

# Structural Change and Protection: Non-Tariff Measures in ASEAN

Gemelee Hirang\*

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## Abstract

As part of their regional integration measures, the members of the Association of Southeast Asian Nations (ASEAN) entered a commitment to remove non-tariff barriers and harmonize non-tariff measures by 2015. Despite this, non-tariff measures have steadily increased in the region.

This paper examines the non-tariff measure incidence in ASEAN within the context of the structural changes which occurred in the region during the 1990s. The 1990s was a period of tariff liberalization and outward-oriented policies. These marked the transition of these countries from agricultural to increasingly manufacturing countries. The importance of production network-related trade for ASEAN countries makes the rising incidence of non-tariff measures even more noteworthy. On one hand, non-tariff measures can signal the quality of products of processes, thus stimulating demand. On the other hand, non-tariff measures can act as disguised protectionist measures. Are the ASEAN non-tariff measures motivated by a desire to protect industries which are adversely affected by recent structural changes? Or are these non-tariff measures promoting and enhancing these countries' participation in production networks?

Using a qualitative approach, this paper examines the trends in the imposition of non-tariff measures vis-à-vis the characteristics of the ASEAN Members. The trends in this region provide evidence for both scenarios. That the rising incidence of non-tariff measures coincided with increased participation in production networks supports the argument that these measures promote trade by signaling quality. However, the incidence of non-tariff measures in declining industries suggest that protectionist motives may be at play. These results imply that the idea that non-tariff measures need to be harmonized and even eliminated to promote trade needs to be reexamined.

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\*PhD Candidate (European Doctorate in Law and Economics), University of Bologna/Erasmus University Rotterdam/University of Hamburg. Email: gemelee.hirang2@unibo.it

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# 1 Introduction

The ASEAN<sup>1</sup> Economic Community (AEC) represents a shift in the trade policies of Southeast Asia. Its earlier trade initiatives, such as the ASEAN Free Trade Area (AFTA), were shallow agreements (World Trade Organization 2011, p. 110) which only focused on tariff liberalization. The AEC is a deeper kind of integration as it involves commitments which affect beyond-the-border measures such as non-tariff measures (NTMs). In particular, ASEAN Member States (Member States for brevity) are tasked to remove non-tariff barriers (NTBs)<sup>2</sup> and harmonize NTMs. The aim is to facilitate the free flow of goods in order to transform ASEAN into a single market and production base, with specific emphasis on enhancing the region's capacity to serve as part of the global production chain (Secretariat 2008, p. 6). This change in regional preferences, from shallow to deeper integration, is not surprising in light of the increasingly greater role played by the Member States in production networks.<sup>3</sup>

The distinguishing feature of today's production networks is the unbundling of production stages not only among different firms but also across different countries. (Orefice and Rocha 2014, p. 106) Different and conflicting trade-related domestic regulations, such as NTMs, thus have a potential to significantly raise production costs in production networks. (World Trade Organization 2011, p. 111) The increased transboundary movement of both intermediate and final goods highlights the importance of deeper integration as this lowers trade costs, through legal and regulatory convergence, and strengthens the links between the signatories. (World Trade Organization 2011; Orefice and Rocha 2014) In fact, the primacy of enhancing production networks in ASEAN is one of the main factors behind the efforts to harmonize NTMs and eliminate NTBs.

NTMs include any measure or policy, other than tariffs, which may affect the price or quantity of traded goods. (Trade and Development 2013, p. 2) This definition includes measures, regulations, and policies which on their face are unrelated to trade. There is no one way to categorize or classify NTMs. An easy way to make sense of these measures is to distinguish them based on their effects, such as price measures (subsidies), quantity measures (quotas), or quality measures. Quality measures impose standards and requirements on either the production process or product features. (World Trade Organization 2012, p. 51) Sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBTs) are the most commonly used quality measures in the world. (Trade and Development 2013, pp. 4-5) SPS measures aim to protect human, plant, and animal life against contamination and the spread of diseases. TBTs are more general, and refer to measures

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<sup>1</sup>The Association of Southeast Asian Nations (ASEAN) is composed of Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

<sup>2</sup>NTBs are NTMs that are either intentionally or unintentionally protectionist.

<sup>3</sup>AFTA has one of the highest intra-regional shares in exports of parts and components (28%), as noted by the World Trade Organization in the *World Trade Report 2011*

which impose technical and quality requirements. (Trade and Development 2013, p. 4)

The motives and effects of NTMs become especially salient in the context of increased participation in production networks. For example, countries may have different standards for the quality of products and processes. Lower quality intermediate products and processes may compromise the quality of final goods. However, as the actual quality of intermediate inputs is not immediately apparent, total demand for them may be adversely affected. Quality measures such as SPS and TBTs may serve to address this information asymmetry by signaling that the traded goods meet the quality and safety standards of the importing countries, thus stimulating demand for the intermediate inputs. (World Trade Organization 2012, p. 62)

Alternatively, SPS and TBTs may act as disguised protectionist measures such as when these measures require foreign producers to use costlier production methods. As export costs increase, the market share of domestic firms increase. (ibid., pp. 59-60, 62) Thus, NTMs may significantly increase trade costs, and this hinders the further development of intra-regional production networks.

The persistence of NTMs among the Member States despite the region's avowed policy of trade liberalization is an interesting phenomenon. The increased participation of the Member States in both production networks and deeper integration efforts coincided with a rising incidence of NTMs. Is there a link between participation in production networks and trade liberalization efforts, on one hand, and NTM incidence, on the other? This question drives the discussion in this paper.

As a starting point, the emergence of production networks in the Member States must be placed in its proper context. From the late 1980s onwards, there was an increase in both the economic importance of production networks and efforts to enhance the region's attractiveness as a production base. This contributed to the increased involvement of the Member States in production networks in the last 2 decades, along with the rise of the industrial and manufacturing sectors. Industries and firms involved in production networks are clearly the main beneficiaries and proponents of the AEC and deeper regional integration. However, AFTA also meant the removal of tariff protection for import-competing industries, such as agriculture. The rise of industry and manufactures also led to the lessened economic importance of agriculture. Agricultural producers therefore would have an incentive to lobby, and the complexity and opacity of NTMs would make these measures the ideal form of protection.

In other words, the structural changes in the economies of the Member States may have influenced the interests of political and economic actors, and these interests are embodied in the enacted instruments, policies, and regulations. This explains the apparent disconnect between the region's stated policy of trade liberalization and the persistence of NTMs and NTBs.

At this point, it is stressed that this analysis does not aim to prove causation. The goal is merely to derive useful insights on the use and incidence of NTMs through a qualitative approach. Since NTMs are essentially instruments issued by political actors, this examination shall be guided by the scholarship on the political economy of protection. It is hoped that by looking at the structural characteristics of the Member States, the nature of their involvement in production networks, and the trends and features of their NTM usage, useful insights on the use and persistence of NTMs in the region can be gleaned.

## 2 Structural Change and the Political Economy of Protection

The evolving nature of trade is among the main drivers of structural change. Unbundled production enables more, notably developing, countries to participate in manufacturing processes. The increased economic importance of manufacturing has significant effects in both the economic and political spheres.

To illustrate, consider the simple case of a country endowed with labor, capital, and land. These resources can be used in either agriculture or manufacturing. (Anderson 1983, p. 232; Anderson 1986, p. 7) Labor and land can be devoted to agricultural purposes, while labor and capital can be used for manufacturing. A country with limited capital resources, such as most developing countries, will mostly focus on agricultural activities. Agricultural goods will be produced and traded for manufactures. (Anderson 1986, p. 7; Anderson 1983, p. 232) As capital accumulates or flows in from foreign investment, more and more labor will be attracted to manufacturing activities. This increase in capital initiates the switch from agriculture to manufactures. This change is reflected in the changing composition of export goods, from primary agricultural products to manufactured goods.

In light of this, the main predictions are that: (i) the importance of agricultural products as export items tends to decline as the economy shifts in favor of manufacturing activities; and (ii) agriculture's economic importance, as measured by labor share and output, will tend to decline relative to manufacturing. (Anderson 1986, p. 8) These structural changes affect incentives from and support for certain kinds of economic policies. For example, agriculture's lessened economic significance is often accompanied by increased protection relative to export industries. (Swinnen, Banerjee, and Gorter 2001, p. 29; Swinnen 1994, p. 1; Swinnen 2010, pp. 35-36) As these policies are nothing but governmental enactments, the political economy theories on regulation help shed light on the underlying processes and motivations for different policies.

One view is that the governmental policies and regulations are mainly motivated by politicians' desire to promote the "common welfare", "public interest", or "public good". Specifically, the *public interest theory* states that regulations are necessary to protect the public against market failures such as information asymmetry, externalities, imperfect competition, and the like. (Ogus 2004, pp. 29-54; Levine and Forrence 1990, pp. 167-168)

Critics of the public interest theory have pointed out that regulations often fail to achieve their stated aims, or they do so but only at great cost. (Ogus 2004, pp. 55-56) This regulatory failure can be traced to the self-interest of politicians and regulators, which is used by private and special interests to influence policies and regulations to their benefit. (Levine and Forrence 1990, p. 169) The *private interest* or *public choice* theories of regulation seek to explain why policies often seem to favor, rather than regulate, their subject sectors and interests. Politicians and regulators are assumed to interact with the private sector within the context of a political market. Laws, policies and regulations are issued only insofar as these can generate public support for the incumbent.

Citizens support public officials only to the extent that they benefit from these enactments. Public officials are “captured” by private interests when policies are traded by the former for both pecuniary and non-pecuniary benefits from private interests.

