369	11
Food products	ofd	0.424	1.140	0.716	10
Paper products, publishing	ppp	0.066	0.110	0.044	5
Chemical products	chm	0.672	0.851	0.179	4
Manufactures (other)	omf	0.061	0.112	0.050	4
Crops (other)	ocr	0.816	4.398	3.582	3
Electrical equipment	eeq	0.630	1.209	0.579	3
Metal products	fmp	0.109	0.195	0.086	3
Mineral products	nmm	0.102	0.452	0.349	3
Forestry	frs	0.023	0.027	0.004	1
Leather products	lea	0.008	0.025	0.017	1
Vegetables, fruits, nuts	v_f	0.004	0.011	0.007	1
Beverages and tobacco products	bt	0.000	0.000	0.000	1
Transport equipment	otn	0.000	0.001	0.000	1
Fishing	fsh	0.000	0.000	0.000	1
Metals (other)	nfm	0.000	0.000	0.000	1
Vegetable oils and fats	vol	0.000	0.000	0.000	1
Total		10.842	33.125	22.283	154

Source: Authors' calculations and compilations.

Table 24: Top 10 products in Sri Lanka's offensive list, ordered by possible exports gains by an FTA

HS code	Product name	Existing tariff	GTAP code	Exports before (USD Mn)	Exports after (USD Mn)	Change (USD Mn)
090240	Black fermented tea in immediate packing	90	ocr	0.72	4.16	3.44
621210	Brassieres of all types of textile materials	30	wap	0.89	2.76	1.87
610821	Women's or girls' briefs and panties of cotton	30	wap	0.34	1.99	1.64
611241	Women's or girls' swimwear of synthetic fibres	30	wap	0.06	1.38	1.32
621290	Corsets, braces, garters, suspenders and similar articles	30	wap	0.59	1.78	1.19
610990	T-shirts, singlets and other vests of textile materials	30	wap	0.55	1.69	1.13
611610	Gloves, mittens and mitts, impregnated, coated	30	wap	0.46	1.40	0.94
610510	Men's or boys' shirts of cotton, knitted or crocheted	30	wap	0.43	1.25	0.82
610822	Women's or girls' briefs and panties of man-made	30	wap	0.40	1.15	0.75
620462	Women's or girls' trousers, bib and brace overalls,	30	wap	0.13	0.71	0.59

Source: Authors' calculations and compilations.

In addition to the wearing apparel sector, food products and crops, including several tea products, are essential sectors in Sri Lanka's offensive list. Existing tariffs on Ceylon tea exports to Thailand are as high as 90%. Eleven product lines in rubber and plastic products and three in electric equipment are also on the offensive lists. Obtaining tariff concessions for electric equipment will significantly increase the economic benefits of an FTA with Thailand. The complete offensive list, Table C.1, is available in Appendix C.

Table 25: Summary of Thailand's offensive list by GTAP group

GTAP code	Sector	Exports before (USD Mn)	Exports after (USD Mn)	Exports gain (USD Mn)	Mean
rpp	Rubber and plastic products	40.46	68.89	28.43	30
eeq	Electrical equipment	7.19	16.96	9.77	26
ofd	Food products	19.80	28.48	8.68	15
fmp	Metal products	3.48	6.29	2.81	12
mvh	Motor vehicles and parts	26.13	52.64	26.51	12
chm	Chemical products	2.65	5.22	2.56	9

nmm	Non-metallic mineral products	0.87	2.22	1.35	9
ome	Machinery and equipment	5.37	14.04	8.67	8
ele	Computer, electronic and optical products	0.05	0.13	0.07	6
ppp	Paper products, publishing	4.08	7.39	3.30	4
tex	Textiles	0.59	1.13	0.54	4
i_s	Ferrous metals	0.03	0.06	0.03	3
omf	Manufactures nec	5.52	8.42	2.89	3
nfm	Metals	0.14	0.24	0.10	2
lea	Leather products	0.03	0.09	0.06	1
pcr	Processed rice	1.06	2.47	1.40	1
sgr	Sugar	0.01	0.01	0.01	1
v_f	Vegetables, fruits, nuts	3.01	4.24	1.23	1
Total	120.48	120.48	218.91	98.43	147

Source: Authors' calculations and compilations.

This study identifies 147 product lines as Thailand's offensive list. Here, 69% of Thailand's export gains to Sri Lanka in an FTA, or equivalent to USD 98.4 Mn of USD 141.8 Mn (Table 25) is from the offensive list. The success of the FTA in increasing exports will be contingent upon Thailand's ability to bargain successfully to get concessions for these products in the offensive list. The majority of the products on the offensive list belong to rubber and plastic products (30 products), electrical equipment (26), food products (15), and metal products (fmp). Rubber products, household electric equipment like refrigerators, air-conditioners, and their parts, malt extracts, and vehicles and parts are among the top 10 products in Thailand's offensive list (Table 26). The complete offensive list, Table C.2, is in Appendix C.

Table 26: Top 10 products in Thailand's offensive list, ordered by possible export gain by an FTA

HS code	Product name	Existing tariff	GTAP group	Exports before (USD Mn)	Exports after (USD Mn)	Change (USD Mn)
870421	Motor vehicles for the transport of goods	22.1	mvh	22.1	42.7	20.6
400121	Smoked sheets of natural rubber	15	rpp	21.4	37.5	16.1
400110	Natural rubber latex	15	rpp	11.2	17.0	5.8
190190	Malt extract	12	ofd	14.6	19.8	5.2
850710	Lead-acid accumulators	30	eeq	3.0	8.2	5.2
841510	Window or wall air conditioning machines	30	ome	2.2	6.5	4.4
960610	Press-fasteners	15	omf	5.5	8.4	2.9

841590	Parts of air conditioning machines	27	ome	1.7	4.5	2.7
841821	Household refrigerators	15	eeq	2.0	4.7	2.7
480256	Uncoated paper and paperboard	15	ppp	2.8	5.3	2.5

Source: Authors' calculations and compilation.

Trade negotiation to obtain preferential access to products in the offensive lists will be a delicate task for both countries. Granting preferential access to Sri Lanka's wearing apparel, tea, and rubber product exports is a challenge to Thailand, given that Thailand has already allocated domestic resources to these sectors. The existing tariff structure of Thailand also reveals that it maintains protectionist tariffs on wearing apparel, tea, and rubber products, implying a defensive stance towards liberalisation. Similarly, Sri Lanka faces significant challenges in granting preferential access to the Thai offensive list for several reasons.

First, as the partial equilibrium analysis shows, removing the tariff on Thai exports to Sri Lanka will increase the bilateral trade deficit, which poses a significant burden to Sri Lanka, given the current foreign exchange crisis. Secondly, air-conditioners, vehicles and household refrigerators are considered luxury products. Sri Lanka periodically brings these (imports) under strict import controls when external economic variables become unfavourable for Sri Lanka. Thus, Sri Lanka is unlikely to commit to providing preferential market access for such products. Third, Sri Lanka is defensive in removing protection given to the domestic rubber industry. Fourth, Sri Lanka's existing protection is already biased towards agriculture and food production, implying Sri Lanka will be reluctant to open Sri Lanka's agri-food sector to Thailand.

A way forward for mutually benefitted FTA is linking the two countries' shared production process.

A way forward for mutually benefitted FTA is linking the two countries' shared production process. For example, in Sri Lanka's offensive list, all the rubber-related products are finished goods like solid tyres, gloves, articles of vulcanised rubber, new pneumatic tyres, sacks and bags, mats, and personal protective equipment. Although Thailand has finished rubber products in the offensive lists, the predominant rubber exports to Sri Lanka are smoked sheets of natural rubber and natural rubber latex. Thus, if Thailand is willing to remove tariffs on

Sri Lanka's finished rubber products, there will be more demand for smoked sheets of natural rubber and natural rubber latex. Suppose that under an FTA, Sri Lanka has also removed tariffs on the rubber raw materials exported by Thailand. Then Thailand can supply to the Sri Lanka market exploiting the price advantage. As manufacturers in Sri Lanka have access to cheap rubber, their finished product will be more competitive in the world market, thus, more demand for raw materials. Notably, as discussed at the onset, the trade effect along the fragmented value chains is much higher than the estimated increase of trade using partial equilibrium models.

5. Conclusion

The economies of Sri Lanka and Thailand are structurally different, causing challenges in a bilateral trade deal. The two countries have varying magnitudes of comparative advantage and complexity of its export/import product baskets, Thailand being a more complex and highly competitive economy. Expectedly, an FTA between Sri Lanka and Thailand would bring challenges and opportunities for both countries. Thailand has a comparative advantage in 1,127 products and a more complex production structure than Sri Lanka's 613 products with a comparative advantage and low production complexity. From the consumer welfare point of view, a trade agreement with Thailand will allow for low-cost sourcing for a wide range of imports for Sri Lanka, significantly boosting consumer welfare. Similarly, Thailand can import low-tech manufacturing products like ready-made garments, finished rubber products, and agricultural products like tea. However, factoring in the existing resource allocation, production structure, and tariff structure, both countries will have to face significant adjustments in the economically and politically crucial domestic production sectors.

The bilateral trade between Sri Lanka and Thailand is uneven, with close to sevenfold exports by Thailand than Sri Lanka. Thailand is a sizeable import source for Sri Lanka, and Sri Lanka is a considerable export destination for Thailand, as revealed by the TII. As indicated by the TCI, there is a greater match between Thailand's export profile and Sri Lanka's import profile than the match between Sri Lanka's export profile and Thailand's import profile. Thailand imported 584 products from Sri Lanka in 2020, and Sri Lanka faced 16.1% of AHS. Sri Lanka imported 1,822 product lines at HS-six digits from Thailand in 2017. The number of products imported in 2020 was 895. The maximum tariff rate of Sri Lanka on Thai imports was 30%, while 75% of products were under less than 15% tariff. The trade-weighted average tariff on Thai imports stood at 5.5%, 1.5 percentage points higher than the Thai trade-weighted tariffs on Sri Lanka.

Sri Lanka's significant exports with high comparative advantage are under relatively higher tariffs imposed by Thailand. Close to 120 product lines in the wearing apparel industry are under 30 % tariffs, and Sri Lanka faces an average of 28.9% of AHSs. Various tea products- black and green tea- are within the highest tariff band [90,100). Moreover, Sri Lanka imposes tariffs which fall into a few tariff bands on imports from Thailand, and the highest tariff band is [30,40). About 1,081 product lines exported by Thailand fall within the [0,10) tariff band. Motor vehicles for transport goods, tyres, and parts for air-conditioning machines tariffs were within the [20,30) tariff band. Smoked sheets of natural rubber and natural rubber latex are among the significant exports by Thailand to Sri Lanka, facing about 15% of the tariff.

A fully pledged trade liberalisation through Sri Lanka-Thailand is a challenge for Sri Lanka. Sri Lanka has had exceptionally high import controls in the COVID-19 period, while many were non-tariff barriers, including temporary suspensions and special commodity levies. Moreover, Sri Lanka's trade policy regime contains substantial uncertainty. The binding coverage of Thailand is 20 percentage points higher than Sri Lanka. On average, Sri Lanka's mean binding overhang for Thailand's agricultural exports is 31.3%. The comparable value of Thai tariffs is 10.2%. It implies that, on average, Sri Lanka can make discretionary decisions to increase tariffs by 31.3% points in the agriculture sector. Thus, Thailand faces much uncertainty in exporting agricultural products to Sri Lanka. Sri Lanka's low binding coverage indicates the policy interest in sustaining discretionary power to adjust tariff schedules within the WTO framework whenever necessary. Sacrificing such discretionary power is contingent upon the magnitude of political willingness.

Complete tariff removal will result in a substantial trade effect. A partial equilibrium estimation was done to estimate the export gain from an FTA, assuming it swiftly removes existing tariffs without gradually phasing them out. Several steps were taken to increase the accuracy and reliability of the partial equilibrium estimates, including using GTAP sectoral Armington elasticities and running 47 simulations separately. In an FTA, Sri Thailand will realise an export increase of 27.8%. The base year of USD 509.2 Mn will grow by USD 141.8 Mn, reaching USD 651.0 Mn in the counterfactual scenario. The sectors with high export gains for Thailand are rubber and plastic products, motor vehicles and parts, electronic equipment, and food products. Rubber products, malt extracts, electric accumulators, air conditioning machines and components, paper or paper boards, and medium oils are among the top 10 products realising significant export gains.

If Thailand removes all tariffs on Sri Lanka, the base year exports of the wearing apparel sector will increase by USD 16.1 Mn from USD 6.4 Mn to USD 22.5 Mn. At the individual product level, partial equilibrium estimates reveal larger percentage gains for products wearing apparel and tea exports. Overall, complete tariff elimination will increase Sri Lanka's exports to Thailand by 38%, increasing the base year exports from USD 72.7 Mn to USD 100.3 Mn.

In a scenario of complete tariff removal, the tariff impact of a Sri Lanka-Thailand FTA is straightforward. Taking 2017 as the base year, Sri Lanka's tariff loss is USD 28.2 Mn in a complete tariff elimination scenario. The SMART estimates show that tariff revenue loss is the highest in rubber and plastic products, motor vehicles and parts, and food products. In the base year 2020, Thailand's tariff loss will be USD 3.4 Mn. Tariff losses are mainly from wearing apparel and tea.

This study also finds that over 80% of the trade effect is from trade diversion. The top 10 countries to lose from trade diversion to Thailand include Sri Lanka's primary import sources like India and China. India will lose USD 26.30 Mn to Thailand in the wake of a Sri Lanka-Thailand FTA. China, Vietnam, Indonesia, Cambodia, Malaysia, and Japan will witness trade diversions of over USD 0.5 Mn each in a scenario that a Sri Lanka-Thailand FTA completely removes Thailand's border tariffs on Sri Lanka. Trade diversion is an efficiency loss generally resulting from FTAs.

To maximise the trade effect, the two countries must bargain for concessions for the products in the offensive list. This study identifies lists of products with offensive interests for both countries. Expectedly, both countries will be defensive as a large influx of products can adversely affect the domestic producers, interest groups depending on economic rent of protection, and political interests. At the HS-six-digit level, 154 products come under Sri Lanka's offensive interests. Notably, 80.72 % of the export gain from Thailand's tariff elimination comes from these 154 product lines implying the importance of bringing these to the positive list. Many of these products belong to manufacturing wearing apparel, food products and crops- including several tea products-11, product lines in rubber and plastic products, and three in electric equipment are also on the offensive lists.

Likewise, 69% of Thailand's export gains to Sri Lanka in an FTA come from Thailand's offensive list with 147 products. Rubber and plastic products (30 products), electrical equipment (26), and food products (15) are among the products with offensive interests to Thailand. Rubber products, household electric equipment like refrigerators, air-conditioners, and their parts, malt extracts, and vehicles and parts are among the top 10 products in Thailand's offensive list.

A vital question that needs to be raised is whether an economic justification exists for an FTA between Sri Lanka and Thailand. Of course, a few areas restricting bilateral trade can be rectified through an FTA. The existing trade policy regimes result in high trade policy uncertainty as bound rates are higher for some sectors and binding coverage is low. In addition, products with substantial comparative advantage and production capacity are under high tariffs. An FTA can remove tariffs, increase trade facilitation, and reduce trade policy uncertainty. An additional concern is whether the economic benefits of an FTA are up to expectations.

The partial equilibrium analysis shows that an FTA increases bilateral trade by 30%, with the bulk of the increase being for Thailand's exports to Sri Lanka. The growth is much lower than the expected policy goal of increasing bilateral trade threefold, yet the gains are substantial. Moreover, partial equilibrium estimates do not factor in increased trade due to the removal of tariffs on the products engaged in value chains, increase across input-output linkages, and increase derived from the movement of capital-seeking tariff advantage resulting from an FTA. In addition, a deep trade agreement facilitating investment and trade might have more benefits. Finally, from the consumer perspective, consumers from both countries benefit from an FTA due to low-cost imports.

However, constraints for reaping the full benefits of an FTA are substantial. One crucial downside risk for Sri Lanka is the widening bilateral trade deficit with Thailand. A back-of-the-envelope estimates that the post-FTA deficit is a 26% increase. If Sri Lanka expects to lower the trade deficit through an FTA with Thailand, this is feasible only if Sri Lanka starts to export new product lines to Thailand. Indeed, it can be reasonably argued that a bilateral trade deficit has no economic weight and is not a key indicator of the success of an FTA. In contrast, a deficit implies that Sri Lanka is trading with a more competitive producer, and Sri Lankan consumers reap the benefit. Yet, the potential for a widened trade deficit might be a policy challenge given the current economic crisis and Sri Lanka's persistent balance of payments hardships.

The requirement of political manoeuvring for substantially high coverage of an FTA will be significant. The offensive list of Sri Lanka and Thailand contains products already protected by the partner country. As discussed in the paper, both countries must bring products on the offensive lists to the positive lists of an FTA to realise substantial economic benefits. The existing protectionist tariff structure indicates that both countries are defensive in agriculture, wearing apparel, rubber, and manufacturing household electric equipment. When needed, Sri Lanka may require maintaining discretionary decision-making power to control imports like household electrical products. Sri Lanka will also be defensive in the domestic rubber industry and food production. Similarly, Thailand might need to protect the interests of domestic producers of rubber, tea, and wearing apparel.

This study makes several suggestions for increasing the success of an FTA between Sri Lanka and Thailand. First, both countries may target a deep trade agreement beyond lowering tariffs. Trade facilitation, digitisation, removal of existing quantitative restrictions, para-tariffs, and investment promotion will increase the effect of an FTA. Second, as detailed in the results sections, a tariff cut in products involving bilateral production value chains is a way forward. Rubber and wearing apparel are classic examples. Another vital sector Sri Lanka should focus on is electronics and electric component production. Three products in this category are on Sri Lanka's offensive list.

Third, phasing-in the tariff cuts with binding commitments will provide the necessary time to facilitate smooth adjustments by the affected domestic sectors. However, phasing-in will significantly lower the realisation of potential trade gains from an FTA. Fourth, identifying the affected industries and designing trade adjustment programmes will substantially increase the political feasibility of an FTA. The welfare of primary rubber products, food producers, and household items, including light electronics, should be Sri Lanka's concern. Similarly, Thailand will have to bear the burden of the welfare losses of wearing apparel, tea, and finished rubber product producers.

An economy-wide effects of an FTA, including employment, GDP, and wage effects, are not estimated in this study. In addition, in the SMART framework, the welfare loss of the domestic producers is not estimated. Thus, this study suggests estimating CGE-based models to get a broader picture of the economic impact of an FTA. In addition, the potential for service sector liberalisation and its impact should be investigated further. Extending the analysis to investment and FDI promotion, service trade, and trade facilitation measures is a possible improvement to the study. The Sri Lanka-Thailand FTA is most likely be a comprehensive one covering areas beyond tariffs on goods trade.

References

- Amjadi, A., Schuler, P., & Quadros, S. (2011). *WITS: Users' Manual*. Retrieved July 19, 2023, from World Bank: https://wits.worldbank.org/data/public/WITS_User_Manual.pdf
- Graham, L., Kravchenko, A., Ratna, R. S., & Mikic, M. (2018). *A Simple Analytical Method Using Trade and Tariff Data for Identifying an Offensive List When Negotiating a Free Trade Agreement: An Example of Sri Lanka-China Free Trade Agreement Negotiations*. Retrieved July 10, 2023, from UNESCAP: <https://www.unescap.org/sites/default/files/Session%208%20-%20Sri%20Lanka%20-%20China%20FTA%20offensive%20list.pdf>
- Groppo, V., & Piermartini, R. (2014). *Trade Policy Uncertainty and the WTO*. Retrieved July 19, 2023, from WTO: https://www.wto.org/english/res_e/reser_e/ersd201423_e.pdf
- Handley, K., & Limao, N. (2015). Trade and Investment under Policy Uncertainty: Theory and Firm Evidence. *American Economic Journal: Economic Policy*, 7(4), 189–222.
- Handley, K., & Limão, N. (2017). Policy Uncertainty, Trade, and Welfare: Theory and Evidence for China and the United States. *American Economic Review*, 107(9), 2731–2783.
- Harvard University. (2023). *The Atlas of Economic Complexity*. Retrieved July 19, 2023, from Growth Lab at Harvard University: <https://atlas.cid.harvard.edu/>
- Hertel, T., Hummels, D., Ivanic, M., & Keeney, R. (2007). How Confident Can We Be of CGE-based Assessments of Free Trade Agreements? *Economic Modelling*, 24(4), 611–635.
- Hertel, T., & van der Mensbrugghe, D. (2016). *Behavioural Parameters*. Retrieved July 19, 2023, from GTAP: https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=5138
- Hidalgo, C. A., & Hausmann, R. (2009). The Building Blocks of Economic Complexity. *Proceedings of the National Academy of Sciences*, 106(26), 10570–10575. <https://doi.org/10.1073/pnas.0900943106>
- Jammes, O., & Olarreaga, M. (2005). *Explaining Smart and GSIM*. Retrieved July 10, 2023, from World Bank: http://wits.worldbank.org/witsweb/download/docs/explaining_smart_and_gsim.pdf
- Kelegama, S. (2017). India-Sri Lanka Free Trade Agreement: Sri Lanka Reaping the Benefits from Preferential Trade. *ARTNeT Policy Brief No. 50*.
- Kelegama, S., & Karunaratne, C. (2013). *Experiences of Sri Lanka in the Sri Lanka–India FTA and the Sri Lanka–Pakistan FTA* [Background Paper]. Colombo: Institute of Policy Studies of Sri Lanka.
- Laird, S., & Yeats, A. (1986). The UNCTAD Trade Policy Simulation Model: A Note on the Methodology, Data and Uses. *Discussion Papers*, 19. Geneva: United Nations Conference on Trade and Development.
- Limão, N., & Maggi, G. (2015). Uncertainty and Trade Agreements. *American Economic Journal: Microeconomics*, 7(4), 1–42.

- Maggi, G. (2014). International Trade Agreements. In *Handbook of International Economics* (Vol. 4, pp. 317–390). Elsevier.
- Mansfield, E. D., & Reinhardt, E. (2008). International Institutions and the Volatility of International Trade. *International Organization*, 62(4), 621–652.
- Mukherji, I. N., & Iyengar, K. (2013). *Deepening Economic Cooperation Between India and Sri Lanka*. Retrieved July 10, 2023, from Asian Development Bank: <https://www.adb.org/sites/default/files/publication/30416/deepening-economic-cooperation-india-sri-lanka.pdf>
- Nicita, A., Olarreaga, M., & Silva, P. (2014). *Cooperation in the Tariff Waters of the World Trade Organization*. Retrieved July 10, 2023, from UNCTAD: https://unctad.org/system/files/official-document/itcdtab62_en.pdf
- Osnago, A., Piermartini, R., & Rocha, N. (2015). *Trade Policy Uncertainty as Barrier to Trade*. WTO Staff Working Paper.
- Oxford Economics. (2021). *The Economic Impact of the Agri-food Sector in Thailand*. Retrieved July 19, 2023, from Food Industry Asia: <https://foodindustry.asia/hubfs/Resources/Trade%20and%20Harmonisation/The%20Economic%20Impact%20of%20the%20Agri-food%20Sector%20in%20Southeast%20Asia%20-%20Thailand.pdf?hsLang=en>
- Piermartini, R., & Yotov, Y. V. (2016). *Estimating Trade Policy Effects with Structural Gravity*. Retrieved July 10, 2023, from WTO: https://www.wto.org/english/res_e/reser_e/ersd201610_e.htm
- Wijesinghe, A., & Yogarajah, C. (2022a). *Trade Policy Effects on Global Value Chain Participation of South Asian Countries: Implications for Bangladesh-Sri Lanka Trade Negotiations* (International Economics Series) [Working Paper]. Retrieved July 10, 2023, from Institute of Policy Studies of Sri Lanka: <https://www.ips.lk/trade-policy-effects-on-global-value-chain-participation-of-south-asian-countries-implications-for-bangladesh-sri-lanka-trade-negotiations/>
- Wijesinghe, A., & Yogarajah, C. (2022b). Trade Policy Impact on Global Value Chain Participation of the South Asian Countries. *Journal of Asian Economic Integration*, 4(1), 24–48.
- Yotov, Y. V., Piermartini, R., & Larch, M. (2016). An Advanced Guide to Trade Policy Analysis: *The Structural Gravity Model*. Retrieved July 10, 2023, from WTO iLibrary: https://www.wto.org/english/res_e/booksp_e/advancedwtounctad2016_e.pdf

Appendix A: Data

Tariff data and trade data are from different years, as given by World Integrated Trade Solution (WITS). For Thailand's imports from Sri Lanka tariff year is 2021, and the trading year is 2020. For Sri Lanka's imports from Thailand, the tariff year is 2019, and the trading year is 2017.

Table A.1: Sri Lanka's top ten exports to the world in 2021 (values are in USD Mn)

HS code	Product label	Exported value (USD Mn)
090240	Black fermented tea and partly fermented tea	720.8
621210	Brassieres of all types of textile materials	684.2
090230	Black fermented tea and partly fermented tea (immediate packings)	614.8
401290	Solid or cushion tyres of rubber	438.9
611610	Gloves, mittens and mitts	401.5
610990	T-shirts, singlets and other vests of textile materials	338.6
610821	Women's or girls' briefs and panties of cotton	319.5
401519	Gloves, mittens and mitts, of vulcanised rubber	306.9
090611	Cinnamon (Cinnamomum zeylanicum Blume)	241.4
530500	Coconut fibres	230.2
	Rest of the products	9,034.4
	Total	13,331.2

Source: Authors' calculations using Trade Map, ITC data.

Table A.2: Thailand's top ten exports in 2021(values are in USD Bn)

HS Code	Product label	Exports (USD Bn)
847170	Storage units for automatic data-processing machines	13.1
870421	Motor vehicles for the transport of goods	7.6
271019	Medium oils and preparations	6.3
854239	Electronic integrated circuits	6.2
841510	Window or wall air conditioning machines	4.5
710812	Gold, gold plated with platinum	3.8
081060	Fresh durians	3.4
870323	Motor cars and other motor vehicles	3.1
100630	Semi-milled or wholly milled rice	3.0
401110	New pneumatic tyres, of rubber	2.9
	Rest of products	213.6
	Total	267.5

Source: Authors' calculations using Trade Map, ITC data.

Table A.3: Top trade partners of Sri Lanka in 2021

Country	Exports from Sri Lanka (USD Mn)	Country	Imports by Sri Lanka (USD Mn)
United States of America	3,299.0	China	5,097.7
United Kingdom	1,003.0	India	4,741.1
India	891.5	United Arab Emirates	1,409.1
Germany	811.3	Malaysia	825.2
Italy	622.9	Singapore	775.9
Netherlands	457.2	United States of America	566.7
Belgium	359.0	Indonesia	483.6
Canada	336.1	Taipei, Chinese	481.5
United Arab Emirates	313.9	Japan	448.4
China	306.3	Viet Nam	426.7
Rest of the world	4,931.2	Rest of the world	6,246.1
Total	13,331.2	Total	21,501.9

Notes: Thailand is Sri Lanka's 37th export destination by order of export value (Sri Lanka exported USD 59.0 Mn goods from Thailand). Similarly, Thailand is Sri Lanka's 11th import source (in 2021, Sri Lanka imported USD 426.6 Mn goods from Thailand as per Trade Map data).

Source: Authors' calculations using Trade Map, ITC data.

Table A.4: Top trade partners of Thailand in 2021

Country	Exports by Thailand (USD Bn)	Country	Imports by Thailand (USD Bn)
United States of America	41.4	China	66.6
China	36.7	Japan	35.7
Japan	24.6	United States of America	14.6
Viet Nam	12.3	Malaysia	12.1
Malaysia	11.9	Taipei, Chinese	10.5
Hong Kong, China	11.4	Korea, Republic of	9.9
Australia	10.7	United Arab Emirates	9.9
Singapore	8.9	Indonesia	8.2
Indonesia	8.8	Singapore	7.4
India	8.4	Viet Nam	7.0
Rest of world	92.3	Rest of the world	87.1
Total	267.5	Total	269.1

Notes: Sri Lanka is Thailand's 47th export destination (USD 355.5 Mn in 2021), and Sri Lanka is Thailand's 83rd import source (USD 68.0 Mn in 2021).²⁴

²⁴ There is a data discrepancy here. Country data is not matching with mirror data. In UN COMTRADE imports are recorded CIF and exports are recorded FOB. The difference can be 10 per cent to 20 per cent. Retrieved March 10, 2023, from WITS: https://wits.worldbank.org/wits/witshelp/content/data_retrieval/T/Intro/B2.Imports_Exports_and_Mirror.htm

Source: Authors' calculations using Trade Map, ITC data.

Table A.5: Analysis of NA tariff overhang: Sri Lanka's exports to Thailand. Export value and the effectively applied tariffs are given in parentheses

Section	Subsector	Product	Number of products in the section	Trade value of the section (USD Mn)
Agriculture, forestry, and fishing	Growing of other perennial crops (0.17,1.5)	400110 -- Natural rubber latex (0.15,0)	10	0.2
Information and communication	Two subsections: 1) book publishing and 2) Other publishing activities. Average AHS are zero and 7.5, respectively	490199--Books, brochures, and leaflets (AHS=0)	6	<7,600 USD
Manufacturing	Manufacture of grain mill products (5.3, NA)	110100 -- Wheat or meslin flour (5.3, NA)	229	14.4
	Manufacture of wearing apparel, except fur apparel (2.3,28.8)	610990 -- textile materials (0.5,30)		
Mining	Extraction of crude petroleum (16.1, NA)	271000 --Petroleum oils and oils obtained (16.1, NA)	3	16.1

Source: Authors' calculations using WITS.

Table A.6: Analysis of NA tariff overhang: Thailand's exports to Sri Lanka. Export value and the effectively applied tariffs are given in parentheses

Section	Subsector	Products	Number of products in the section	Trade value-section (USD Mn)
Agriculture, forestry, and fishing	Growing other perennial crops (32.7,15.0)	400121 -- Smoked sheets (21.5,15);400110 --Natural rubber latex (11.2,15.0)	8	35.7
	Growing cereals (except rice), legumes, & oil seeds (3.1,14.1)	071331 -- Beans of the species Vigna mungo (3.01, 11.25)		
Arts, entertainment and recreation	Creative arts and entertainment activities (~ USD 6,000)	970300 -- Original sculptures and statuary (~USD 6,000,15)	3	<0.1

Information and communication	Other publishing activities (0.2,19)	490810 --Transfers: decalcomanias (0.24,19)	12	0.3
Manufacturing	Manufacture of cement, lime and plaster (38.2, 0)	252310 -- Cement clinkers (36.7,0)	1,133	215
	Manufacturing of motor vehicles (25.8,17.1)	870421 -- Motor vehicles for goods transport (22.1,22.06)		16.1
	Manufacture of plastics and synthetic rubber in primary forms (25.7,0)	390110 -- Polyethylene (5,0)		
	Manufacture of basic chemicals	280300 -- Carbon: carbon blacks and other forms (8.8,0)		
Mining and quarrying	Extraction of crude petroleum (8,NA)	271000 --Petroleum oils (8,NA)	15	15.2

Source: Authors' calculations using WITS.