Some policies and regulations are issued, not by elected representatives, but by bureaucrats and regulators. In this case, it is useful to view capture in the context of a principal-agent model involving a principal (the government), the regulator, and the agent (industry). (Bó 2006, p. 207) To incentivize industry to produce enough to maximize net surplus, the government offers to transfer remuneration to high cost industries. This transfer is ultimately borne by consumers. (ibid., p. 208) Industry however has private information regarding its costs. (ibid., p. 207) Low cost industries have an incentive to misrepresent their costs in order to achieve higher profits. This information asymmetry between the government and industry can be mitigated by the appointment of a regulator tasked with monitoring industry’s production costs. (ibid., p. 209) As truthful regulators who are informed of the true costs can dissipate industry’s profits, the latter has an incentive to buy the former’s silence either through positive or negative incentives. (ibid., pp. 209, 212-213) Regulatory capture “*depends on the amount of information that the regulator may obtain, and on how easy the environment makes it to bribe regulators.*” (ibid., p. 210)

As with elected representatives, information and monitoring costs provide regulators with considerable discretion in enacting policies, thus shielding them from public scrutiny. (Levine and Forrence 1990, p. 185) This shield ultimately allows regulators to pursue policies which benefit special interests at the expense of the majority. Regulators may also cite public interest justifications for policies touching on complex subject matter, for which information and monitoring costs are particularly high. Thus, regulators can signal that their actions, which are difficult to monitor, are in the general interest and need not be independently verified by the public. (ibid., p. 180) Regulators can also take advantage of this information asymmetry by deliberately choosing vague and complex instruments which mask the extent of costs borne by the public. (Hillman 1989, p. 73) In addition to complex instruments, regulators can also enact complex and burdensome administrative processes, which make the grant of protection to certain industries less conspicuous. (ibid., p. 75)

Olson’s (1964) seminal work on collective action predicts which interest groups will succeed in influencing political outcomes. Groups aiming for the establishment of a policy which is in the nature of a public good (a benefit or outcome which is both non-excludable and non-rivalrous) are necessarily plagued by the free rider problem. Specifically, group members are not barred from enjoying the public good even though they did not contribute to the group’s lobbying efforts. (Olson 2002, p. 11) The bigger the group membership, the greater this free rider problem, resulting in the sub-optimal lobbying efforts and contributions from members. This implies that smaller groups, which have less members who can enjoy the benefits of the policy aimed for, are more successful in their lobbying efforts. (ibid., pp. 35-36)

Declining industries have also been identified as a “*natural candidate*” (Hillman 1989, p. 26) for protection. Competitive industries which enjoy protection derive economic benefits therefrom. However, these same benefits can stimulate entry into the industry. New entrants can dissipate these profits, which necessarily reduce the industry’s support for the protectionist government. On the other hand, new entrants will not be attracted to protected declining industries. Thus, there is only a given set of beneficiaries from protection, which will remain motivated to support the

government.(Hillman 1989, p. 26)

The existing scholarship therefore supports the idea that structural changes incentivize adversely affected industries and firms to lobby for beneficial regulation.

### 3 The ASEAN Experience: A Closer Look

#### 3.1 Trade Agreements and the Rise of Production Networks

When it was formed in 1967, the primary focus of ASEAN was political-security objectives, *i.e.*, the tensions in Indochina.(Bowles and MacLean 1996, p. 321; Tan 2004, p. 935; Elliott and Ikemoto 2004, p. 7) Regional economic matters were of secondary importance, and this can be seen in the limited success of ASEAN’s early regional economic projects. (Bowles and MacLean 1996, pp. 321-322)

The interplay of political and economic factors during the 1980s contributed to the formation of AFTA. The economic downturn during the 1980s forced the largest Member States (Indonesia, Malaysia, the Philippines, and Thailand) to move from import-substitution to outward-oriented policies.(*ibid.*, p. 332) These policies served to attract, among others, a significant portion of Japanese FDI. (Bowles and MacLean 1996, p. 333; Hatch, Bair, and Heiduk 2015, p. 237; Kawai and Wignaraja 2014, p. 7) This period also saw the rise of intra-industry, particularly intra-firm, trade in the region.(Bowles and MacLean 1996, p. 334; World Trade Organization 2011, p. 147) The growing political clout of private business interests within ASEAN, which favored trade liberalization, also played a role in the creation of AFTA.(Bowles and MacLean 1996, pp. 337-339) Since much of the intra-industry trade stemmed from the intra-ASEAN activities of multinational corporations, the creation of a regional trading area became more attractive. (*ibid.*, p. 334)

In 1992, the Member States<sup>4</sup> embarked on the creation of the AFTA. The underlying motivation was “*to increase ASEAN’s competitive edge as a production base geared for the world market.*”(AFTA Reader 2017) AFTA implemented a sectoral Common Effective Preferential Tariff (CEPT) Scheme which covered all manufactured products, including capital goods, and agricultural products which originate<sup>5</sup> from the Member States. (*Agreement on the Common Effective Preferential Tariff (CEPT) Scheme for the ASEAN Free Trade Area (AFTA)* 1992) AFTA was supplemented by two initiatives, the ASEAN Investment Area (AIA) and the ASEAN Industrial Cooperation Scheme (AICO). AICO catered specifically to vertically integrated firms engaged in production networks in the region, *i.e.*, at least two companies operating in different Member States. The output of these companies under AICO-approved projects are entitled to preferential tariff rates of 0-5% and access to the markets of participating Member States. (Tan 2004, p. 942)

ASEAN’s outward-oriented trade policies played a role in the structural changes experienced by the Member States.(Yue and Plummer 2009, p. 2; Kawai and Naknoi 2015, pp. 3,10; Kawai and

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<sup>4</sup>During this time, ASEAN was composed of Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Vietnam joined in 1995, Lao People’s Democratic Republic and Myanmar in 1997, and Cambodia in 1999.

<sup>5</sup>A product is deemed to have originated from a Member State if at least 40% of its contents originates from a Member State.

Wignaraja 2014, p. 6) As tariffs and trade costs declined during the 1990s, intra-regional trade was stimulated.

Pomfret and Sourdin(2009) estimated trade cost functions in terms of exogenous country characteristics to determine whether trade facilitation efforts in the region worked to reduce trade costs.<sup>6</sup> They used the data for Australian imports from 1990-2007 at the 6-digit HS level.<sup>7</sup> Asian countries' trade costs were examined vis-a-vis the costs of other countries to discern any temporal trends. (Pomfret and Sourdin 2009, p. 256)

They found that *ad valorem* trade costs from the ASEAN Member States decreased from 10.3% in 1990 to 3.9%<sup>8</sup> in 2007. (ibid., p. 262) The significant decline occurred between 1994-2003, with average trade costs converging to 4-5.5% in 2007. (ibid., pp. 263-264) For Indonesia, the Philippines, Malaysia, Singapore, and Thailand, the decline occurred before 2002. (ibid., p. 265) The trade costs for Myanmar and Vietnam fell after they joined ASEAN in the late 1990s. (ibid., p. 263) The authors concluded that the period of the decrease in trade costs “*corresponds to the period during which AFTA was being established and suggests that the importance of AFTA lies in the environment for trade facilitation.*” (ibid., p. 265) They also raised the possibility that both the rise in Asian PTAs and the decline in trade costs may be linked to the emergence of production networks, which created a demand for reduced trade costs. (ibid., p. 265)

Table 1 presents the main production network-related industries per Member State, except for Lao People's Democratic Republic and Myanmar.<sup>9</sup> The wholesale and retail trade tops the list, followed by computers and electronics, mining, transport and storage, and agriculture. Cambodia, Indonesia, Thailand and Vietnam are also exporters of agricultural inputs in production networks.

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<sup>6</sup>The term “trade costs” was defined as the gap between free-on-board (FOB) values when a good reaches the port in the exporting country and import values that include cost, insurance and freight (CIF).

<sup>7</sup>The authors opined that Australia would be a good indicator of the trade costs of its trading partners, as it is a large economy with little geographically discriminatory policies and limited transport modes for imports.

<sup>8</sup>This is bigger than the drop from 8% to 5% in the *ad valorem* trade costs on all other exports to Australia.

<sup>9</sup>There was no available data for Lao People's Democratic Republic and Myanmar.

Table 1: Production Network Industries<sup>10</sup>

	BN	KH	ID	MY	PH	SG	TH	VN
Mining	x		x	x				x
Transport, storage	x	x			x	x		
Other business services	x							
Construction	x							
Agriculture		x	x				x	x
Textiles		x						x
Wholesale, retail		x	x	x	x	x	x	x
Basic metals			x		x			
Chemical products			x	x			x	
Computers, electronics				x	x	x	x	x
Food, beverages				x				x
Petroleum products						x		
Motor vehicles							x	
Machinery and equipment							x	

### 3.2 Structural Change and Non-Tariff Measures

Indicators of output, employment, and trade, among others, are used to show structural change. *Tables 2* and *3* illustrate the increased significance of industry, manufacturing and services in the economies of the Member States as measured by their contribution to the gross national product (GDP). For Indonesia, Malaysia, the Philippines, and Thailand, the shift from agriculture to industry and manufacturing which began during the 1950s and 1960s continued during the 1980s and onwards. (Booth 2007, pp. 168-170)

The structural change is more dramatic in the newer Member States. Before Vietnam joined ASEAN, agriculture comprised more than a third of its GDP. By 2015, agriculture represented only 16% of its GDP. The share of agriculture in the GDPs of Cambodia, Lao People's Democratic Republic, and Myanmar dropped from around 50 to 61% to a little more than 25%. Services is currently the most dominant industry in the region.

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<sup>10</sup>Data from "Trade in Value-Added and Global Value Chains: Statistical Profiles."



Table 2: Value Added as % of GDP<sup>11</sup>

COUNTRY	INDICATOR	1980	1985	1990	1995	2000	2005	2010	2015
Brunei	Agriculture	0.63	1.21	0.97	1.16	1.02	0.95	0.73	1.10
	Industry	84.82	71.81	61.56	54.27	63.67	71.56	68.66	61.36
	Manufacturing	11.82	10.11	11.14	13.00	15.36	12.31	14.91	14.53
	Services	14.54	26.98	37.48	44.57	35.31	27.49	30.61	37.54
Indonesia	Agriculture	25.80	23.76	20.93	17.14	15.60	13.13	13.93	13.52
	Industry	44.90	36.71	42.17	41.80	45.93	46.54	42.78	40.01
	Manufacturing	13.98	16.37	22.27	24.13	27.75	27.41	22.04	20.84
	Services	36.93	41.93	44.71	41.06	38.47	40.33	40.67	43.32
Malaysia	Agriculture	23.03	20.28	15.22	12.95	8.60	8.26	10.09	8.45
	Industry	41.79	39.23	42.20	41.40	48.32	45.93	37.80	36.43
	Manufacturing	21.95	19.67	24.22	26.38	30.86	27.55	23.43	22.79
	Services	35.18	40.48	42.59	45.65	43.08	45.81	52.11	55.12
Philippines	Agriculture	25.12	24.58	21.90	21.63	13.97	12.66	12.31	10.27
	Industry	38.79	35.07	34.47	32.06	34.46	33.83	32.57	30.77
	Manufacturing	25.70	25.15	24.83	22.99	24.47	24.05	21.44	20.06
	Services	36.10	40.35	43.62	46.31	51.58	53.50	55.12	58.96
Singapore	Agriculture	1.57	0.96	0.34	0.16	0.10	0.06	0.04	0.04
	Industry	36.23	33.44	32.34	33.75	34.83	32.36	27.63	26.40
	Manufacturing	27.55	20.90	25.58	25.71	27.75	27.78	21.36	19.81
	Services	62.20	65.60	67.32	66.09	65.07	67.58	72.33	73.56
Thailand	Agriculture	23.24	15.81	12.50	9.08	8.50	9.20	10.53	9.14
	Industry	28.68	31.84	37.22	37.53	36.84	38.63	40.03	35.72
	Manufacturing	21.51	21.92	27.20	26.47	28.59	29.79	31.09	26.92
	Services	48.08	52.35	50.28	53.39	54.66	52.17	49.44	55.14

<sup>11</sup>Data from the “World Development Indicators,” accessed January 14, 2017, <http://databank.worldbank.org/>.