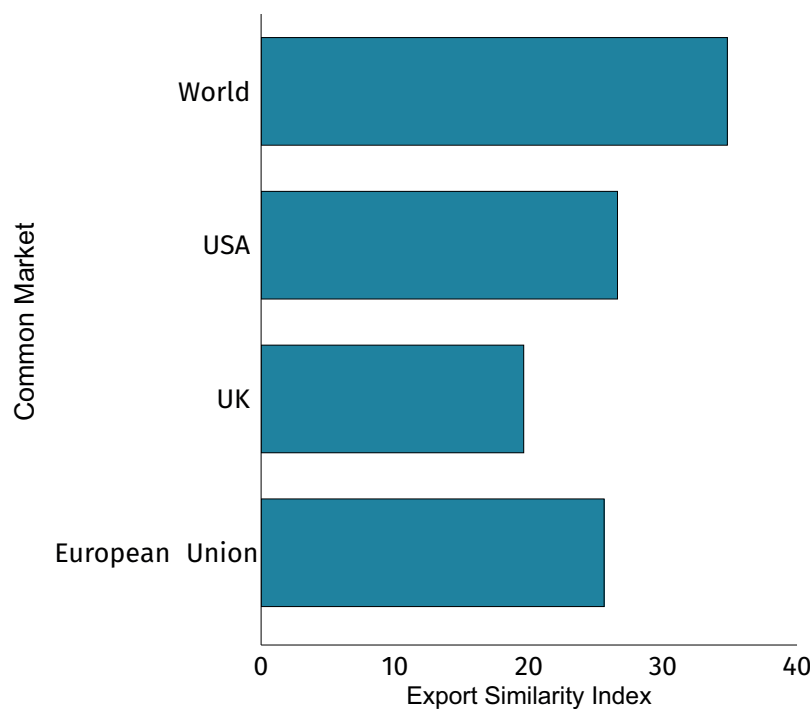
Table A.7: GTAP sector source elasticities between import sources

	GTAP Code	Description	Armington Elasticity Sourcing of Imports
1	pdr	Paddy rice	10.10
2	wht	Wheat	8.90
3	gro	Cereal grains nec	2.60
4	v_f	Vegetables, fruit, nuts	3.70
5	osd	Oil seeds	4.90
6	c_b	Sugar cane, sugar beet	5.40
7	pfb	Plant-based fibres	5.00
8	ocr	Crops nec	6.50
9	ctl	Cattle,sheep,goats,horses	4.00
10	oap	Animal products nec	2.60
11	rmk	Raw milk	7.30
12	wol	Wool, silk-worm cocoons	12.90
13	frs	Forestry	5.00
14	fsh	Fishing	2.50
15	coa	Coal	6.10
16	oil	Oil	10.40
17	gas	Gas	34.40

18	oxt	Minerals nec	1.80
19	cmt	Meat: cattle,sheep,goats,horse	7.70
20	omt	Meat products nec	8.80
21	vol	Vegetable oils and fats	6.60
22	mil	Dairy products	7.30
23	pcr	Processed rice	5.20
24	sgr	Sugar	5.40
25	ofd	Food products nec	4.00
26	b_t	Beverages and tobacco products	2.30
27	tex	Textiles	7.50
28	wap	Wearing apparel	7.40
29	lea	Leather products	8.10
30	lum	Wood products	6.80
31	ppp	Paper products, publishing	5.90
32	p_c	Petroleum, coal products	4.20
33	chm	Manufacture of chemicals and chemical products	6.60
34	bph	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	6.60
35	rpp	Manufacture of rubber and plastics products	6.60
36	nmm	Mineral products nec	5.80
37	i_s	Ferrous metals	5.90
38	nfm	Metals nec	8.40
40	ele	Electronic equipment	8.80
41	eeq	Manufacture of electrical equipment	8.80
42	ome	Machinery and equipment nec	8.10
43	mvh	Manufacture of motor vehicles, trailers, and semi-trailers	5.60
44	otn	Transport equipment nec	8.60
45	omf	Manufactures nec	7.50
46	ely	Electricity	5.60
47	gdt	Gas manufacture, distribution	5.60

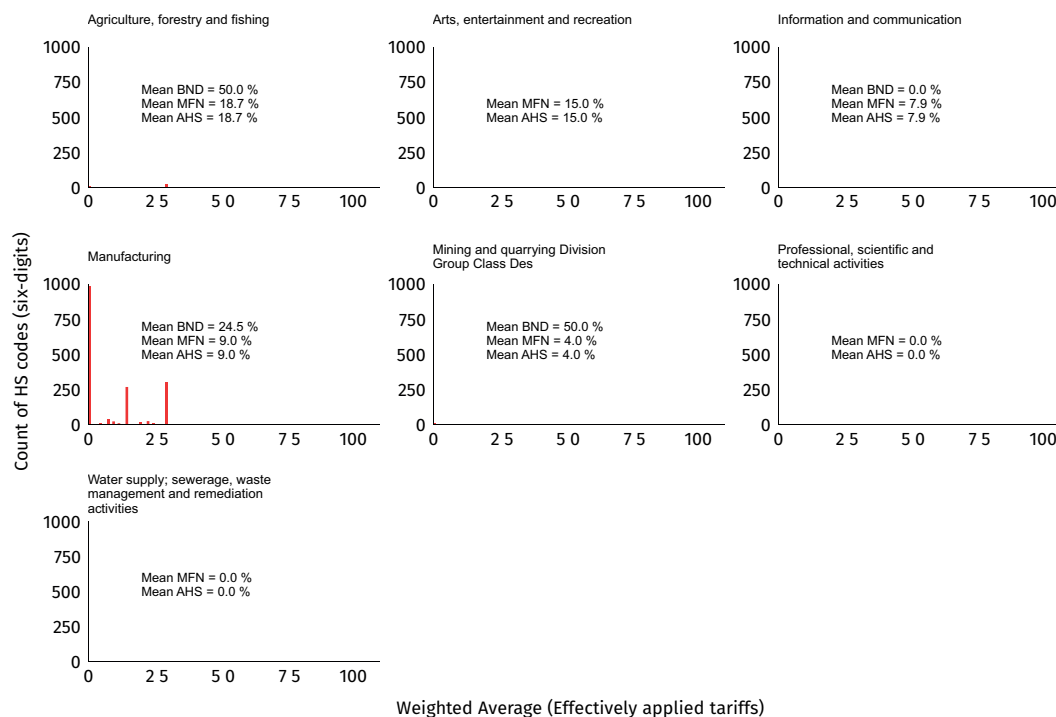
Source: Hertel & van der Mensbrugghe (2016).

Figure A.1: Export Similarity Index for Sri Lanka and Thailand-2021



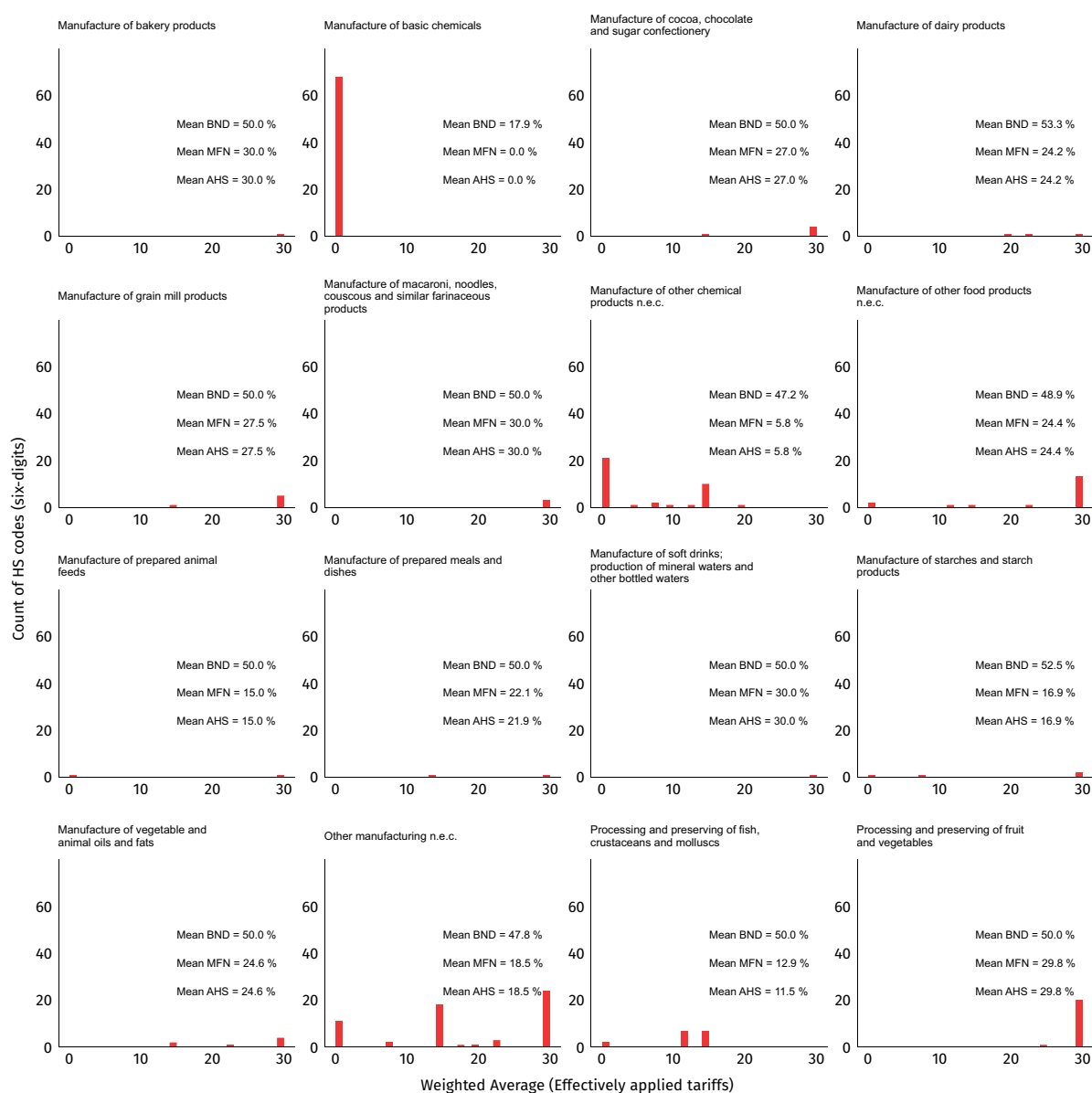
Source: Authors' illustrations and calculations using trade data from Trade Map, ITC.

Figure A.2: The effectively applied tariffs (weighted average) faced by Thai exports to Sri Lanka by major export sectors



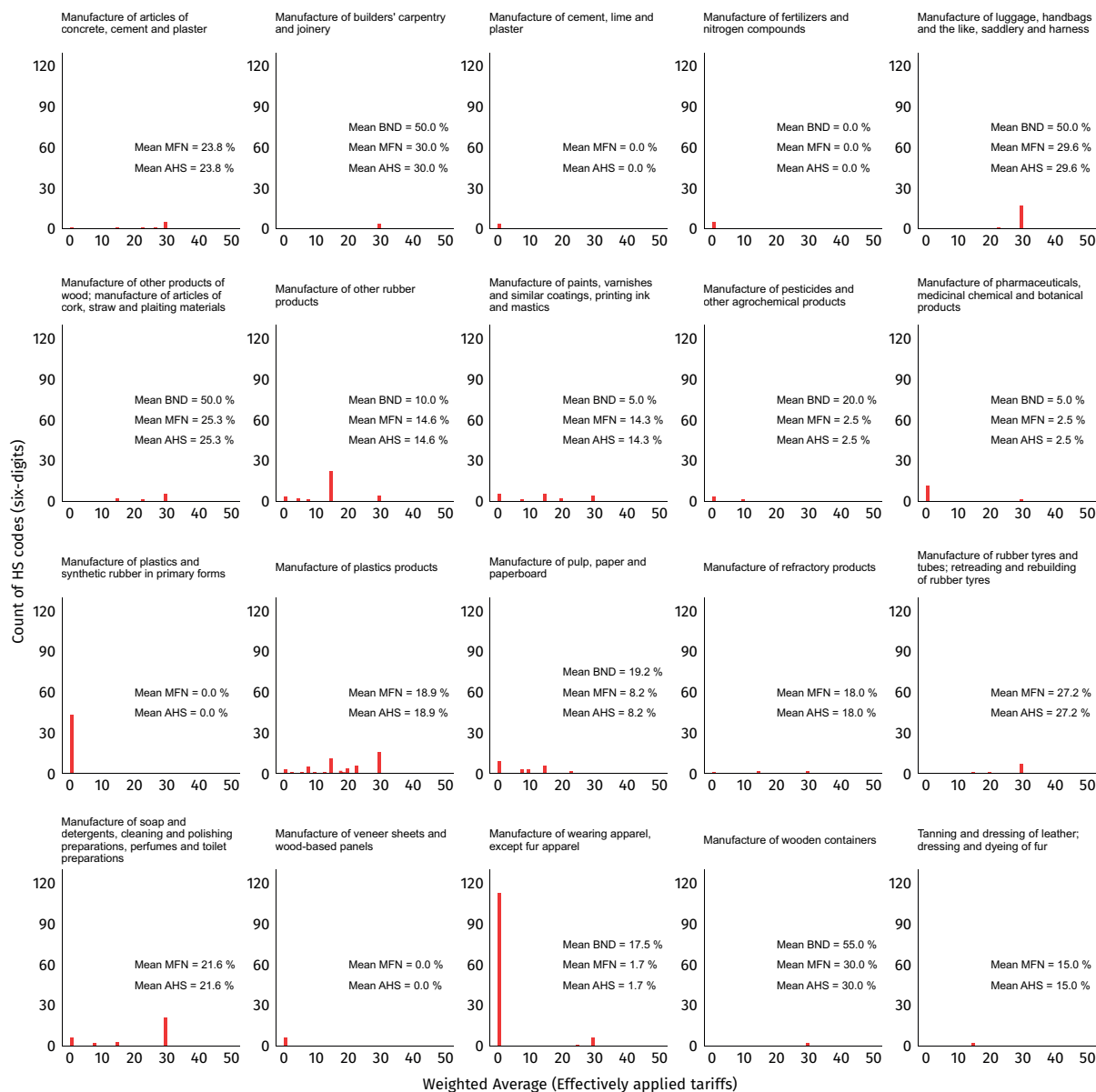
Source: Authors' illustration using data from WITS.

Figure A.2.1: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports



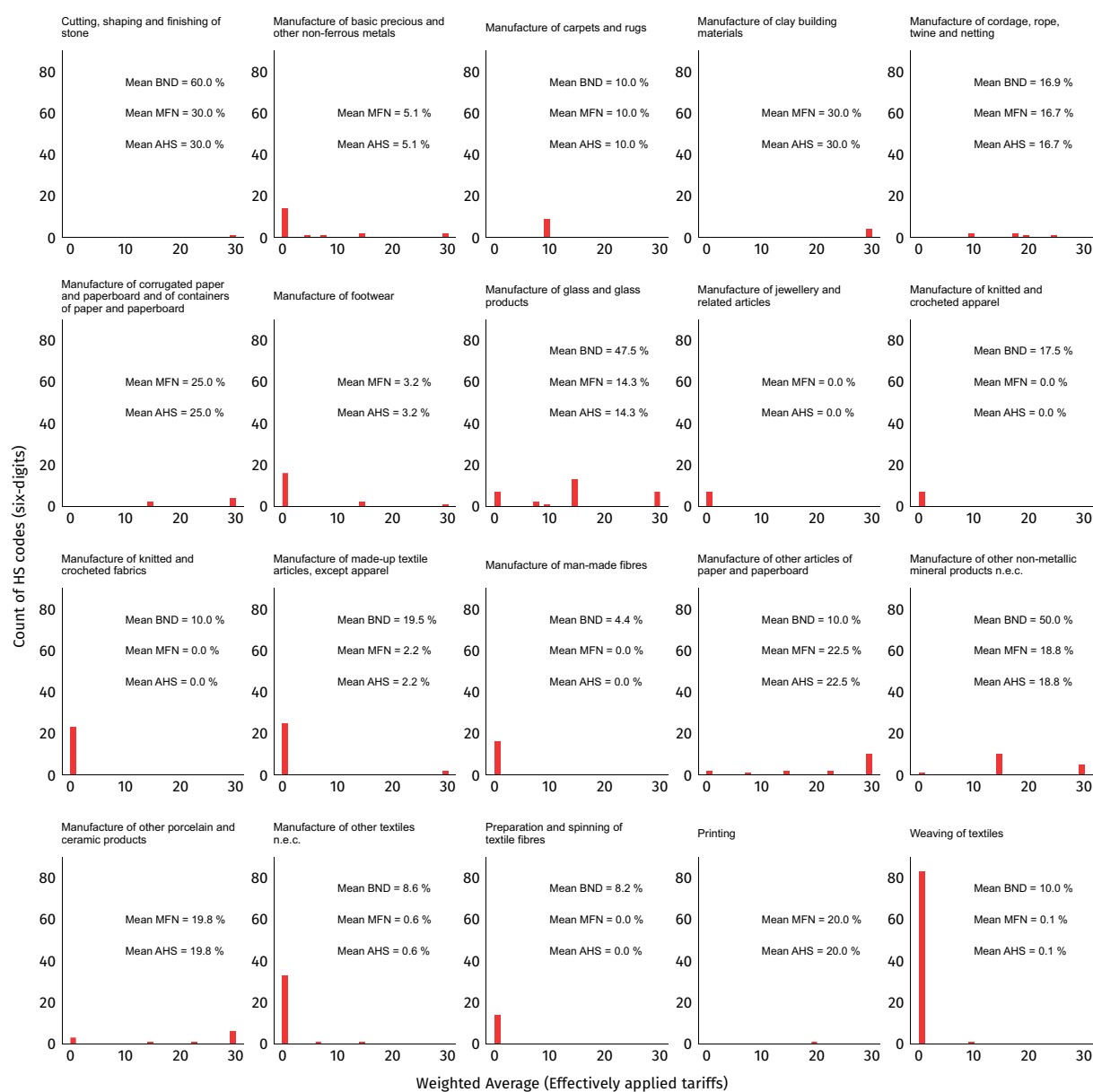
Source: Authors' illustration using data from WITS.

Figure A.2.2: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports



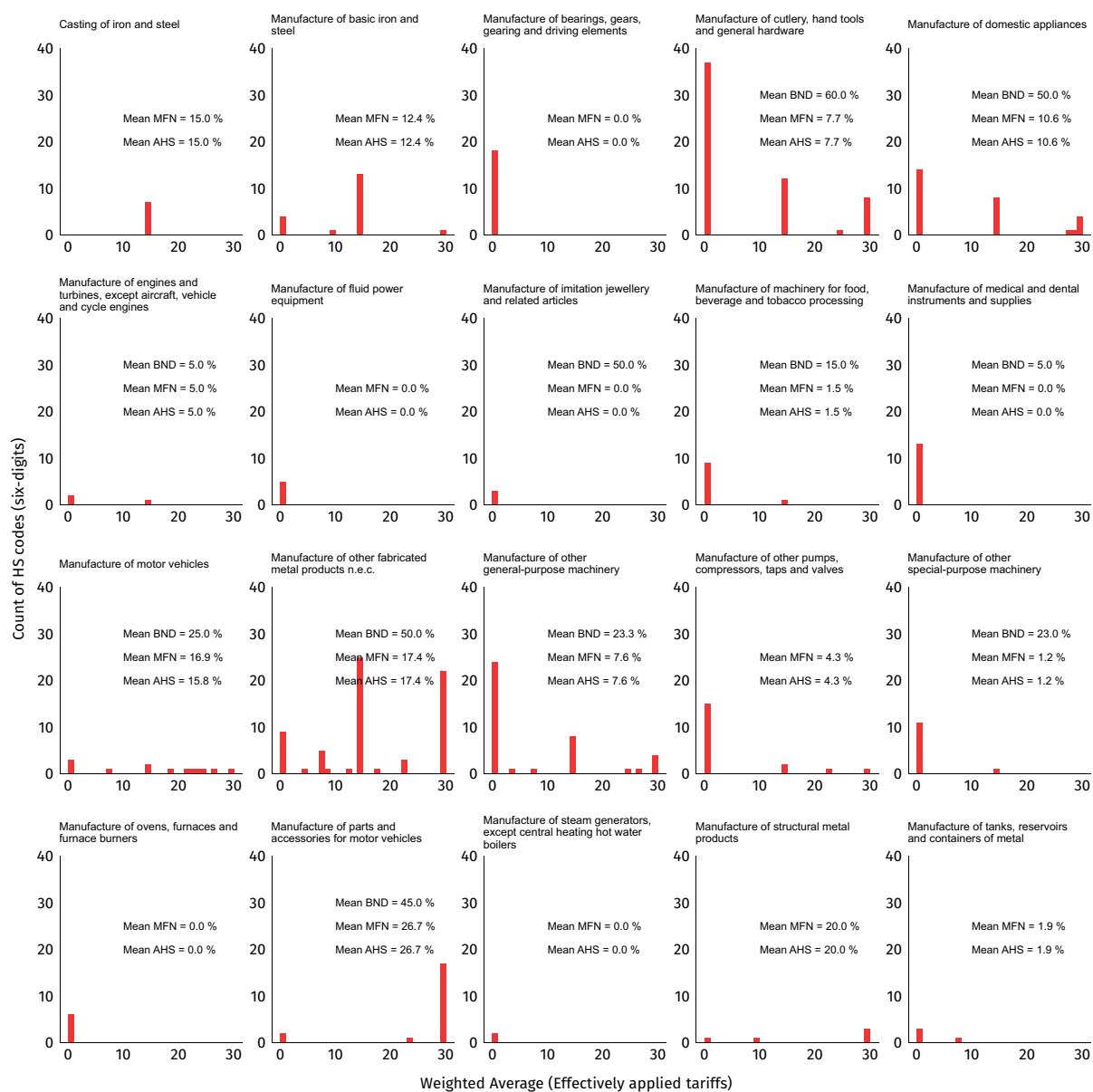
Source: Authors' illustration using data from WITS.

Figure A.2.3: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports



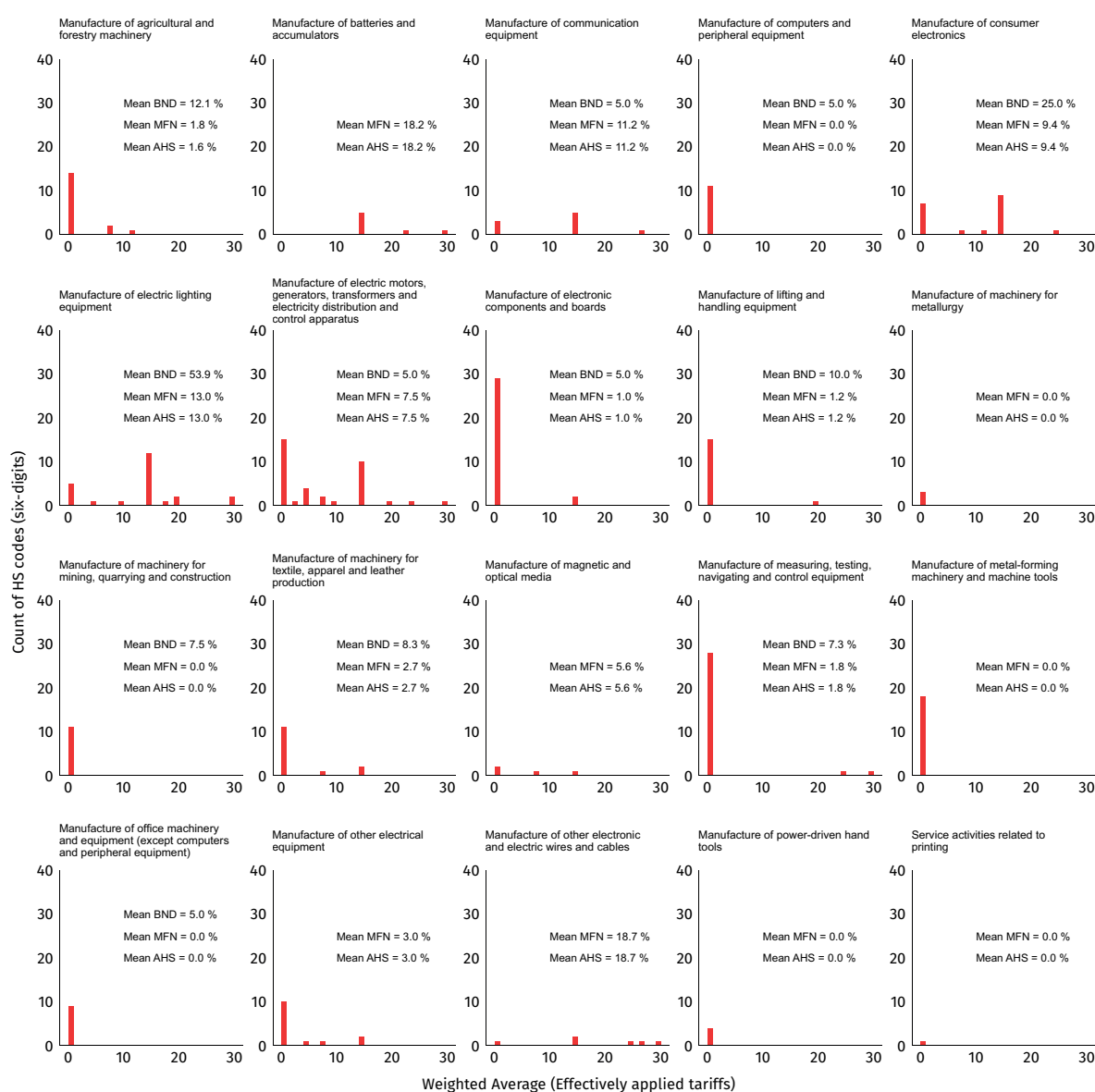
Source: Authors' illustration using data from WITS.

Figure A.2.4: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports



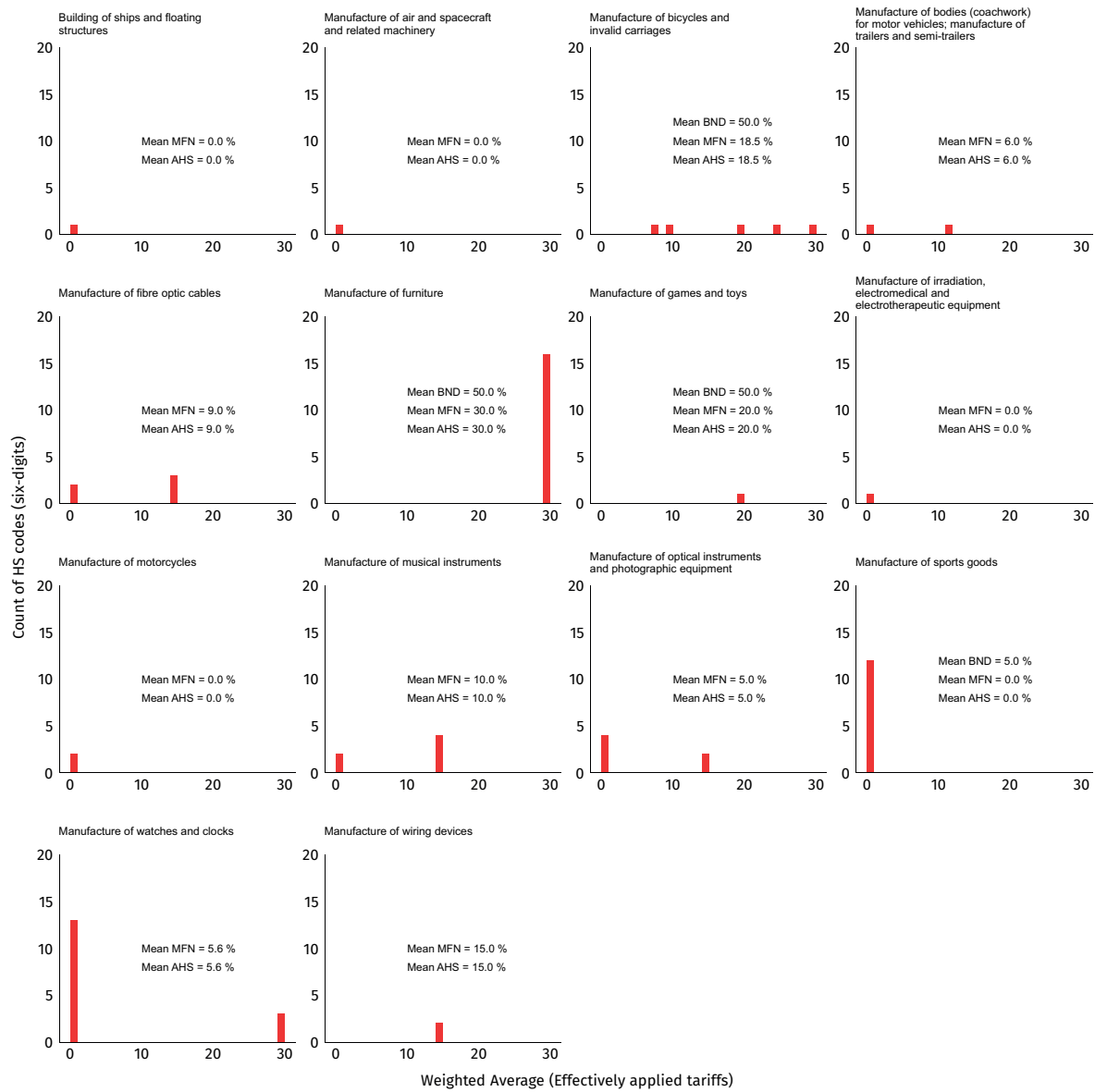
Source: Authors' illustration using data from WITS.