Table 3: Value Added as % of GDP<sup>12</sup>

COUNTRY	INDICATOR	1990	1995	2000	2005	2010	2015
Cambodia	Agriculture		49.62	37.84	32.40	36.02	28.25
	Industry		14.83	23.03	26.37	23.25	29.42
	Manufacturing		9.51	16.87	18.79	15.62	17.02
	Services		35.55	39.13	41.23	40.73	42.33
Lao PDR	Agriculture	61.23	55.68	45.17	36.18	31.45	27.38
	Industry	14.51	19.24	16.61	24.61	32.29	30.95
	Manufacturing	9.96	14.27	6.31	9.94	7.53	9.37
	Services	24.26	25.08	38.23	39.21	36.26	41.67
Myanmar	Agriculture			57.24	46.69	36.85	26.75
	Industry			9.69	17.51	26.47	34.54
	Manufacturing			7.16	12.80	19.86	20.67
	Services			33.07	35.80	36.68	38.71
Vietnam	Agriculture	38.74	27.18	22.73	19.30	18.38	16.99
	Industry	22.67	28.76	34.20	38.13	32.13	33.25
	Manufacturing	12.26	14.99	17.09	18.82	12.95	13.69
	Services	38.59	44.06	43.07	42.57	36.94	39.73

The declining economic importance of agriculture is also seen in the decreasing agricultural labor force. *Table 4* shows the percent of the population employed in agriculture, industry, and services for the Member States. Despite the structural change in the Member States, and except for Malaysia and Cambodia, the agricultural sector still ranks second to services in terms of employment. For Cambodia, most of its population is still engaged in agricultural work.

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<sup>12</sup>Data from the “World Development Indicators.”

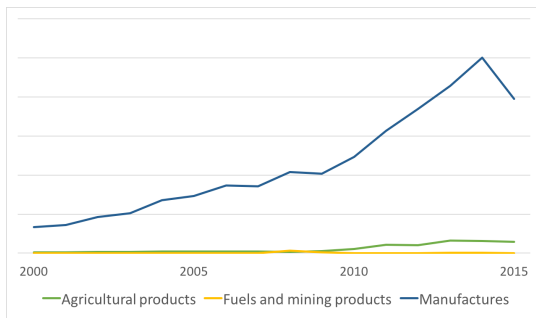
Table 4: % of Total Employment<sup>13</sup>

COUNTRY	SECTOR	1980	1985	1990	1995	2000	2005	2010
Cambodia	Agriculture					73.70		54.10
	Industry					8.40		16.20
	Services					17.9		29.60
Indonesia	Agriculture	56.40	54.70	55.90	44	45.30	44	38.30
	Industry	13.1	13.4	13.7	18.4	17.4	18.70	19.30
	Services	30.4	31.80	30.20	37.60	37.30	37.20	42.30
Lao PDR	Agriculture				85.4			71.30
	Industry				3.5			8.30
	Services				11.1			20.20
Malaysia	Agriculture	37.2	30.4	26	20	18.4	14.6	13.30
	Industry	24.1	23.8	27.5	32.3	32.2	29.7	27.60
	Services	38.7	45.8	46.5	47.7	49.5	55.6	59.2
Myanmar	Agriculture	67.1	66.1	69.7				
	Industry	9.8	10.6	9.2				
	Services	23.1	23.3	21				
Philippines	Agriculture	51.80	50	45.20	44.10	37.10	36	33.20
	Industry	15.4	13.8	15	15.6	16.20	15.6	15.00
	Services	32.80	36.5	39.70	40.30	46.70	48.5	51.80
Singapore	Agriculture	1.3	0.7	0.4	0.2		1.1	
	Industry	35.7	35.2	37.9	31		21.7	30.40
	Services	62.6	63.9	61.7	68.8		77.3	68.90
Thailand	Agriculture	70.80		63.30	51.60	48.5	42.60	38.20
	Industry	10.3		13.6	18.9	17.9	20.20	20.60
	Services	18.9		23	29.4	33.60	37.10	41
Vietnam	Agriculture					65.30		
	Industry					12.4		
	Services					22.30		

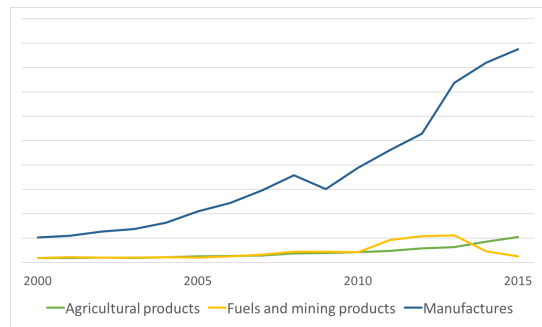
Except for Brunei and Indonesia, the increased importance of the manufacturing sector was also reflected in the composition of the exports and imports of the Member States. *Figures 1 to 12* depict the trends in the exports and imports of the Member States by commodity.<sup>14</sup> The first 2 graphs per Member State illustrate the trends in exports and imports of agricultural, fuels and mining, and manufactured products. Save for Brunei and Indonesia, the last 2 graphs per Member State show the trends in exports and imports of different manufactures. These graphs show that trade in manufactures intensified for the Member States during the 1990s. These same Member States are also currently actively involved in production networks. This trend implies that AFTA and the region's trade policies promoted participation in production networks.

<sup>13</sup>Data from the "World Development Indicators."

<sup>14</sup>Due to insufficient data, Lao People's Democratic Republic and Myanmar are excluded.

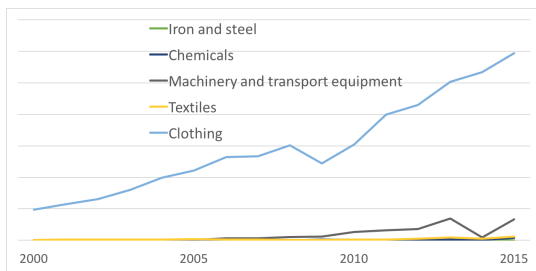


(a) Exports

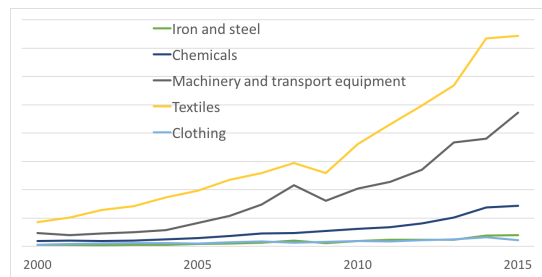


(b) Imports

Figure 1: Cambodia Exports and Imports<sup>15</sup>

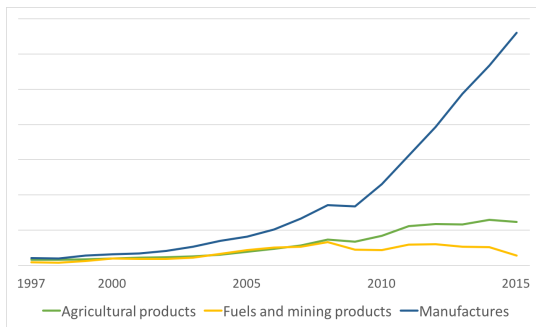


(a) Manufactures Exports

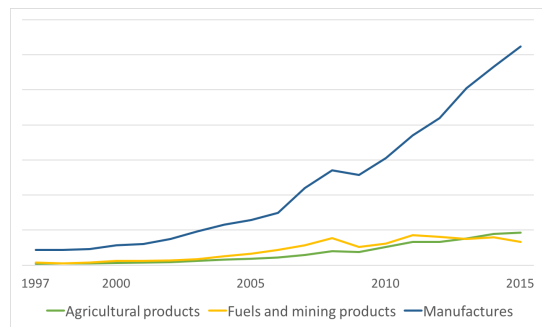


(b) Manufactures Imports

Figure 2: Cambodia Exports and Imports, Manufactures<sup>16</sup>



(a) Exports



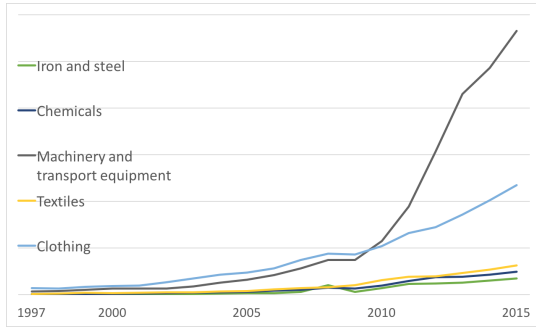
(b) Imports

Figure 3: Vietnam Exports and Imports<sup>17</sup>

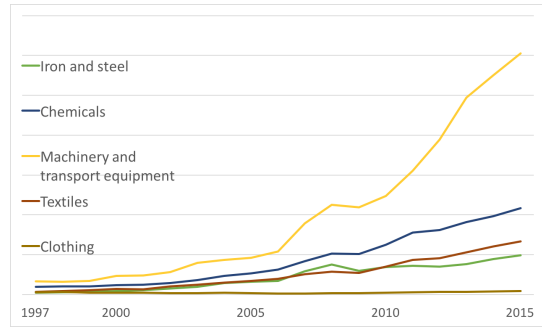
<sup>15</sup>Data from the “Time Series on international trade,” accessed January 3, 2017, <http://stat.wto.org/Home/WSDBHome.aspx?Language=E>.

<sup>16</sup>Data from the “Time Series on international trade.”

<sup>17</sup>Data from the “Time Series on international trade.”