Figure A.2.5: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports



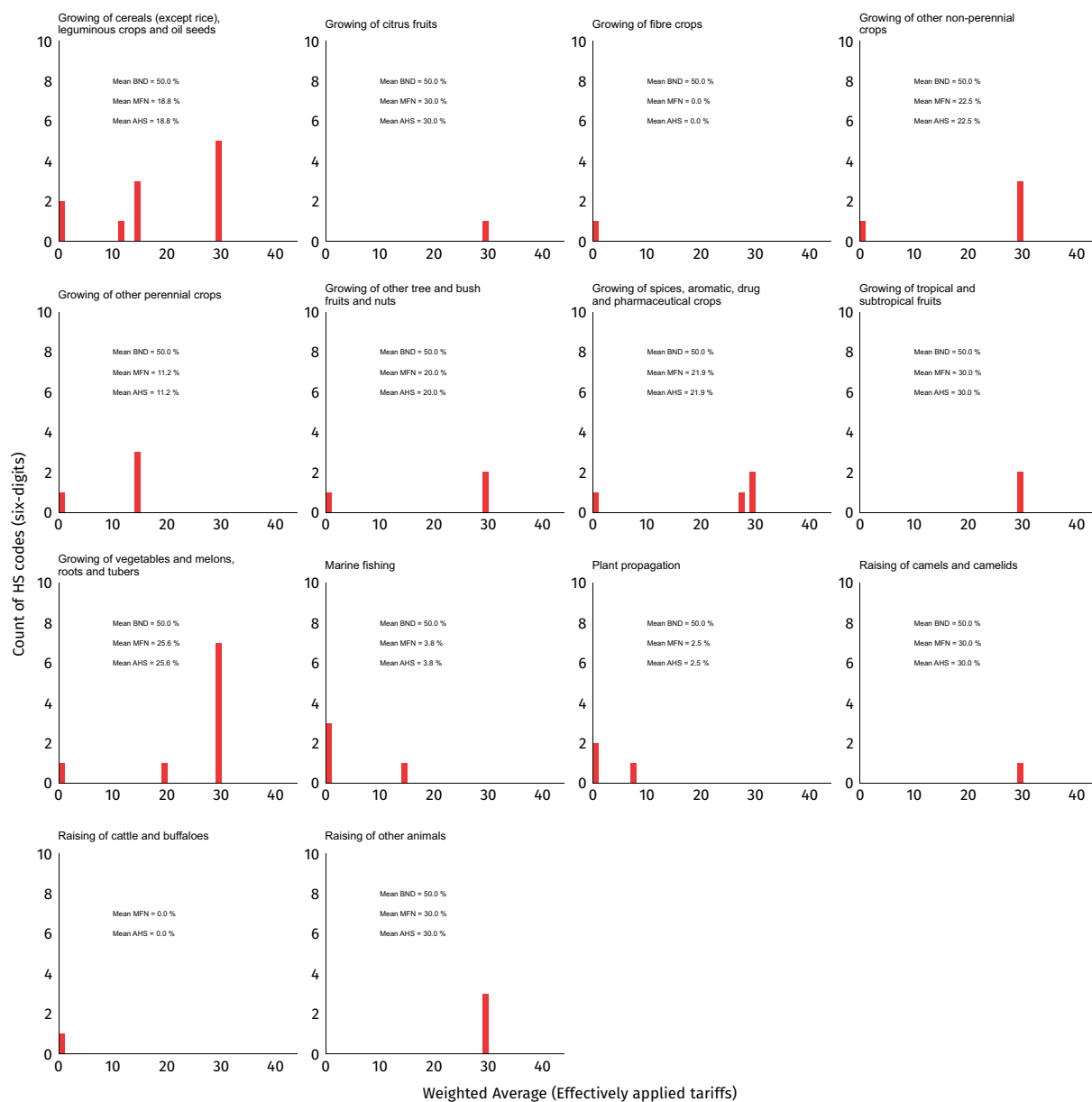
Source: Authors' illustration using data from WITS.

Figure A.2.6: Manufacturing sub-sectors: Tariffs imposed by Sri Lanka for Thai exports



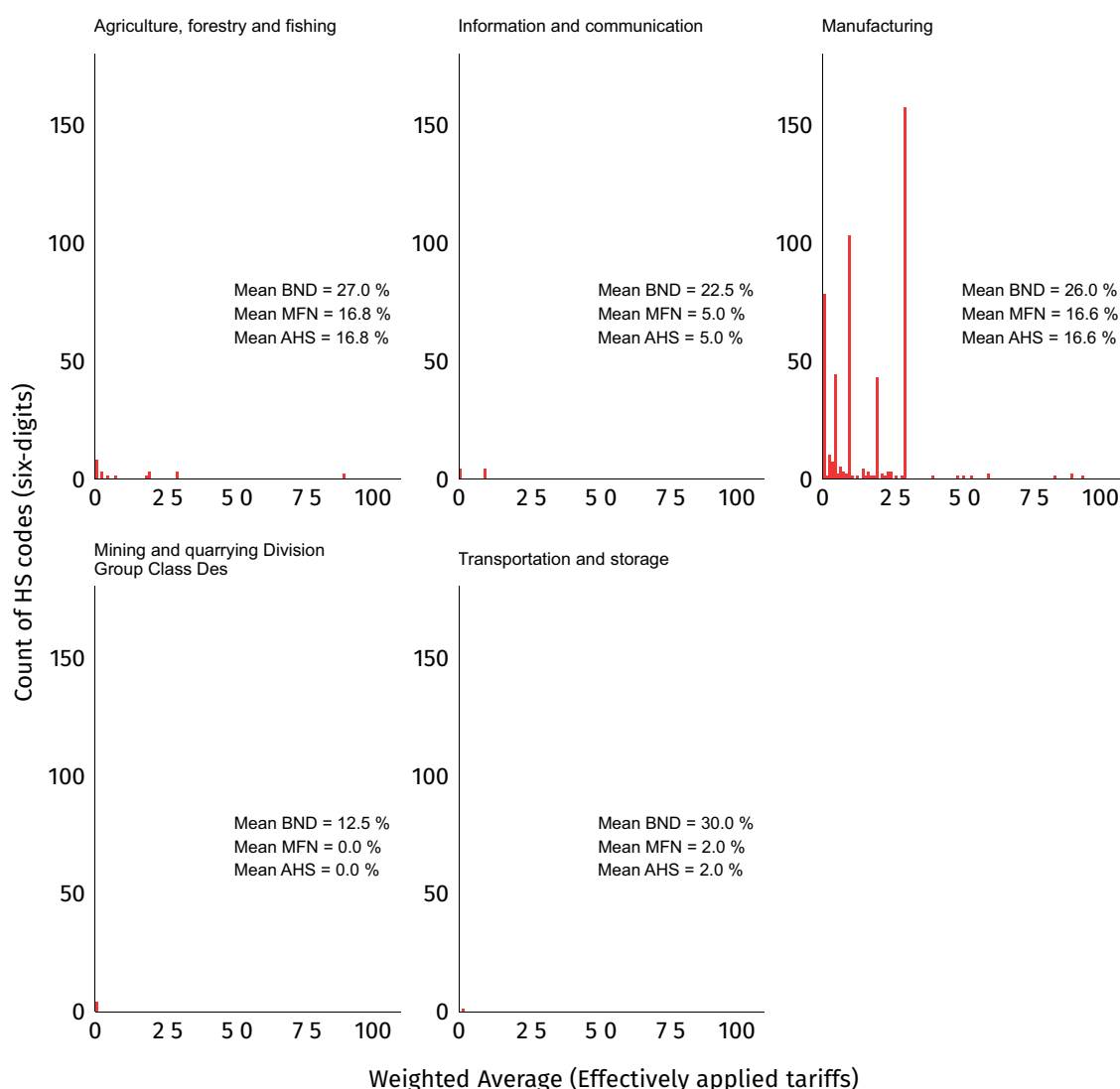
Source: Authors' illustration using data from WITS.

Figure A.3: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Thailand to Sri Lanka: sub-sectors within agricultural exports



Source: Authors' illustration using data from WITS.

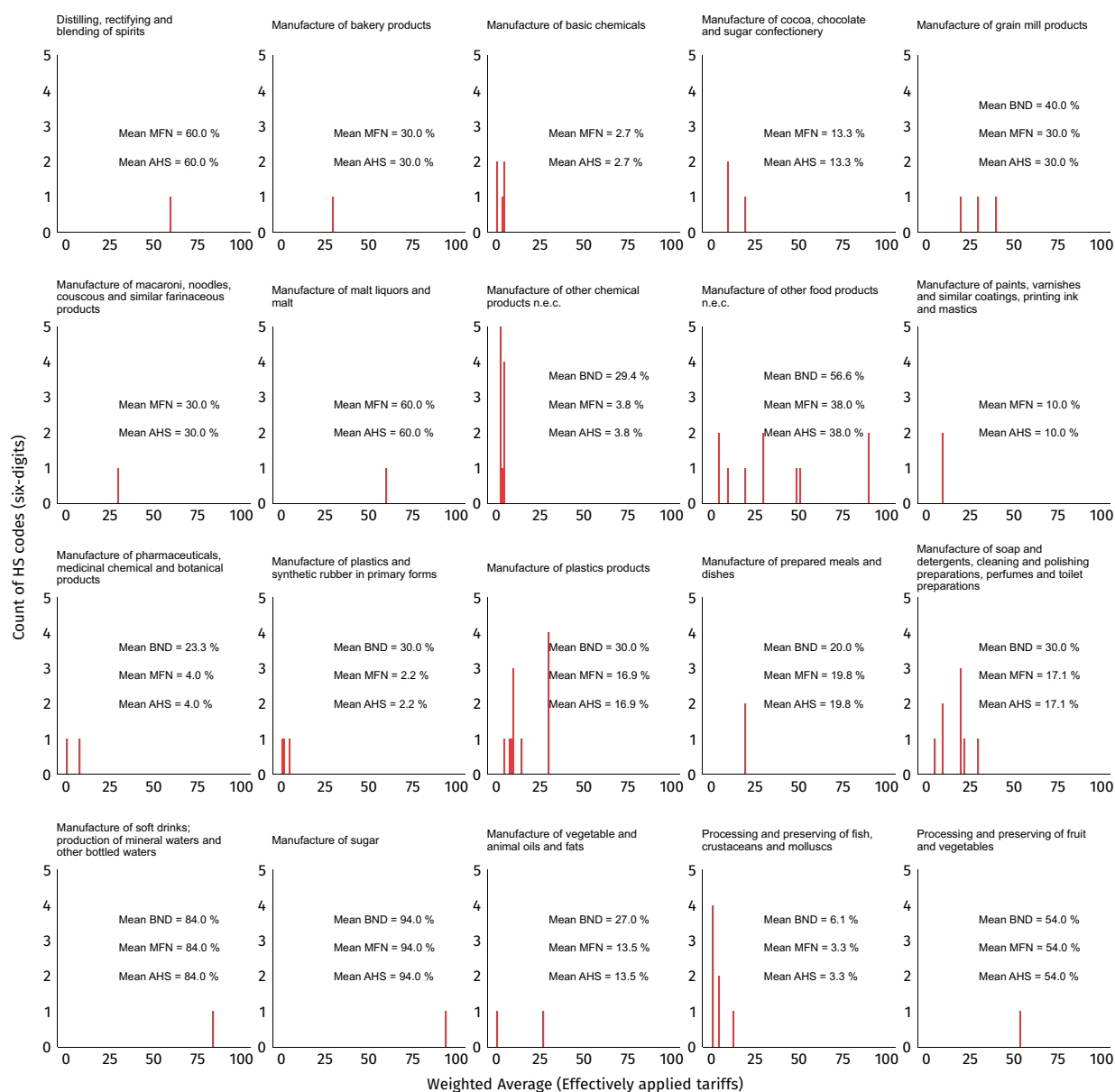
Figure A.4: Distribution of the effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand by major sectors



Notes: Annotated mean tariff values for each sector are simple averages of the weighted average tariffs at HS-six digits. Calculations consider HS codes with positive export values from Sri Lanka to Thailand.

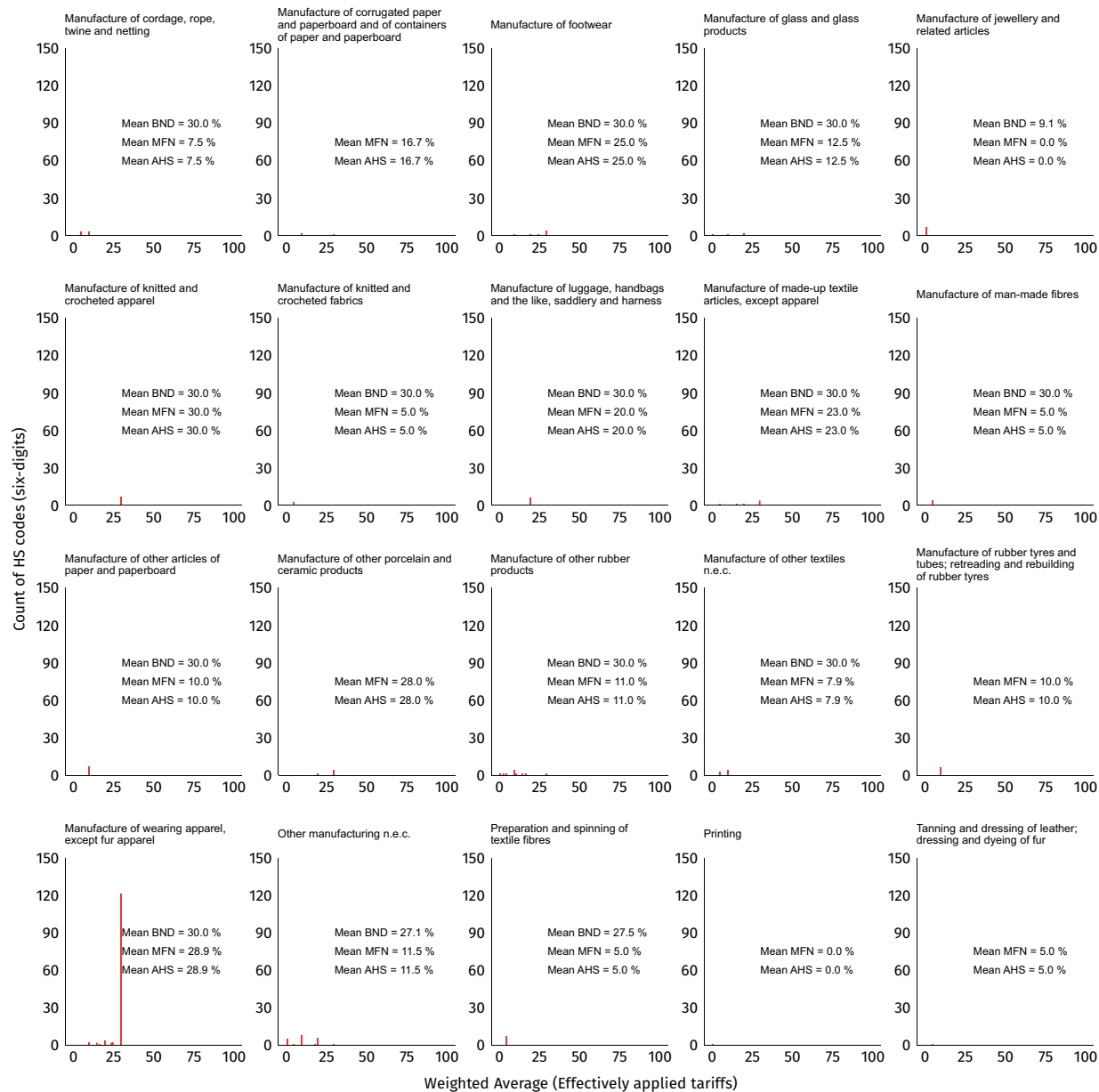
Source: Authors' calculation and illustration using TRAINS tariff data obtained through WITS.

Figure A.5.1: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: sub-sectors within manufacturing exports



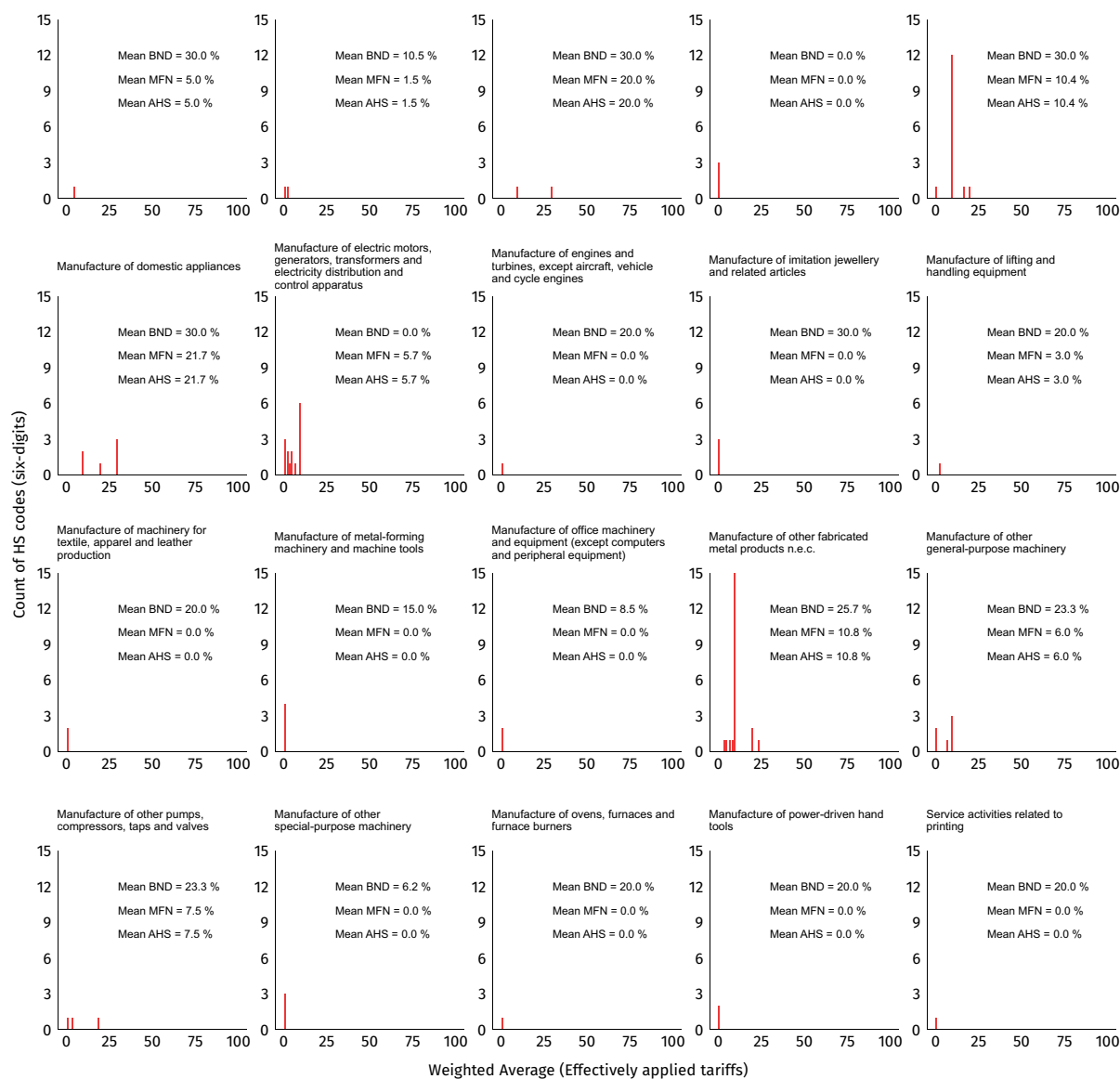
Source: Authors' calculation and illustration using TRAINS tariff data obtained through WITS.

Figure A.5.2: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: sub-sectors within manufacturing exports



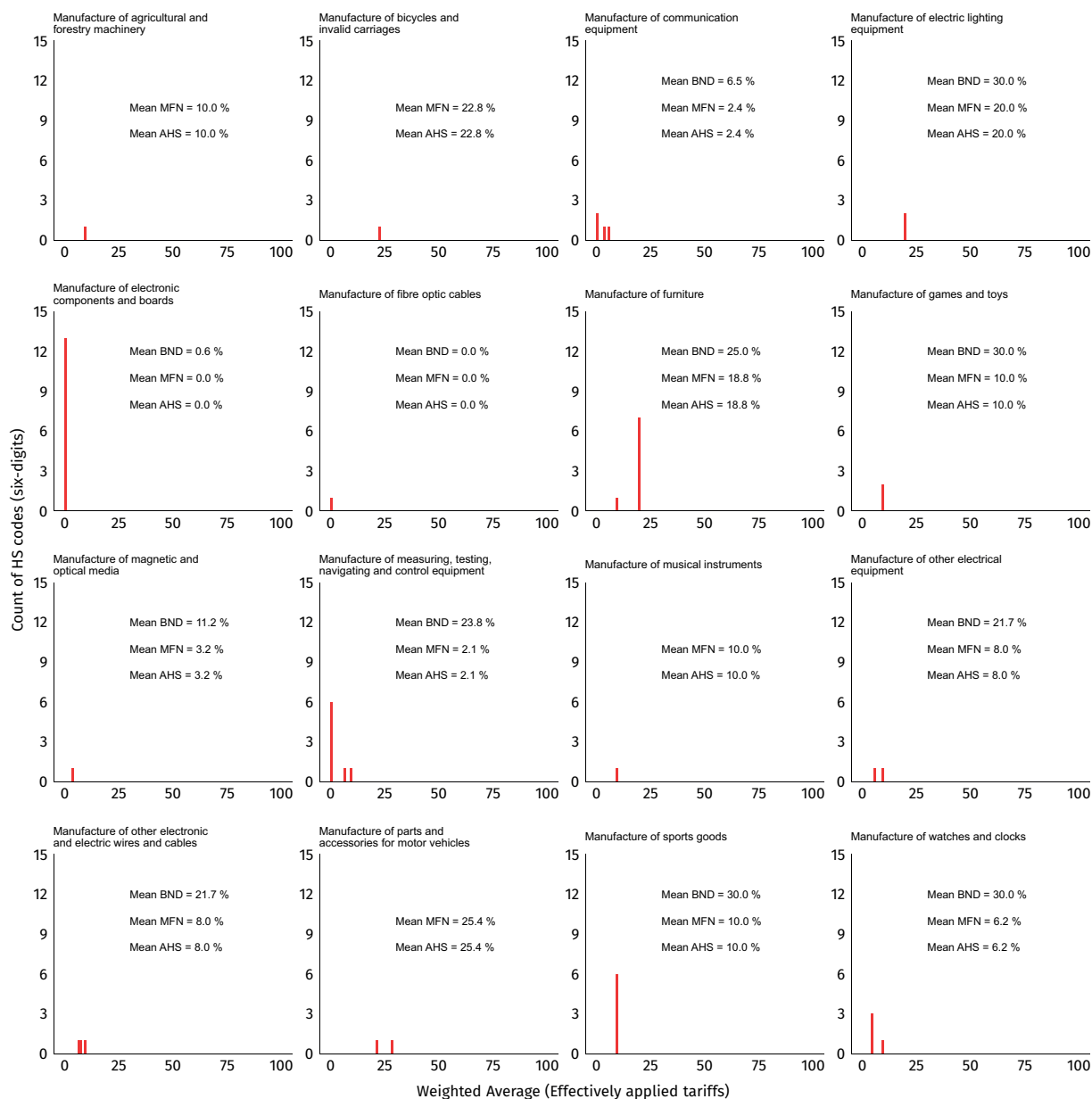
Source: Authors' calculation and illustration using TRAINS tariff data obtained through WITS.

Figure A.5.3: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: sub-sectors within manufacturing exports



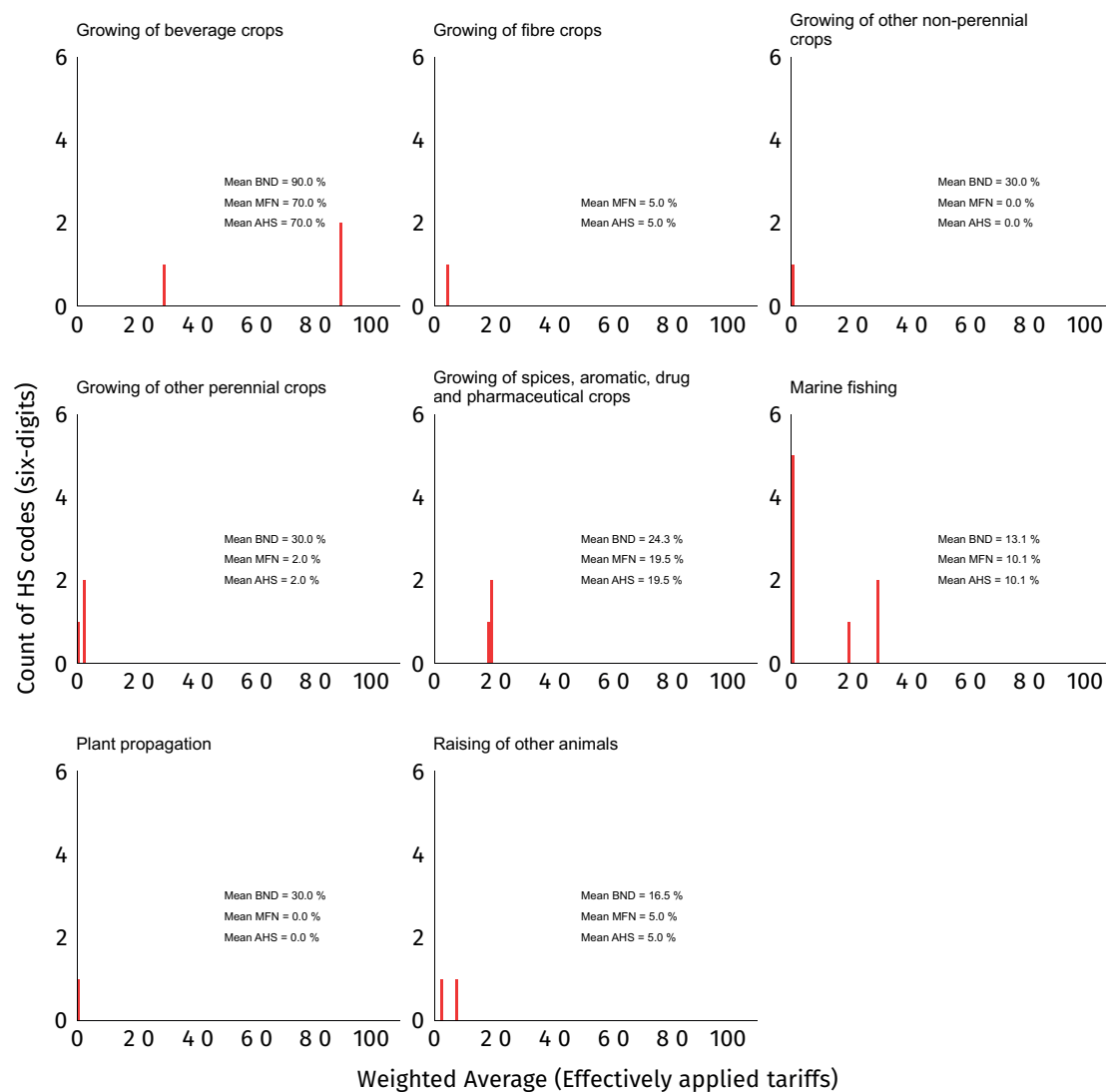
Source: Authors' calculation and illustration using TRAINS tariff data obtained through WITS.

Figure A.5.4: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: sub-sectors within manufacturing exports



Source: Authors' calculation and illustration using TRAINS tariff data obtained through WITS.

Figure A.6: Distribution of effectively applied tariffs (weighted average) faced by existing exports from Sri Lanka to Thailand: sub-sectors within agricultural exports



Source: Authors' calculation and illustration using TRAINS tariff data obtained through WITS.

Appendix B: Equations

B.1 Herfindahl-Hirschman Index

$$HHI = \sum^n (s_i)^2$$

s_i = export share of minor category i in percentage

B.2 Revealed Comparative Advantage (RCA)

$$RCA_i^k = \frac{(X_{iw}^k / X_{iw})}{(X_w^k / X_w)}$$

i = Reporter country

k = Product

w = World

RCA_i^k = Revealed Comparative Advantage of product k of country i

X_{iw}^k = Export value of product k from country i to the world

X_{iw} = Total export value of country i to the world

X_w^k = World total export value of product k

X_w = Total world exports

B.3 Trade Intensity Index (TII)

Export Intensity Index

$$XII_{ij} = \frac{(X_{ij} / X_{iw})}{(M_{jw} / [M_w - M_{iw}])}$$

i = Reporter country

j = Partner country

w = World

XII_{ij} = Export Intensity Index of country i to country j

X_{ij} = Country i 's exports to country j

X_{iw} = Country i 's total exports to the world

M_{jw} = Country j 's total imports from the world

M_w = Total world imports

M_{iw} = Country i 's total imports from the world

Import Intensity Index

$$MI_{ij} = \frac{(M_{ij}/M_{iw})}{(X_{jw}/[X_w - X_{iw}])}$$

i = Reporter country

j = Partner country

w = World

MI_{ij} = Import Intensity Index of country i from country j

M_{ij} = Country i 's imports from country j

M_{iw} = Country i 's total imports from the world

X_{jw} = Country j 's total exports to the world

X_w = Total world exports

X_{iw} = Country i 's total exports to the world

B.4: Trade Complementarity Index (TCI)

$$TCI_{sd} = [1 - (\sum_i \left| \frac{\sum_w m_{iwd}}{\sum_w M_{iwd}} - \frac{\sum_w x_{isw}}{\sum_w X_{sw}} \right|) \div 2] \times 100$$

d = Importing country of interest

s = Exporting country of interest

i = Set of industries

w = Set of all the countries in the world

TCI_{sd} = Trade Complementarity Index between country s and d

m_{iwd} = Commodity import flow of country d from w

M_{wd} = Total import flow of country d from w

x_{isw} = Commodity export flow of country s to w

X_{sw} = Total export flow of country s to w

B.5: Export Similarity Index

$$ESI_{ij,k} = \left\{ \sum_p \min \left(\frac{x_{ik}^p}{x_{ik}}, \frac{x_{jk}^p}{x_{jk}} \right) \right\} \times 100$$

i and j = Two different reporter countries

k = Common market (Export destination)

$ESI_{ij,k}$ = Export Similarity Index of countries i and j with the common market k

p = Product

x_{ik}^p = Country i 's export value of product p to the common market k

x_{ik} = Country i 's total exports to the common market k

x_{jk}^p = Country j 's export value of product p to the common market k

x_{jk} = Country j 's total exports to the common market k

Appendix C: Offensive Lists

Table C.1: Offensive list of Sri Lanka

HS code	Product name	GTAP code	Exports before (USD Mn)	Exports after (USD Mn)	Change (USD Mn)
90240	Black fermented tea and partly fermented tea	ocr	0.717	4.161	3.444
621210	Brassieres of all types of textile materials	wap	0.889	2.755	1.866
610821	Women's or girls' briefs and panties of cotton	wap	0.345	1.990	1.645
611241	Women's or girls' swimwear of synthetic fibres	wap	0.064	1.383	1.319
621290	Corsets, braces, garters, suspenders and similar articles and parts thereof	wap	0.592	1.781	1.189
610990	T-shirts, singlets and other vests of textile materials	wap	0.551	1.686	1.134
611610	Gloves, mittens and mitts, impregnated, coated, covered or laminated with plastics or rubber	wap	0.461	1.398	0.938