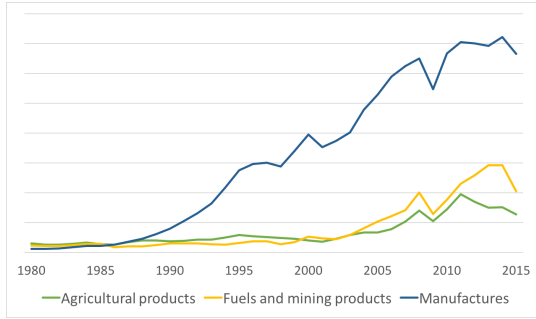


(a) Manufactures Exports

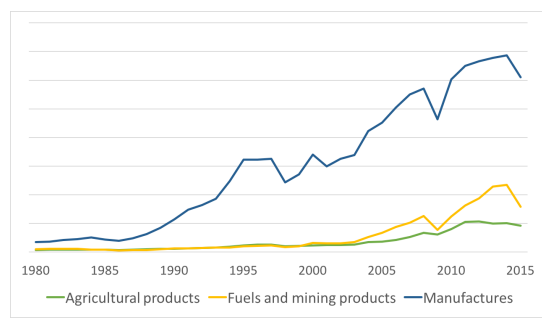


(b) Manufactures Imports

Figure 4: Vietnam Exports and Imports, Manufactures<sup>18</sup>

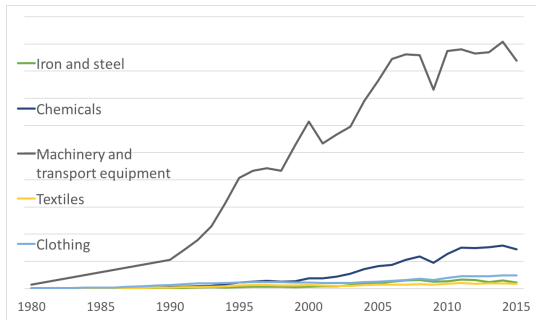


(a) Exports

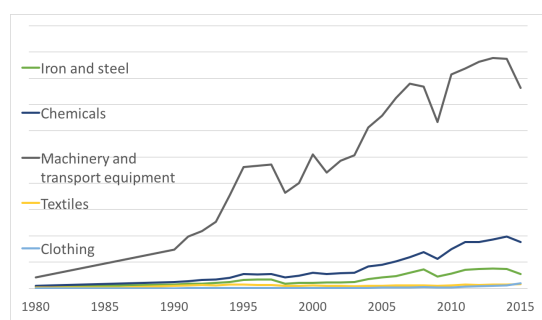


(b) Imports

Figure 5: Malaysia Exports and Imports<sup>19</sup>



(a) Manufactures Exports



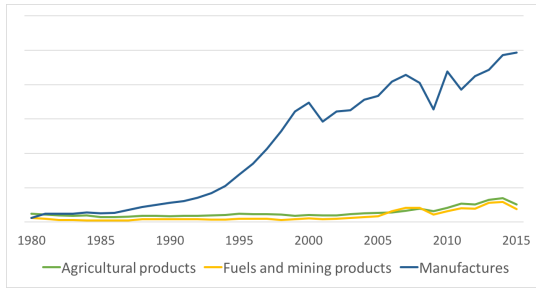
(b) Manufactures Imports

Figure 6: Malaysia Exports and Imports, Manufactures<sup>20</sup>

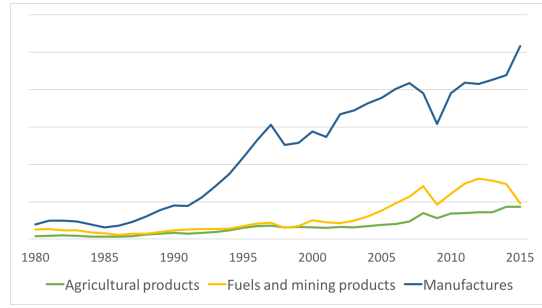
<sup>18</sup>Data from the "Time Series on international trade."

<sup>19</sup>Data from the "Time Series on international trade."

<sup>20</sup>Data from the "Time Series on international trade."

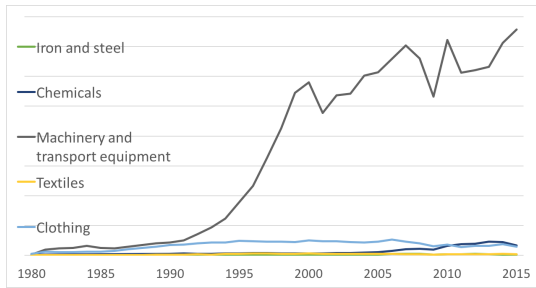


(a) Exports

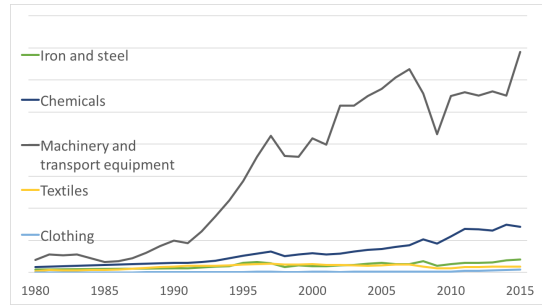


(b) Imports

Figure 7: Philippines Exports and Imports<sup>21</sup>

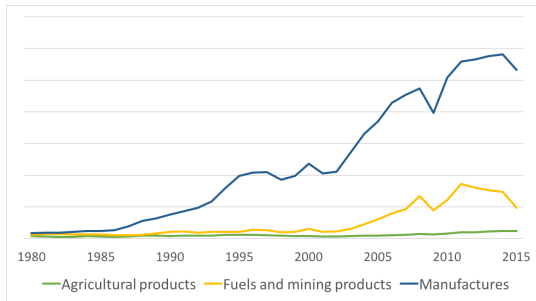


(a) Manufactures Exports

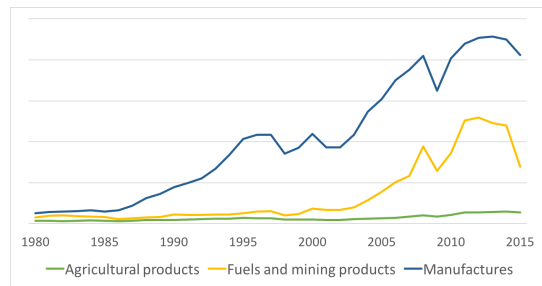


(b) Manufactures Imports

Figure 8: Philippines Exports and Imports, Manufactures<sup>22</sup>



(a) Exports



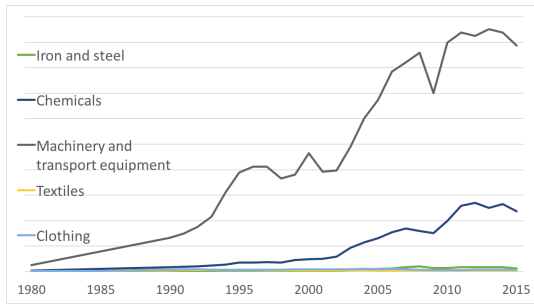
(b) Imports

Figure 9: Singapore Exports and Imports<sup>23</sup>

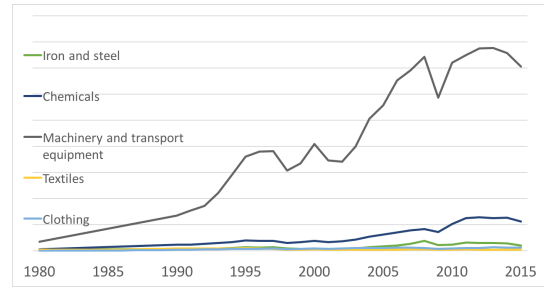
<sup>21</sup>Data from the "Time Series on international trade."

<sup>22</sup>Data from the "Time Series on international trade."

<sup>23</sup>Data from the "Time Series on international trade."

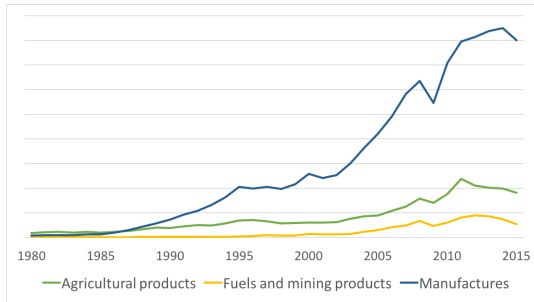


(a) Manufactures Exports

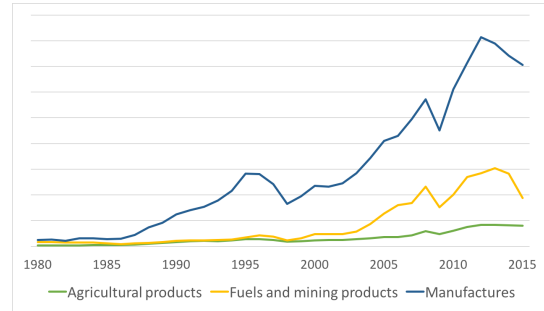


(b) Manufactures Imports

Figure 10: Singapore Exports and Imports, Manufactures<sup>24</sup>

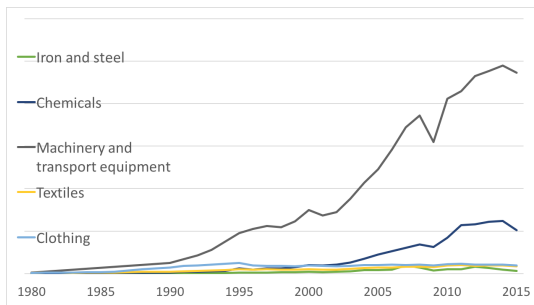


(a) Exports

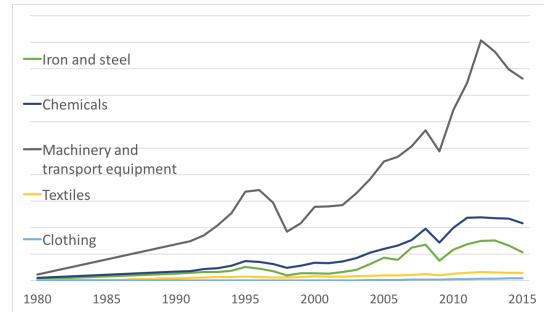


(b) Imports

Figure 11: Thailand Exports and Imports<sup>25</sup>



(a) Manufactures Exports



(b) Manufactures Imports

Figure 12: Thailand Exports and Imports, Manufactures<sup>26</sup>

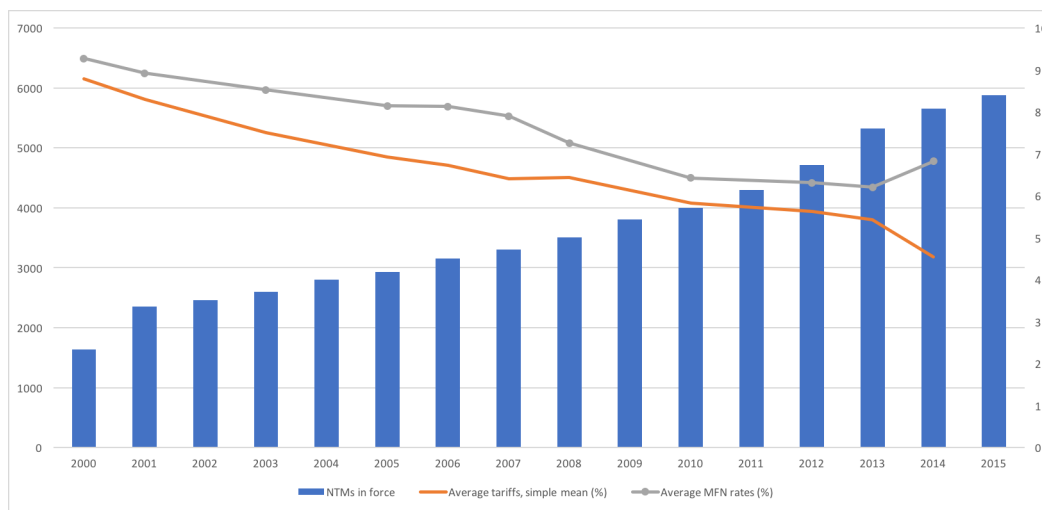
<sup>24</sup>Data from the "Time Series on international trade."