610510	Men's or boys' shirts of cotton	wap	0.427	1.251	0.824
610822	Women's or girls' briefs and panties of man-made fibres	wap	0.395	1.147	0.751
620462	Women's or girls' trousers, bib and brace overalls, breeches and shorts of cotton	wap	0.125	0.713	0.588
850431	Transformers having a power handling capacity $\leq$ 1 kVA	eeq	0.629	1.207	0.578
620342	Men's or boys' trousers, bib and brace overalls, breeches and shorts, of cotton	wap	0.158	0.656	0.498
610711	Men's or boys' underpants and briefs of cotton	wap	0.260	0.742	0.483
610463	Women's or girls' trousers, bib and brace overalls, breeches and shorts of synthetic fibres	wap	0.249	0.730	0.481
620520	Men's or boys' shirts of cotton	wap	0.099	0.466	0.367
691110	Tableware and kitchenware, of porcelain or china	nmm	0.102	0.451	0.349
610910	T-shirts, singlets and other vests of cotton	wap	0.162	0.482	0.320
611693	Gloves, mittens and mitts, of synthetic fibres	wap	0.172	0.480	0.308
401290	Solid or cushion tyres, interchangeable tyre treads and tyre flaps, of rubber	rpp	0.455	0.760	0.305
401699	Articles of vulcanised rubber	rpp	0.375	0.660	0.285
611595	Full-length or knee-length stockings, socks and other hosiery	wap	0.014	0.290	0.277
90230	Black fermented tea and partly fermented tea	ofd	0.128	0.401	0.273
90210	Green tea in immediate packings of $\leq$ 3 kg	ofd	0.108	0.355	0.248
401519	Gloves, mittens and mitts, of vulcanised rubber	rpp	0.329	0.565	0.236
611231	Men's or boys' swimwear of synthetic fibres	wap	0.095	0.278	0.183

620640	Women's or girls' blouses, shirts and shirt-blouses of man-made fibres	wap	0.075	0.238	0.164
620443	Women's or girls' dresses of synthetic fibres	wap	0.062	0.213	0.150
621600	Gloves, mittens and mitts, of all types of textile materials	wap	0.068	0.214	0.145
620630	Women's or girls' blouses, shirts and shirt-blouses of cotton	wap	0.068	0.210	0.142
121190	Plants, parts of plants, incl. seeds and fruits, used primarily in perfumery, in pharmacy	ocr	0.099	0.236	0.138
380210	Activated carbon	chm	0.548	0.681	0.132
620343	Men's or boys' trousers, bib and brace overalls, breeches and shorts of synthetic fibres	wap	0.063	0.195	0.132
610620	Women's or girls' blouses, shirts and shirt-blouses of man-made fibres	wap	0.010	0.141	0.131
620463	Women's or girls' trousers, bib and brace overalls, breeches and shorts of synthetic fibres	wap	0.063	0.191	0.128
610462	Women's or girls' trousers, bib and brace overalls, breeches and shorts of cotton	wap	0.063	0.189	0.126
560819	Knotted netting of twine, cordage, ropes or cables, by the piece or metre; made-up nets	tex	0.165	0.289	0.124
540269	Multiple folded or cabled synthetic filament yarn	tex	0.300	0.421	0.121
611020	Jerseys, pullovers, cardigans, waistcoats and similar articles, of cotton	wap	0.054	0.162	0.108
620349	Men's or boys' trousers, bib and brace overalls, breeches and shorts of textile materials	wap	0.038	0.127	0.089
630790	Made-up articles of textile materials	tex	0.060	0.132	0.072
620822	Women's or girls' nightdresses and pyjamas of man-made fibres	wap	0.020	0.087	0.066
610342	Men's or boys' trousers, bib and brace overalls, breeches and shorts of cotton	wap	0.033	0.099	0.066

620590	Men's or boys' shirts of textile materials	wap	0.030	0.091	0.061
610712	Men's or boys' underpants and briefs of man-made fibres	wap	0.030	0.091	0.061
30617	Frozen shrimps and prawns, even smoked, whether in shell or not	ofd	0.068	0.128	0.061
610443	Women's or girls' dresses of synthetic fibres	wap	0.006	0.061	0.055
830810	Hooks, eyes and eyelets, of base metal, of a kind used for clothing, footwear, awnings, handbags	fmp	0.069	0.124	0.054
210120	Extracts, essences and concentrates, of tea or mate	ofd	0.046	0.096	0.050
611596	Full-length or knee-length stockings, socks and other hosiery	wap	0.016	0.065	0.049
610343	Men's or boys' trousers, bib and brace overalls, breeches and shorts of synthetic fibres	wap	0.022	0.068	0.046
330129	Essential oils, whether or not terpeneless	chm	0.123	0.168	0.045
620530	Men's or boys' shirts of man-made fibres	wap	0.022	0.065	0.043
611420	Special garments for professional, sporting or other purposes, n.e.s., of cotton, knitted or ...	wap	0.024	0.067	0.043
611420	Special garments for professional, sporting or other purposes, n.e.s., of cotton	wap	0.024	0.067	0.043
401170	New pneumatic tyres, of rubber, of a kind used on agricultural or forestry vehicles and machines	rpp	0.070	0.112	0.042
950629	Water-skis, surfboards and other water-sport equipment	omf	0.054	0.093	0.040
620469	Women's or girls' trousers, bib and brace overalls, breeches and shorts of textile materials	wap	0.020	0.059	0.039
210690	Food preparations, n.e.s.	ofd	0.047	0.087	0.039
482110	Paper or paperboard labels of all kinds, printed	ppp	0.056	0.092	0.036
610469	Women's or girls' trousers, bib and brace overalls, breeches and shorts of textile materials	wap	0.016	0.050	0.034

830890	Clasps, frames with clasps without locks, buckles and buckle-clasps, of base metal	fmp	0.040	0.071	0.032
611030	Jerseys, pullovers, cardigans, waistcoats and similar articles, of man-made fibres	wap	0.013	0.040	0.027
160510	Crab, prepared or preserved	ofd	0.021	0.048	0.027
620444	Women's or girls' dresses of artificial fibres	wap	0.014	0.040	0.026
621143	Women's or girls' tracksuits and other garments, n.e.s. of man-made fibres	wap	0.015	0.041	0.026
392321	Sacks and bags, incl. cones, of polymers of ethylene	rpp	0.047	0.071	0.025
560890	Knotted netting of twine, cordage, ropes or cables, by the piece or metre	tex	0.027	0.051	0.025
620690	Women's or girls' blouses, shirts and shirt-blouses of textile materials	wap	0.011	0.033	0.021
620433	Women's or girls' jackets and blazers of synthetic fibres	wap	0.010	0.031	0.021
611090	Jerseys, pullovers, cardigans, waistcoats and similar articles, of textile materials	wap	0.009	0.029	0.020
620899	Women's or girls' singlets and other vests, briefs, panties, négligés, bathrobes	wap	0.008	0.028	0.020
611120	Babies' garments and clothing accessories of cotton	wap	0.009	0.027	0.018
620442	Women's or girls' dresses of cotton	wap	0.009	0.027	0.018
90220	Green tea in immediate packings of > 3 kg	ofd	0.003	0.021	0.018
640220	Footwear with outer soles and uppers of rubber or plastics	lea	0.008	0.025	0.017
620821	Women's or girls' nightdresses and pyjamas of cotton	wap	0.007	0.023	0.016
611430	Special garments for professional, sporting or other purposes, n.e.s.	wap	0.007	0.021	0.014
610459	Women's or girls' skirts and divided skirts of textile materials	wap	0.006	0.019	0.012

940350	Wooden furniture for bedrooms	omf	0.007	0.018	0.011
580710	Labels, badges and similar articles, of textile materials	tex	0.013	0.023	0.010
620453	Women's or girls' skirts and divided skirts of synthetic fibres	wap	0.005	0.016	0.010
560790	Twine, cordage, ropes and cables	tex	0.024	0.034	0.010
620452	Women's or girls' skirts and divided skirts of cotton	wap	0.003	0.012	0.009
610444	Women's or girls' dresses of artificial fibres	wap	0.005	0.014	0.009
610419	Women's or girls' suits of textile materials	wap	0.004	0.012	0.008
80111	Desiccated coconuts	v_f	0.004	0.011	0.007
610442	Women's or girls' dresses of cotton	wap	0.003	0.009	0.006
392490	Household articles and toilet articles, of plastics (	rpp	0.003	0.009	0.006
392620	Articles of apparel and clothing accessories	wap	0.005	0.011	0.006
401180	New pneumatic tyres, of rubber, of a kind used on construction, mining or industrial handling	rpp	0.010	0.015	0.006
620459	Women's or girls' skirts and divided skirts of textile materials	wap	0.003	0.008	0.006
620332	Men's or boys' jackets and blazers of cotton	wap	0.002	0.007	0.005
620920	Babies' garments and clothing accessories of cotton	wap	0.002	0.007	0.005
482190	Paper or paperboard labels of all kinds, non-printed	ppp	0.007	0.011	0.004
140490	Vegetable products n.e.s	frs	0.023	0.027	0.004
611490	Special garments for professional, sporting or other purposes, n.e.s.	wap	0.002	0.006	0.004
620432	Women's or girls' jackets and blazers of cotton	wap	0.002	0.005	0.003
481910	Cartons, boxes and cases, of corrugated paper or paperboard	ppp	0.002	0.005	0.003

611599	Full-length or knee-length stockings, socks and other hosiery, incl. footwear without applied ...	wap	0.002	0.005	0.003
401190	New pneumatic tyres, of rubber (excl. of a kind used on agricultural, forestry, construction, ...	rpp	0.005	0.008	0.003
880400	Parachutes, incl. dirigible parachutes and paragliders, and rotochutes	tex	0.007	0.010	0.003
611599	Full-length or knee-length stockings, socks and other hosiery	wap	0.002	0.005	0.003
401190	New pneumatic tyres, of rubber	rpp	0.005	0.008	0.003
610829	Women's or girls' briefs and panties of textile materials	wap	0.001	0.004	0.003
620829	Women's or girls' nightdresses and pyjamas of textile materials	wap	0.000	0.003	0.003
610433	Women's or girls' jackets and blazers of synthetic fibres	wap	0.001	0.004	0.003
610220	Women's or girls' overcoats, car coats, capes, cloaks, anoraks	wap	0.001	0.003	0.002
620319	Men's or boys' suits of textile materials	wap	0.001	0.003	0.002
621142	Women's or girls' tracksuits and other garments	wap	0.001	0.002	0.002
611529	Pantyhose and tights of textile materials	wap	0.001	0.002	0.001
650500	Hats and other headgear	wap	0.001	0.002	0.001
620449	Women's or girls' dresses of textile materials	wap	0.000	0.002	0.001
620412	Women's or girls' suits of cotton	wap	0.001	0.002	0.001
340290	Surface-active preparations, washing preparations	chm	0.001	0.002	0.001
560394	Nonwovens, whether or not impregnated, coated, covered or laminated	tex	0.003	0.004	0.001
620339	Men's or boys' jackets and blazers of textile materials	wap	0.001	0.002	0.001

600410	Knitted or crocheted fabrics, of a width of > 30 cm, containing >= 5% by weight	tex	0.002	0.003	0.001
540261	Multiple folded or cabled filament yarn of nylon or other polyamides, incl. monofilament ...	tex	0.002	0.003	0.001
610449	Women's or girls' dresses of textile materials	wap	0.000	0.001	0.001
853810	Boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not ...	eeq	0.001	0.002	0.001
560900	Articles of yarn, strip or the like of heading 5404 or 5405	tex	0.001	0.002	0.001
610332	Men's or boys' jackets and blazers of cotton	wap	0.000	0.001	0.001
481930	Sacks and bags, of paper, paperboard, cellulose wadding or webs of cellulose fibres	ppp	0.000	0.001	0.001
401691	Floor coverings and mats, of vulcanised rubber	rpp	0.001	0.001	0.001
90611	Cinnamon	ocr	0.000	0.001	0.001
610839	Women's or girls' nightdresses and pyjamas of textile materials	wap	0.000	0.001	0.001
30487	Frozen fillets of tuna of the genus Thunnus, skipjack or stripe-bellied bonito	ofd	0.002	0.003	0.001
621111	Men's or boys' swimwear	wap	0.000	0.001	0.000
871200	Bicycles and other cycles, incl. delivery tricycles, not motorised	otn	0.000	0.001	0.000
621112	Women's or girls' swimwear	wap	0.000	0.001	0.000
610719	Men's or boys' underpants and briefs of other textile materials	wap	0.000	0.001	0.000
871200	Bicycles and other cycles	otn	0.000	0.001	0.000
691390	Statuettes and other ornamental ceramic articles	nmm	0.000	0.001	0.000
401490	Hygienic or pharmaceutical articles	rpp	0.001	0.001	0.000

30499	Frozen fish meat	ofd	0.002	0.002	0.000
621220	Girdles and panty girdles of all types of textile materials	wap	0.000	0.000	0.000
731029	Tanks, casks, drums, cans, boxes and similar containers, of iron or steel	fmp	0.000	0.001	0.000
420329	Gloves, mittens and mitts, of leather or composition leather	wap	0.000	0.000	0.000
650700	Headbands, linings, covers, hat foundations, hat frames, peaks and chinstraps	wap	0.000	0.000	0.000
611790	Parts of garments or clothing accessories	wap	0.000	0.000	0.000
220299	Non-alcoholic beverages	bt	0.000	0.000	0.000
620439	Women's or girls' jackets and blazers of textile materials	wap	0.000	0.000	0.000
940410	Mattress supports for bed frames	omf	0.000	0.000	0.000
610432	Women's or girls' jackets and blazers of cotton	wap	0.000	0.000	0.000
701090	Carboys, bottles, flasks, jars, pots, phials and other containers	nmm	0.000	0.000	0.000
853190	Parts of electric sound or visual signalling apparatus	eeq	0.000	0.000	0.000
30111	Live ornamental freshwater fish	fsh	0.000	0.000	0.000
620113	Men's or boys' overcoats, raincoats, car coats, capes, cloaks and similar articles	wap	0.000	0.000	0.000
610690	Women's or girls' blouses, shirts and shirt-blouses of textile materials	wap	0.000	0.000	0.000
490700	Unused postage, revenue or similar stamps of current or new issue in the country	ppp	0.000	0.000	0.000
90412	Pepper of the genus Piper, crushed or ground	ofd	0.000	0.000	0.000
151620	Vegetable fats and oils and their fractions	vol	0.000	0.000	0.000

950510	Christmas articles	omf	0.000	0.000	0.000
761290	Casks, drums, cans, boxes and similar containers	nfm	0.000	0.000	0.000
621710	Made-up clothing accessories, of all types of textile materials	wap	0.000	0.000	0.000
330190	Extracted oleoresins; concentrates of essential oils in fats, fixed oils, waxes and the like	chm	0.000	0.000	0.000

Source: Authors' estimates and compilation.

Table C.2: Offensive list of Thailand

HS code	Product name	gtapgroup	Exports before (USD Mn)	Exports after (USD Mn)	Change (USD Mn)
870421	Motor vehicles for the transport of goods	mvh	22.124	42.749	20.625
400121	Smoked sheets of natural rubber	rpp	21.446	37.521	16.075
400110	Natural rubber latex	rpp	11.157	16.954	5.797
190190	Malt extract	ofd	14.638	19.849	5.211
850710	Lead-acid accumulators	eeq	3.032	8.239	5.206
841510	Window or wall air conditioning machines	ome	2.157	6.509	4.352
960610	Press-fasteners, snap-fasteners and press studs	omf	5.520	8.410	2.890
841590	Parts of air conditioning machines	ome	1.733	4.465	2.732
841821	Household refrigerators	eeq	2.021	4.726	2.704
480256	Uncoated paper and paperboard	ppp	2.805	5.258	2.453
870322	Motor cars and other motor vehicles	mvh	1.240	3.227	1.987

401110	New pneumatic tyres	rpp	2.531	4.425	1.894
870332	Motor cars and other motor vehicles principally designed for the transport of persons	mvh	1.365	3.184	1.819
401120	New pneumatic tyres, of rubber, of a kind used for buses and lorries	rpp	1.449	3.150	1.701
100630	Semi-milled or wholly milled rice	pcr	1.063	2.465	1.402
210690	Food preparations, n.e.s.	ofd	2.189	3.451	1.262
71331	Dried, shelled beans of species	v_f	3.011	4.242	1.231
691090	Ceramic sinks, washbasins, washbasin pedestals, baths, bidets, water closet pans, flushing	nmm	0.566	1.488	0.922
731029	Tanks, casks, drums, cans, boxes and similar containers, of iron or steel	fmp	1.598	2.515	0.916
841581	Air conditioning machines incorporating a refrigerating unit	ome	0.748	1.498	0.750
330510	Shampoos	chm	0.476	1.203	0.727
870829	Parts and accessories of bodies for tractors	mvh	0.410	1.097	0.687
480257	Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes	ppp	1.119	1.729	0.610
731021	Cans of iron or steel	fmp	0.601	1.170	0.569
320890	Paints and varnishes based	chm	0.438	1.005	0.567
330720	Personal deodorants and antiperspirants	chm	0.392	0.902	0.510
230910	Dog or cat food	ofd	0.526	1.017	0.491

392051	Plates, sheets, film, foil and strip, of non-cellular polymethyl methacrylate	rpp	0.859	1.344	0.486
850432	Transformers, having a power handling capacity > 1 kVA but ≤ 16 kVA	eeq	0.870	1.300	0.430
830130	Locks used for furniture, of base metal	fmp	0.442	0.861	0.419
210390	Preparations for sauces and prepared sauces	ofd	0.434	0.840	0.406
870830	Brakes and servo-brakes and their parts, for tractors, motor vehicles	mvh	0.247	0.643	0.396
190300	Tapioca and substitutes therefor prepared from starch, in the form of flakes, grains, pearls	ofd	1.003	1.379	0.376
330590	Preparations for use on the hair	chm	0.433	0.806	0.373
870899	Parts and accessories, for tractors, motor vehicles for the transport of ten or more persons	mvh	0.325	0.687	0.362
401519	Gloves, mittens and mitts, of vulcanised rubber	rpp	0.158	0.509	0.351
560749	Twine, cordage, ropes and cables of polyethylene or polypropylene	tex	0.296	0.642	0.346
190410	Prepared foods obtained by swelling or roasting cereals or cereal products	ofd	0.148	0.463	0.314
870810	Bumpers and parts thereof for tractors, motor vehicles for the transport of ten or more persons	mvh	0.214	0.510	0.296
845011	Fully-automatic household or laundry-type washing machines, of a dry linen capacity ≤ 6 kg	eeq	0.138	0.430	0.291
830990	Stoppers, caps and lids, incl. screw caps and pouring stoppers, capsules for bottles	fmp	0.229	0.518	0.289
401699	Articles of vulcanised rubber	rpp	0.905	1.184	0.280

851220	Electrical lighting or visual signalling equipment for motor vehicles	eeq	0.215	0.481	0.266
392321	Sacks and bags, incl. cones, of polymers of ethylene	rpp	0.212	0.473	0.261
842199	Parts of machinery and apparatus	ome	0.135	0.392	0.257
853710	Boards, cabinets and similar combinations of apparatus	eeq	0.205	0.460	0.255
350510	Dextrins and other modified starches	chm	0.691	0.931	0.241
482190	Paper or paperboard labels of all kinds	ppp	0.157	0.388	0.231
731815	Threaded screws and bolts, of iron or steel	fmp	0.217	0.441	0.224
392010	Plates, sheets, film, foil and strip, of non-cellular polymers of ethylene	rpp	0.314	0.526	0.213
842123	Oil or petrol-filters for internal combustion engines	ome	0.171	0.373	0.202
392390	Articles for the conveyance or packaging of goods, of plastics	rpp	0.218	0.418	0.200
845290	Furniture, bases and covers for sewing machines and parts thereof	ome	0.166	0.361	0.195
853720	Boards, cabinets and similar combinations of apparatus for electric control	eeq	0.153	0.345	0.192
210112	Preparations with a basis of extracts, essences or concentrates of coffee	ofd	0.180	0.364	0.184
401180	New pneumatic tyres, of rubber, of a kind used on construction, mining or industrial handling	rpp	0.234	0.408	0.174
392119	Plates, sheets, film, foil and strip, of cellular plastic	rpp	0.150	0.315	0.164
401190	New pneumatic tyres, of rubber	rpp	0.210	0.366	0.156
701337	Drinking glasses	nmm	0.091	0.238	0.147

761510	Table, kitchen or other household articles and parts thereof	fmp	0.076	0.222	0.146
845090	Parts of household or laundry-type washing machines	ome	0.218	0.350	0.131
732410	Sinks and washbasins, of stainless steel	fmp	0.085	0.214	0.129
190219	Uncooked pasta, not stuffed or otherwise prepared, not containing eggs	ofd	0.133	0.257	0.125
160415	Prepared or preserved mackerel, whole or in pieces	ofd	0.243	0.365	0.123
401039	Transmission belts or belting, of vulcanised rubber	rpp	0.126	0.244	0.119
690722	Ceramic flags and paving, hearth or wall tiles	nmm	0.068	0.185	0.117
870333	Motor cars and other motor vehicles principally designed for the transport of persons	mvh	0.079	0.195	0.117
392350	Stoppers, lids, caps and other closures, of plastics	rpp	0.084	0.197	0.114
30389	Frozen fish, n.e.s.	ofd	0.173	0.278	0.105
400911	Tubes, pipes and hoses, of vulcanised rubber	rpp	0.107	0.206	0.099
570390	Carpet tiles of vegetable textile materials	tex	0.224	0.322	0.098
741999	Articles of copper	nfm	0.133	0.229	0.096
560790	Twine, cordage, ropes and cables	tex	0.068	0.160	0.093
392310	Boxes, cases, crates and similar articles	rpp	0.073	0.163	0.090
853620	Automatic circuit breakers for a voltage $\leq$ 1.000 V	eeq	0.188	0.275	0.087
870894	Steering wheels, steering columns and steering boxes, and parts thereof	mvh	0.051	0.136	0.084
870840	Gear boxes and parts thereof, for tractors, motor vehicles	mvh	0.036	0.112	0.076

853630	Apparatus for protecting electrical circuits for a voltage ≤ 1.000 V	eeq	0.061	0.136	0.075
732690	Articles of iron or steel	fmp	0.187	0.261	0.075
410799	Leather incl. parchment-dressed leather	lea	0.028	0.089	0.061
392329	Sacks and bags, incl. cones, of plastics	rpp	0.046	0.106	0.059
321490	Non-refractory surfacing preparations for facades, inside walls, floors, ceilings and the like	chm	0.103	0.162	0.059
340290	Surface-active preparations, washing preparations, incl. auxiliary washing preparations	chm	0.103	0.157	0.054
691200	Tableware, kitchenware, other household articles and toilet articles, of ceramics	nmm	0.028	0.082	0.053
841490	Parts of: air or vacuum pumps, air or other gas compressors, fans and ventilating or recycling	ome	0.041	0.092	0.051
870850	Drive-axles with differential	mvh	0.032	0.082	0.050
851660	Electric ovens, cookers, cooking plates and boiling rings, electric grillers and roasters	eeq	0.037	0.085	0.048
230310	Residues of starch manufacture and similar residues	ofd	0.071	0.118	0.047
854411	Winding wire for electrical purposes, of copper, insulated	eeq	0.035	0.080	0.045
700711	Toughened tempered safety glass, of size and shape suitable for incorporation in motor	nmm	0.049	0.092	0.043
853400	Printed circuits	ele	0.033	0.075	0.042
854370	Electrical machines and apparatus, having individual functions, n.e.s. in chapter 85	eeq	0.046	0.087	0.042

400811	Plates, sheets and strip of cellular rubber	rpp	0.042	0.083	0.041
401310	Inner tubes, of rubber, of a kind used on motor cars, incl. station wagons and racing cars, ...	rpp	0.023	0.063	0.040
732090	Springs and leaves for springs, of iron or steel, incl. flat spiral springs	fmp	0.035	0.075	0.039
700529	Float glass and surface ground and polished glass, in sheets, but not otherwise worked	nmm	0.038	0.073	0.035
230120	Flours, meals and pellets of fish or crustaceans, molluscs or other aquatic invertebrates	ofd	0.050	0.084	0.034
400942	Tubes, pipes and hoses, of vulcanised rubber	rpp	0.031	0.061	0.031
853690	Electrical apparatus for switching electrical circuits	eeq	0.047	0.077	0.030
691010	Ceramic sinks, washbasins, washbasin pedestals, baths, bidets, water closet pans	nmm	0.019	0.049	0.030
401290	Solid or cushion tyres, interchangeable tyre treads and tyre flaps, of rubber	rpp	0.016	0.045	0.029
340120	Soap in the form of flakes, granules, powder, paste or in aqueous solution	chm	0.015	0.043	0.028
853120	Indicator panels with liquid crystal devices "LCD" or light emitting diodes "LED"	eeq	0.017	0.040	0.022
392049	Plates, sheets, film, foil and strip, of non-cellular polymers of vinyl chloride, containing	rpp	0.026	0.048	0.022
853650	Switches for a voltage $\leq$ 1.000 V	eeq	0.078	0.096	0.018
851829	Loudspeakers, without enclosure	ele	0.013	0.031	0.018
851140	Starter motors and dual purpose starter-generators of a kind used for spark-ignition or compression-ignition	eeq	0.010	0.022	0.013

870870	Road wheels and parts and accessories thereof, for tractors, motor vehicles	mvh	0.008	0.019	0.012
730792	Threaded elbows, bends and sleeves, of stainless steel	i_s	0.012	0.022	0.011
850780	Electric accumulators	eeq	0.008	0.019	0.010
854790	Insulating fittings for electrical purposes	eeq	0.008	0.017	0.010
730729	Tube or pipe fittings of stainless steel	i_s	0.011	0.021	0.010
392062	Plates, sheets, film, foil and strip, of non-cellular polyethylene terephthalate	rpp	0.018	0.027	0.009
761010	Doors, windows and their frames and thresholds for door, of aluminium (excluding door furniture)	nfm	0.004	0.012	0.008
401170	New pneumatic tyres, of rubber, of a kind used on agricultural or forestry vehicles and machines	rpp	0.010	0.018	0.008
851180	Electrical ignition or starting equipment	eeq	0.006	0.013	0.007
401390	Inner tubes, of rubber	rpp	0.004	0.010	0.007
852859	Monitors, not incorporating television reception apparatus	ele	0.005	0.011	0.006
961900	Sanitary towels (pads) and tampons, napkins and napkin liners for babies, and similar articles	ppp	0.004	0.010	0.006
851130	Distributors and ignition coils of a kind used for spark-ignition or compression-ignition	eeq	0.005	0.011	0.006
170290	Sugars in solid form	sgr	0.006	0.011	0.006
730719	Cast tube or pipe fittings of iron or steel	i_s	0.007	0.013	0.006
560750	Twine, cordage, ropes and cables, of synthetic fibres	tex	0.004	0.009	0.005

51191	Products of fish or crustaceans, molluscs or other aquatic invertebrates	ofd	0.009	0.013	0.004
330749	Preparations for perfuming or deodorising rooms	chm	0.003	0.007	0.004
853670	Connectors for optical fibres, optical fibre bundles or cables	eeq	0.003	0.007	0.004
731819	Threaded articles, of iron or steel, n.e.s.	fmp	0.004	0.008	0.004
731822	Washers of iron or steel	fmp	0.004	0.007	0.004
854720	Insulating fittings for electrical purposes, of plastics	rpp	0.002	0.006	0.004
960629	Buttons	omf	0.003	0.007	0.004
680422	Millstones, grindstones, grinding wheels and the like	nmm	0.004	0.007	0.003
854620	Electrical insulators of ceramics	nmm	0.003	0.006	0.003
852990	Parts suitable for use solely or principally with flat panel display modules	ele	0.002	0.005	0.003
854430	Ignition wiring sets and other wiring sets for vehicles, aircraft or ships	eeq	0.002	0.004	0.002
853180	Electric sound or visual signalling apparatus	eeq	0.002	0.004	0.002
731700	Nails, tacks, drawing pins, corrugated nails, staples and similar articles of iron or steel	fmp	0.001	0.002	0.001
900150	Spectacle lenses of materials other than glass	ele	0.001	0.003	0.001
841810	Combined refrigerator-freezers	eeq	0.001	0.002	0.001
160411	Prepared or preserved salmon	ofd	0.004	0.005	0.001
853590	Electrical apparatus for switching or protecting electrical circuits	eeq	0.001	0.002	0.001
852871	Reception apparatus for television	ele	0.000	0.001	0.000

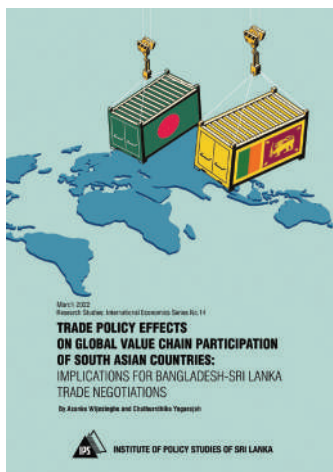
392092	Plates, sheets, film, foil and strip, of non-cellular polyamides	rpp	0.000	0.001	0.000
853110	Burglar or fire alarms and similar apparatus	eeq	0.000	0.000	0.000
391729	Rigid tubes, pipes and hoses, of plastics	rpp	0.000	0.000	0.000
961700	Vacuum flasks and other vacuum vessels	omf	0.000	0.000	0.000
200819	Nuts and other seeds	ofd	0.000	0.000	0.000

Source: Authors' estimates and compilation.

Other Publications in This Series



SOE 2022



Trade Policy Effects on Global Value Chain Participation of South Asian Countries: Implications for Bangladesh-Sri Lanka Trade Negotiations



Repositioning in the Global Apparel Value Chain in the Post-MFA Era: Strategic Issues and Evidence from Sri Lanka



INSTITUTE OF POLICY STUDIES OF SRI LANKA

100/20, Independence Avenue, Colombo 7, Sri Lanka

Tel: +94 11 2143100 • Fax: +94 11 2665065

Email: ips@ips.lk • Website: www.ips.lk

Blog 'Talking Economics': www.ips.lk/talkingeconomics

Twitter: [www.twitter.com/TalkEconomicsSL](https://twitter.com/TalkEconomicsSL)

Facebook: www.facebook.lk/instituteofpolicystudies