<sup>25</sup>Data from the "Time Series on international trade."

<sup>26</sup>Data from the "Time Series on international trade."

Figure 13 illustrates the trends in both tariffs and NTMs in the region. This graph shows the rising trend in NTMs which are in force per year in the region. The averages of both applied and most favored nation (MFN) tariff rates are shown. It is apparent that the decline in average tariff rates coincided with the increasing incidence of NTMs. This begs the question: are NTMs used as a substitute for tariffs as a source of protection? In ASEAN, are NTMs used to protect industries which, though unconnected with production networks, were affected by the recent structural changes?

Figure 13: NTMs Initiated, 2001-2015<sup>27</sup>



Alternatively, rising NTM incidence may be due to an increased demand for regulations in an increasingly modernized and globalized economy. Rising incomes lead to increased demand for both product variety and quality. In the context of production networks, NTM use may be the outcome of increased demand for both process and product quality. As production processes become more unbundled, countries involved in production networks are driven to impose high quality standards. Quality measures in particular may serve to address information asymmetries, by signaling that products and processes comply with generally accepted international standards. In this context, are NTMs used to promote and enhance production networks?

If the use of NTMs was due to an increased regulatory demand, there would be a greater incidence of measures dealing with the quality of products and processes, *i.e.*, SPS and TBTs. (Ing et al. 2016, p. 23) The regulatory demand hypothesis may also be supported by the issuance of NTMs by health and environment government agencies, as there is a presumed public welfare motive for these measures. Still, the possibility that health ministries are vulnerable to capture and lobbying should not be discounted. (ibid., p. 28) The use of health, safety, and other welfare justifications may merely be a ruse to “generate general support or tolerance for actions or policies that cannot be fully monitored”.(Levine and Forrence 1990, p. 180) On the other hand, NTMs which affect

<sup>27</sup>Adapted from Lili Yan Ing et al., “Non-Tariff Measures in ASEAN: A Simple Proposal,” 22.



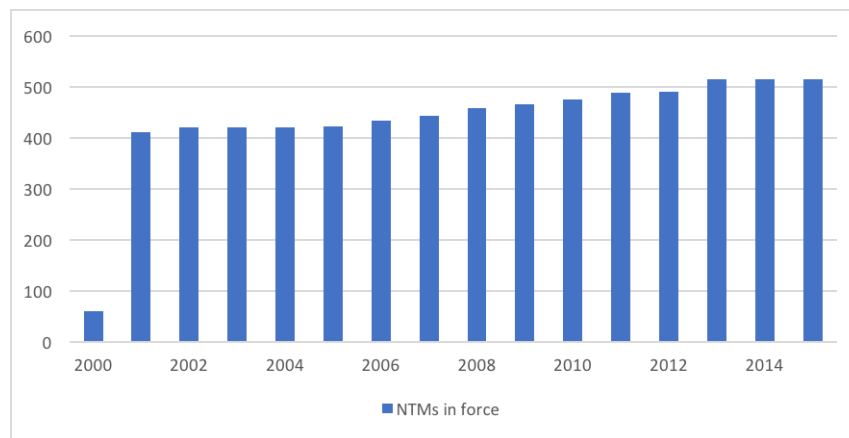
*“declining industries”* (Baldwin and Robert-Nicoud 2007, pp. 1065-1066) and which were issued by trade or industry agencies (Ing et al. 2016, p. 28) may evidence protectionism. Declining industries have a greater incentive to lobby for protection from industry or trade agencies in order to protect them against further losses. Additionally, since new entrants are unlikely for declining industries, incumbent industry players are the sole recipients of the benefits of protection. Industry support for the government is sustained.

Table 5 shows the NTMs, as a percentage of total NTMs, in Brunei per product category and type of measure. In addition to TBTs and SPS, Brunei also imposes export-related (EXP) measures. EXPs include, but are not limited to, quotas, export prohibitions, licensing requirements, and quantitative restrictions. (Trade and Development 2012, p. 43) Figure 14 presents the time trends of NTMs in Brunei. 68.6% of Brunei’s NTMs were issued by the Ministry of Health. (Elisabeth 2016, p. 41) 70% and 84% of TBT and SPS measures, respectively, are from public health regulations. (ibid., pp. 42-43)

Table 5: NTMs as % of Total NTMs, Brunei<sup>28</sup>

	TBT	SPS	EXP
Animals, plants, food	43	30	6
Minerals	2	1	1
Chemicals, chemical products	9	2	3
Light manufacturing products	2	-	3
Metals, metal products	1	0.4	2
Machineries	5	0.2	2

Figure 14: Brunei NTMs, 2000-2015<sup>29</sup>



<sup>28</sup>Data from “Non-Tariff Measures Based on Official Regulations, ASEAN,” accessed January 3, 2017, <http://asean.i-tip.org>.

Table 6 shows the NTMs, as a percentage of total NTMs, in Singapore per product category and type of measure. Singapore is notable for its use of price-control (PC) measures, which are used to “control or affect the prices of imported goods.” (Trade and Development 2012, p. 33) Figure 15 shows the time trends of NTMs in Singapore. The Agri-Food and Veterinary Authority issued a majority of the NTMs (59.92%). (Lim, Widiāna, and Aw 2016, p. 133) 59.2% of all NTMs are TBTs, while 24% are SPS measures. (ibid., p. 134) Machineries and electrical products, chemicals, and vegetable products are the most subjected to NTMs, being affected by at least 3 or more measures. (ibid., p. 136)

Table 6: NTMs as % of Total NTMs, Singapore<sup>30</sup>

	TBT	SPS	PC	EXP
Animals, plants, food	36	24	4	4
Minerals	5	2	1	1
Chemicals, chemical products	20	3	4	4
Light manufacturing products	4	0.2	1	3
Metals, metal products	3	0.2	1	1
Machineries	11	-	2	3

Figure 15: Singapore NTMs, 2000-2015<sup>31</sup>

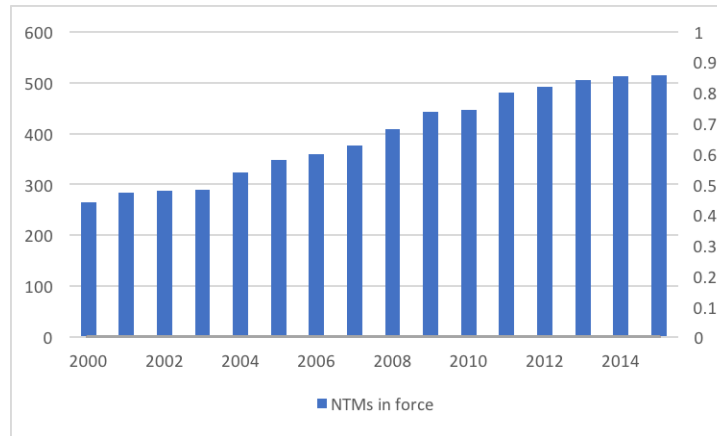


Table 7 shows the NTMs, as a percentage of total NTMs, in Malaysia per product category and per type of measure. Figure 16 shows the time trends of NTMs in Malaysia. TBTs account for 46.56% of the total NTMs, followed by SPS measures (36.33%). (Devadason, Chandran, and Cheong 2016, p. 90) The Ministry of Health issued a majority of the NTMs (70.41%), followed by the Ministry of Agriculture and Agro-Based Industry (12.06%). (ibid., p. 89)

<sup>29</sup> Adapted from Lili Yan Ing et al., “Non-Tariff Measures in ASEAN: A Simple Proposal,” 25.

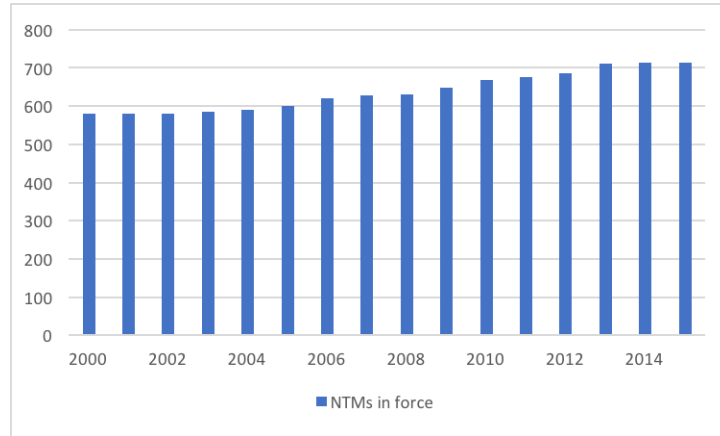
<sup>30</sup> Data from “Non-Tariff Measures Based on Official Regulations, ASEAN.”

<sup>31</sup> Adapted from Lili Yan Ing et al., “Non-Tariff Measures in ASEAN: A Simple Proposal,” 26.

Table 7: NTMs as % of Total NTMs, Malaysia<sup>32</sup>

	TBT	SPS	EXP
Animals, plants, food	36	34	6
Minerals	3	1	1
Chemicals, chemical products	9	4	6
Light manufacturing products	2	1	2
Metals, metal products	1	-	1
Machineries	3	-	1

Figure 16: Malaysia NTMs, 2000-2015<sup>33</sup>



The number of NTMs in both Brunei and Malaysia was relatively stable in recent years. This suggests that the incidence of NTMs in these countries was not linked to their increased participation in production networks. That a majority of these measures were issued by the health ministries also suggests that the underlying motivation was the protection of public health. The high incidence of TBTs and SPS measures in foodstuffs, animal products, and plant products in Brunei, Malaysia, and Singapore suggests that the aim is to enhance the quality of these products, supporting the regulatory demand hypothesis. It is also noteworthy that some of the most regulated products (*i.e.*, machineries and electrical products for Singapore, and foodstuffs and chemical products for Malaysia) are used in production network trade. Since production network trade in these Member States does not appear to be adversely affected, the NTMs could be functioning as a signal of product quality and safety.

For the other Member States,<sup>34</sup> however, a number of characteristics lend support for the hypothesis that the incidence of NTMs is due to political economy motives, which resulted from

<sup>32</sup>Data from “Non-Tariff Measures Based on Official Regulations, ASEAN.”

<sup>33</sup>Adapted from Lili Yan Ing et al., “Non-Tariff Measures in ASEAN: A Simple Proposal,” 26.

<sup>34</sup>Lao People’s Democratic Republic and Myanmar are excluded from this analysis due to insufficient information regarding their participation in production networks.

their increased participation in production networks. First, the increasing trend in NTMs coincided with their enhanced participation in production networks. *Figures 17 to 21* show the time trends of NTMs in Cambodia, Indonesia, the Philippines, Thailand, and Vietnam. For these countries, there is a clear upward trend in the incidence of NTMs. This trend is more noticeable in countries (such as Indonesia, Cambodia, and Vietnam) which, until recently, were not as involved in production networks as the other Member States.

Figure 17: Cambodia NTMs, 2000-2015<sup>35</sup>

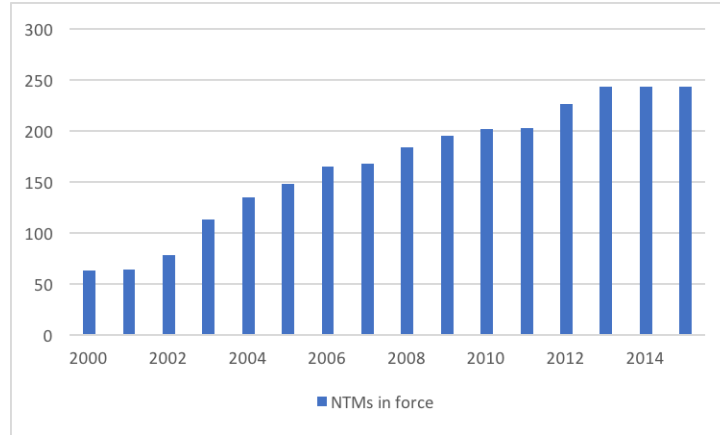
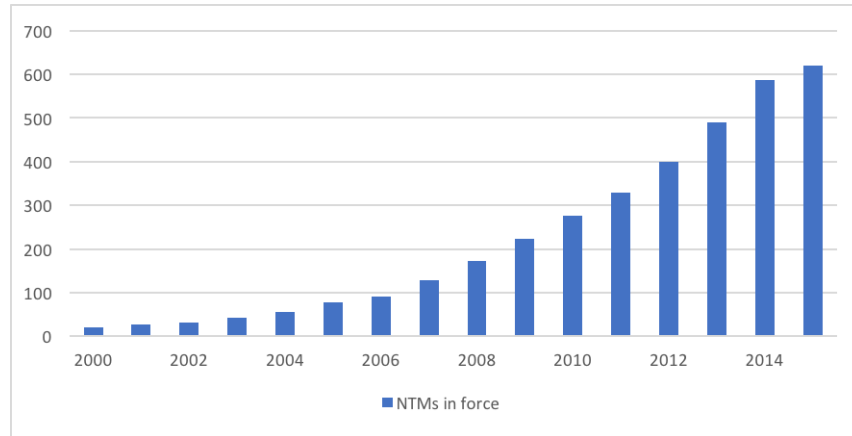


Figure 18: Indonesia NTMs, 2000-2015<sup>36</sup>



<sup>35</sup>Adapted from Lili Yan Ing et al., "Non-Tariff Measures in ASEAN: A Simple Proposal," 25.

<sup>36</sup>Adapted from Lili Yan Ing et al., "Non-Tariff Measures in ASEAN: A Simple Proposal," 26.

Figure 19: Philippines NTMs, 2000-2015<sup>37</sup>

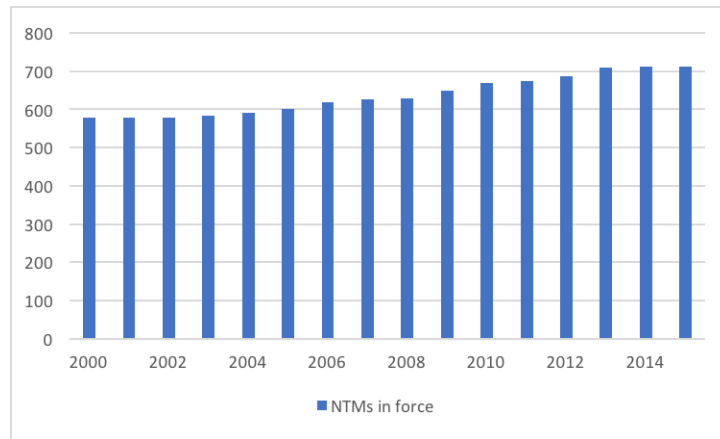
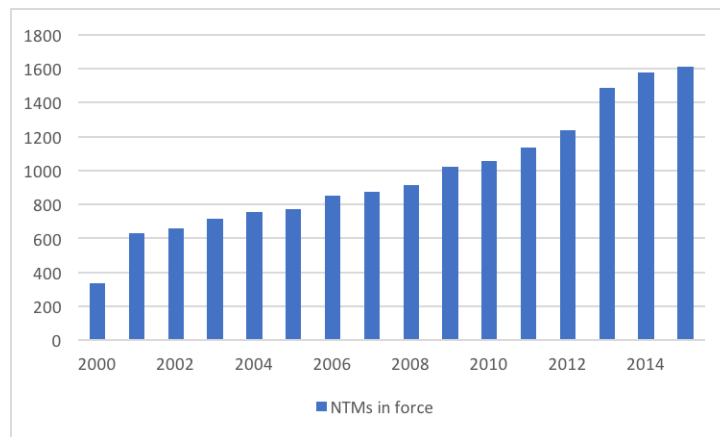


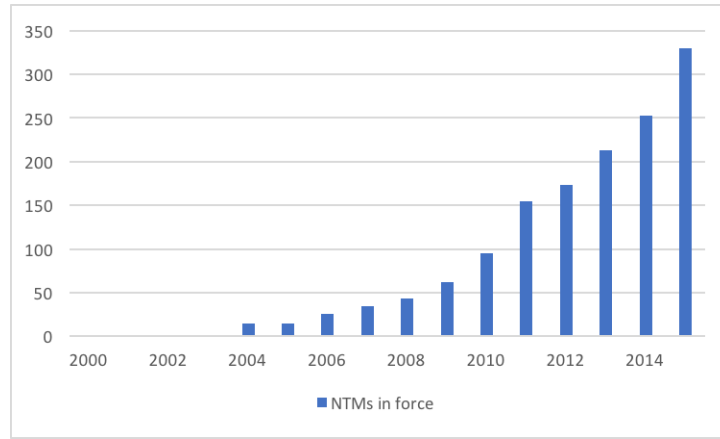
Figure 20: Thailand NTMs, 2000-2015<sup>38</sup>



<sup>37</sup>Adapted from Lili Yan Ing et al., "Non-Tariff Measures in ASEAN: A Simple Proposal," 26.

<sup>38</sup>Adapted from Lili Yan Ing et al., "Non-Tariff Measures in ASEAN: A Simple Proposal," 26.

Figure 21: Vietnam NTMs, 2000-2015<sup>39</sup>



Second, the NTMs in these Member States mainly affect animal products, plant products, and foodstuffs.<sup>40</sup> *Tables 8 to 12* show the NTMs, expressed as a percentage of total NTMs per product category and NTM type, for Cambodia, Indonesia, the Philippines, Thailand, and Vietnam.

Table 8: NTMs as % of Total NTMs, Cambodia<sup>41</sup>

	TBT	SPS	EXP
Animals, plants, food	17	15	18
Minerals	7	-	6
Chemicals, chemical products	34	8	21
Light manufacturing products	9	6	16
Metals, metal products	3	-	5
Machineries	12	5	6

<sup>39</sup>Adapted from Lili Yan Ing et al., “Non-Tariff Measures in ASEAN: A Simple Proposal,” 26.

<sup>40</sup>See Appendix 3.1 for the most intensely regulated products per year for Cambodia, Indonesia, the Philippines, Thailand, and Vietnam.

<sup>41</sup>Data from “Non-Tariff Measures Based on Official Regulations, ASEAN.”

Table 9: NTMs as % of Total NTMs, Indonesia<sup>42</sup>

	TBT	SPS	EXP
Animals, plants, food	10	19	6
Minerals	5	1	3
Chemicals, chemical products	20	6	6
Light manufacturing products	9	1	4
Metals, metal products	9	0.2	2
Machineries	14	0.2	0.3

Table 10: NTMs as % of Total NTMs, Philippines<sup>43</sup>

	TBT	SPS	EXP
Animals, plants, food	13	27	11
Minerals	10	2	2
Chemicals, chemical products	20	9	7
Light manufacturing products	6	5	5
Metals, metal products	5	0.4	2
Machineries	16	1	3

Table 11: NTMs as % of Total NTMs, Thailand<sup>44</sup>

	TBT	SPS
Animals, plants, food	12	46
Minerals	2	2
Chemicals, chemical products	10	3
Light manufacturing products	3	0.1
Metals, metal products	4	-
Machineries	10	-

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<sup>42</sup>Data from “Non-Tariff Measures Based on Official Regulations, ASEAN.”

<sup>43</sup>Data from “Non-Tariff Measures Based on Official Regulations, ASEAN.”

<sup>44</sup>Data from “Non-Tariff Measures Based on Official Regulations, ASEAN.”

Table 12: NTMs as % of Total NTMs, Vietnam<sup>45</sup>

	TBT	SPS	EXP
Animals, plants, food	8	36	14
Minerals	7	9	0.3
Chemicals, chemical products	25	16	8
Light manufacturing products	8	6	5
Metals, metal products	4	3	2
Machineries	7	1	2

While most of the NTMs on animal products, plants, and food are quality measures, some do not deal specifically with quality standards, *i.e.*, export-related measures. Nevertheless, animal products, plants, and food are among the most regulated products in these countries. Among the most regulated products in these Member States are a number of their main crops, such as rice, sugar cane, vegetable varieties, coffee, sweet potatoes and other tubers, and tobacco. Edible meats, fish and different kinds of seafoods, along with preparations thereof, are also among the most regulated items. (*Non-Tariff Measures Based on Official Regulations, ASEAN 2017*)

While a majority of the measures aim to ensure the quality and safety of agricultural products, others seem motivated by non-quality concerns. For example, a price control measure in Cambodia provides that the value-added tax on the importation of certain agricultural items, such as vegetables and cereal seeds, shall be borne by the State. Indonesia likewise can postpone the importation of meat products if the domestic price of beef is lower than the reference price of the former. The import of fish and other kinds of seafood is only allowed in the Philippines if these items are not endemic in the country or if needed for food security. Vietnam discourages imports of items which can be sourced domestically, such as sugar, fish and seafoods.(*ibid.*)

Except for the Philippines, these Member States are exporters of agricultural inputs for production networks.<sup>46</sup> However, agricultural exports are greatly outnumbered by manufactures. On the other hand, for the Philippines, Thailand, and Vietnam, trade in machineries (including transport products, computers and electronics) and chemicals are seemingly unaffected by the high number of NTMs on these products.<sup>47</sup> As noted in *Table 2*, these Member States are involved in production network trade in these industries. It can be surmised from this that NTMs on machineries, manufactures, and chemicals serve to promote production network trade, *i.e.*, as a signal of quality.

As NTMs fail to promote trade (including production network trade) in agriculture, the possibility that these have underlying protectionist motivations cannot be denied. The decrease in the size of agricultural labor may have made agricultural sector lobbying easier and more effective. That there is still a sizable amount of the population employed in this sector despite this decrease implies that this sector has much to gain by lobbying for, and gaining, protection. In addition, the agricultural labor force can deliver needed votes during elections.

<sup>45</sup>Data from “Non-Tariff Measures Based on Official Regulations, ASEAN.”

<sup>46</sup>See *Table 2*.

<sup>47</sup>See *Figures 7, 11 and 15*.



The demand for NTMs in favor of agriculture may also come from landowning entities, such as corporations and cooperatives. A recent agricultural census in Cambodia identified 101 agricultural holdings owned by legal entities operating on 806,628 hectares.(Statistics 2015, p. 35) Compared to the 2.13 million household agricultural holdings, which operated on 3.30 million hectares,(ibid., p. 28) the number of legal entity holdings is small. However, while around 90% of agricultural households conducted their activities on less than 4 hectares,(ibid., p. 28) legal entities operated on at least 1000 hectares, with 5 entities operating on 47% of that 806,628 hectares.(ibid., p. 35)

Table 13 shows the structure of agricultural units in Vietnam according to land use. As with Cambodia, household units are mainly smallholders, with 84% of households operating only 2 hectares or less. Holdings of legal entities, including both enterprises and cooperatives, operate the bigger holdings.(Office 2012, p. 269)

Table 13: Agricultural Units in Vietnam, 2011<sup>48</sup>

	0-2 hectares	10 hectares or more
Enterprise	10.58%	38.95%
Cooperative	2.4%	22.68%
Households	83.76%	0.53%

Table 14 shows the percentage of holdings and agricultural area that operate small<sup>49</sup> and large<sup>50</sup> holdings in the Philippines. While there is no available information on the number of legal entity holdings, it is reasonable to presume that the large holdings are operated by legal entities. It is also noteworthy that while large holdings account for only 2% of total holdings, these operate 21% of the total agricultural area in the Philippines.

Table 14: Structure of Land Holdings in the Philippines, 2002<sup>51</sup>

	0-2 hectares	10-50 hectares
Holdings	68%	2%
Agricultural Area	26%	21%

The apparent trend is for agricultural households to operate small holdings, while legal entities operate large holdings, *i.e.*, plantations. It is reasonable to suppose that, given their similar interests, this small group of legal entities can organize and lobby for regulations in their benefit. As the agricultural sector has been declining for the past decades, any beneficial policies and regulations in favor of this sector will not sufficiently entice new entrants. The possible variations in the issued NTMs also makes it possible to tailor regulations in order to limit its benefits to only certain

<sup>48</sup>Data from “Results of the 2011 Rural, Agricultural and Fishery Census”.

<sup>49</sup>Measuring 2 hectares or less.

<sup>50</sup>Measuring 10 to 50 hectares.

<sup>51</sup>Data from Sarah L. Lowder, Jakob Skoet, and Terri Raney, “The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide,” *World Development* 87 (2016): Appendix Table 3.

beneficiaries, *i.e.*, large plantations and corporate entities.

The issuing authority in these countries is also telling. The main issuing authorities in Cambodia were the Ministry of Agriculture, Forestry and Fishery (which issued 30% of the NTMs), the Ministry of Industry, Mines and Energy, and the Ministry of Health. (Sotharith, Ruth Elisabeth L. Tobing, and Widiana 2016, pp. 54-55) For Indonesia, the Ministry of Trade issued the most number of NTMs (29.2%), followed by the Ministry of Industry (21.8%), and the Ministry of Agriculture (14.4%). (Munadi 2016, pp. 67-69) The different operating bureaus of the Department of Agriculture (such as the Animal Industry, Plant Industry, and Fisheries and Aquatic Resources) issued the most number of NTMs in the Philippines. (Dios 2016, p. 117) The Thai Ministry of Public Health issued 42.6% of the total NTMs, followed by the Ministry of Agriculture and Co-operative (29.1%), and the Ministry of Industry (14.5%). (Intaravitak 2016, p. 145) In Vietnam, the Ministries of Agriculture and Rural Development (46.5% of the SPS and 21.8% of TBTs), of Health (21.1% of SPS and 21.1% of TBTs), and of Industry and Trade (5.6% of SPS and 7.7% of TBTs) were the main issuing authorities. (Thanh, Duong, and Minh 2016, p. 161)

Unlike NTMs issued by health ministries, those issued by trade, industry, and other government bodies do not have the underlying presumption of promoting the public health. NTMs issued by agriculture ministries could support either the regulatory demand hypothesis or the political economy hypothesis. However, keeping in mind that the agricultural sector has a lot to gain from lobbying for protection, agriculture ministries might be captured by lobby and interest groups. NTMs issued by trade and industry ministries are equally suspect of being imposed with a protectionist intent. Considering that Cambodia, Thailand, and Vietnam are buyers of imported intermediate inputs which as subsequently exported in the context of production networks, (*Trade in Value-Added and Global Value Chains: Statistical Profiles* 2017) these ministries might be aiming to protect domestic industries which feel threatened by the influx of imports. Another factor to consider is that, unlike tariff legislation, measures issued by these regulatory agencies are not subject to review and revision by newly elected officials. (World Trade Organization 2012, p. 66) This imbues these NTMs with more permanence, making them more attractive for lobbyists as it becomes cheaper to lobby for protection. More importantly, much of the processes within these ministries are shielded from public scrutiny. Society relies on the expertise of specialized bodies, such as ministries for agriculture and trade, and the stated objectives of regulations for assurance that these are for the general welfare. On the other hand, regulators can take advantage of their concurrent and overlapping jurisdictions, and complex bureaucratic processes, to obscure the special interests underlying their actions. The information and monitoring costs needed to identify protectionist objectives underlying NTMs outweigh the possible gains, given the nature of the regulatory institutions.

Indonesia, the Philippines, and Thailand are also known for their endemic rent-seeking and corruption. This makes the apparently legitimate justifications for the issuance of NTMs in these countries questionable. The political institutions of these countries are notably susceptible to pressures from economic forces to tilt policies and regulations in their favor. Indonesia and Thailand are both characterized by some form of state capitalism, where state power and machineries were used to further the interests of public and private elites. (Hutchcroft 2000, p. 212; Robison and Hadiz 2006, p. 111) The Philippines, on the other hand, has a form of booty or crony capitalism, which allowed private elites to influence the bureaucracy. (Hutchcroft 2000, p. 212) Rent-seeking

is historically and socially entrenched in the political and economic institutions of these Member States. This kind of environment makes regulators easily susceptible to pressures from interest groups. This political context, coupled with the opaque nature of NTMs and the complex regulatory processes, makes NTMs the ideal instrument for protection. Industries which have been adversely affected by structural changes are the most likely beneficiaries, and indeed this appears to be the case.

## 4 Summary

The increased participation of ASEAN Member States in production networks coincided with the region's trade liberalization efforts, which began during the 1990s. The current primacy of production network trade is one of the motivations for deeper integration in the region. The premise is that deeper integration, through the harmonization of regulations and the removal of trade barriers, will promote and strengthen production network links in the region.

While this premise seems clear and irrefutable, the reality may be more complex. For one, the structural change in the Member States also coincided with an increased incidence of NTMs. For some, these NTMs do not adversely affect production network trade. In fact, they may even stimulate it by serving as signals of quality and safety. For others, NTM use seems to be driven by political economy considerations, such as support for certain industries. However, a more focused analysis is needed in order to get a more complete analysis on the incidence and persistence of NTMs in ASEAN.

Nevertheless, the idea that NTMs need to be harmonized and even eliminated in order to promote trade needs to be reexamined. It is possible that these instruments, which are nothing but governmental issuances, may be motivated by private interests and considerations. But it is also possible that these are motivated by legitimate goals which actually promote the public interest. Thus, a broad and general rule, such as a blanket prohibition of this measures, might be an ineffective and unneeded policy.

## APPENDIX 1

### *Total Global Value Chain Participation of ASEAN Member States (Trade in Value-Added and Global Value Chains: Statistical Profiles 2017)*

The “Made in the World” initiative,<sup>52</sup> provides a deeper insight on the development of production networks. It quantifies production network trade by using a measure for global value chains (GVC) participation. GVC participation has 2 components:

1. forward participation, which captures the domestic value added exported to other economies for further processing, *i.e.*, the contribution of a country as a seller of inputs in a production network; and
2. backward participation, which captures the foreign-value added in exports, such as when an economy imports intermediates used for exports.(*ibid.*)

The table below shows the total GVC participation of the Member States as of 2011, expressed as a percent share of total gross exports, *i.e.*, the percent of gross exports which are used for further processing in production networks. The averages for developing and developed countries are presented for reference.

MEMBER STATE	TOTAL GVC PARTICIPATION	FORWARD	BACKWARD
DEVELOPING	48.6	23.1	25.5
DEVELOPED	48.0	24.2	23.8
BRUNEI	46.9	42.7	4.3
CAMBODIA	48.7	11.9	36.8
INDONESIA	43.5	31.5	12.0
MALAYSIA	60.4	19.8	40.6
PHILIPPINES	50.9	27.4	23.5
SINGAPORE	61.6	19.9	41.7
THAILAND	54.3	15.4	39.0
VIETNAM	52.3	16.0	36.3

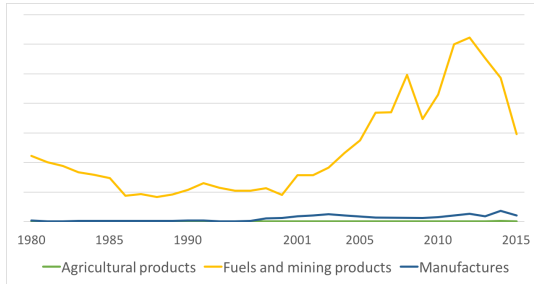
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<sup>52</sup>This is a joint project of the WTO and Organisation for Co-operation and Economic Development.

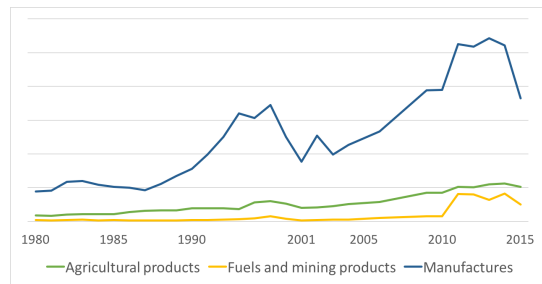
## APPENDIX 2

### *Export and Import Trends for Brunei and Indonesia (World Development Indicators 2017)*

The figures below show the export and import trends for Brunei and Indonesia from 1980 to 2015. Neither Brunei nor Indonesia shows any obvious shifts in the composition of their exports and imports. Brunei is mainly an exporter of fuels and mineral products. Most of its imports are manufactures. In general, Indonesia's exports and imports of agricultural items, fuels and minerals, and manufactures steadily increased during the past decades. Most of Indonesia's imports were manufactures.

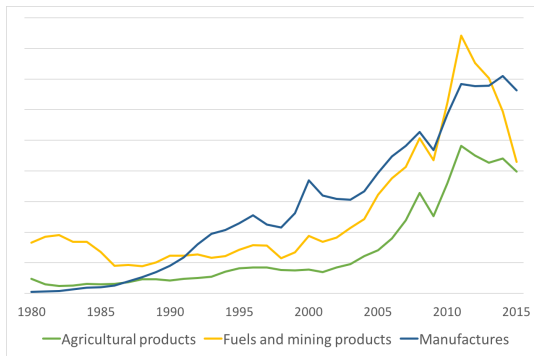


(a) Exports

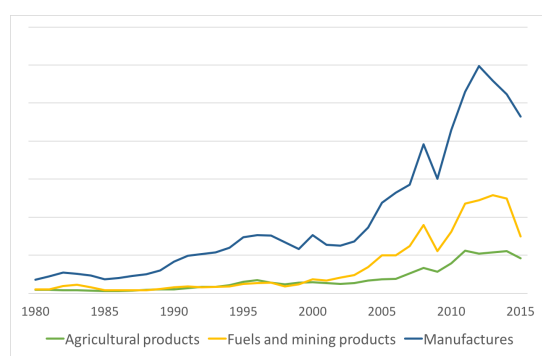


(b) Imports

### Brunei Exports and Imports



(a) Exports



(b) Imports

### Indonesia Exports and Imports

### APPENDIX 3.1

*Most Regulated Products, 2-Digit HS Code(Non-Tariff Measures Based on Official Regulations, ASEAN 2017)*

The following tables identify the most intensely regulated products per year for Cambodia, Indonesia, the Philippines, Thailand, and Vietnam. These are the product groups, aggregated according to the 2-digit Harmonized System (HS) Code, which were covered by a majority of the NTMs issued for that year.

	1992	1993	1994	1995
Cambodia			30	
Indonesia				
Philippines	26, 29, 38, 84, 85	27, 34, 37, 39, 40, 42, 44, 46, 48, 56, 57, 61, 62, 63, 64, 68, 70, 73, 82, 83, 84, 85, 90, 94, 95, 96	01, 39, 71, 72, 81, 85, 89	ALL
Thailand	01, 29	84, 85	02, 03, 04, 08, 16, 18, 19, 20, 21, 29	33, 34
Vietnam				

	1996	1997	1998	1999
Cambodia	29		06, 07, 10, 12, 22, 30	26, 38, 84, 85
Indonesia	28, 29, 30, 32, 38	87	03, 27, 42, 52, 54, 55, 57, 58, 60, 61, 62, 63, 70	
Philippines	01	28, 31, 36, 89	01, 27, 28, 85, 89	03, 16
Thailand	21, 39, 40	40	27, 72	06, 95
Vietnam				

	2000	2001	2002	2003
Cambodia	16, 17, 18, 19, 20, 21, 22, 87	06, 07, 09, 10, 12, 30, 84	01, 02, 03, 06, 07, 09, 10, 12, 15, 16, 41, 42, 51, 61, 62, 64, 71, 87, 91, 94, 95, 97	01, 02, 03, 06, 07, 08, 09, 10, 11, 12, 13, 14, 24, 41, 42, 61, 62
Indonesia		27, 34, 85	52, 54, 55, 57, 58, 61, 62, 63, 84, 85, 90	01, 03, 06, 39
Philippines	03	03, 16	02, 10, 17, 22, 23, 28, 29, 31, 33, 34, 40, 73, 81, 84, 85, 87	84, 85, 87
Thailand	05, 27	02, 03, 04, 07, 08, 09, 16, 17, 18, 19, 20, 21, 22	85	02, 03, 16, 20, 29, 38, 72, 84, 85, 87
Vietnam				

	2004	2005	2006	2007
Cambodia	29, 85	19, 20, 21, 28, 31, 36, 39, 81, 93	03, 16, 84, 85	84, 73
Indonesia	17, 24, 29	29, 71	05, 30, 93	38
Philippines	01, 02, 03, 04, 16, 21, 24, 25, 41, 42, 43, 51, 57, 61, 62, 64, 82, 91	01, 03, 16, 24	01, 05, 10, 19, 21, 22, 27, 29, 81	01, 10, 12, 21, 27, 38, 85
Thailand	09, 13, 17, 28, 29	29, 85	02, 03, 04, 07, 08, 16, 20, 21	02, 03, 07, 08, 12, 16, 17, 20
Vietnam	01, 03, 07, 12		01, 02, 03, 04, 16, 41, 42, 43, 51, 57, 61, 62, 64, 82, 91	25, 32, 68, 72, 73

	2008	2009	2010	2011
Cambodia	09, 10, 12, 33, 34, 42, 44, 45, 46, 62, 67, 70, 71, 87, 94, 95, 96, 97	01, 02, 03, 16, 41, 42, 43, 51, 57, 61, 62, 64, 90, 91	04, 07, 08	ALL
Indonesia	07, 08, 09, 10, 28, 72, 85, 90	02, 28, 29, 32, 39, 47, 48, 61, 62, 72, 84, 85, 87	03, 16, 30, 72, 73, 90	03, 07, 16
Philippines	02, 03, 07, 08, 12, 15, 16, 17, 20, 21, 25, 27, 36, 37, 38, 39, 40, 42, 44, 56, 57, 61, 62, 63, 70, 72, 73, 84, 85, 87, 93, 94, 95	01, 02, 05, 10, 16, 21, 23, 35, 41, 42, 71, 93, 96	02, 03, 04, 07, 08, 09, 10, 11, 12, 13, 15, 16, 17, 19, 20, 22, 87	02, 03, 07, 08, 12, 13, 15, 16, 17, 20, 22
Thailand	29, 34, 38, 72, 76, 84, 85	07, 29, 30, 38, 90	03, 25, 29	02, 03, 07, 08, 12, 13, 16, 17, 20, 72, 84, 85
Vietnam	02, 03, 07, 08, 11, 16, 20	36, 39, 52, 54, 55, 57, 58, 60, 61, 62, 63, 71, 93	02, 03, 07, 08, 10, 16, 17, 20, 23, 25, 35, 72	02, 03, 07, 08, 12, 13, 16, 17, 20, 87

	2012	2013	2014	2015
Cambodia	28, 29, 39	12, 42, 46, 52, 54, 55, 56, 57, 58, 60, 61, 62, 63, 67, 71, 96		
Indonesia	16, 19, 20, 33, 34, 44, 61, 62, 63, 64, 84, 85, 95	02, 03, 04, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 29, 30, 84, 85, 87, 89	03, 16, 44, 48, 84, 87	07, 08, 22, 27, 40, 44, 50, 52, 53, 54, 55, 57, 58, 60, 62
Philippines	01, 02, 03, 16, 21, 27, 31, 32, 41, 48, 84, 85, 88, 97	01, 02, 16, 31, 41, 93	10, 26, 29, 38, 81, 84, 85, 95	02, 03, 04, 07, 08, 12, 13, 16, 17, 20, 29, 87, 95
Thailand	08, 30, 72	08, 10, 12, 15, 29, 85, 96	04, 19, 87	17, 72
Vietnam	02, 03, 07, 08, 13, 16, 17, 20, 84, 85	02, 03, 07, 08, 12, 13, 16, 17, 20, 22	02, 03, 04, 07, 08, 09, 11, 12, 13, 15, 16, 17, 18, 19, 20, 22, 61, 62, 87	01, 02, 03, 04, 07, 08, 09, 10, 11, 12, 13, 15, 16, 17, 19, 20, 21, 22, 41, 42, 44, 51, 61, 62, 64, 82, 85, 91



**APPENDIX 3.2***2 Digit HS Codes*

01	Live animals	15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes
02	Meat and edible meat offal	16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
03	Fish and crustaceans, molluscs and other aquatic invertebrates	17	Sugars and sugar confectionery
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	18	Cocoa and cocoa preparations
05	Products of animal origin, not elsewhere specified or included	19	Preparations of cereals, flour, starch or milk; pastrycooks' products
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	20	Preparations of vegetables, fruit, nuts or other parts of plants
07	Edible vegetables and certain roots and tubers	21	Miscellaneous edible preparations
08	Edible fruit and nuts; peel of citrus fruit or melons	22	Beverages, spirits and vinegar
09	Coffee, tea, mate and spices	23	Residues and waste from the food industries; prepared animal fodder
10	Cereals	24	Tobacco and manufactured tobacco substitutes
11	Products of the milling industry; malt; starches; inulin; wheat gluten	25	Salt; sulphur; earths and stone; plastering materials, lime and cement
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder	26	Ores, slag and ash
13	Lac; gums, resins and other vegetable saps and extracts	27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare- earth metals, of radioactive elements or of isotopes

29	Organic chemicals	42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk- worm gut)
30	Pharmaceutical products	43	Furskins and artificial fur; manufactures thereof
31	Fertilisers	44	Wood and articles of wood; wood charcoal
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks	45	Cork and articles of cork
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a basis of plaster	47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper and paperboard
35	Albuminoidal substances; modified starches; glues; enzymes	48	Paper and paperboard; articles of paper pulp, of paper or of paperboard
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans
37	Photographic or cinematographic goods	50	Silk
38	Miscellaneous chemical products	51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric
39	Plastics and articles thereof	52	Cotton
40	Rubber and articles thereof	53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn
41	Raw hides and skins (other than furskins) and leather	54	Man-made filaments; strip and the like of man-made textile materials

55	Man- made staple fibres	71	Natural or cultured pearls, precious or semi- precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	72	Iron and steel
57	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	73	Articles of iron or steel
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	74	Copper and articles thereof
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use	75	Nickel and articles thereof
60	Knitted or crocheted fabrics	76	Aluminium and articles thereof
61	Articles of apparel and clothing accessories, knitted or crocheted	78	Lead and articles thereof
62	Articles of apparel and clothing accessories, not knitted or crocheted	79	Zinc and articles thereof
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	80	Tin and articles thereof
64	Footwear, gaiters and the like; parts of such articles	81	Other base metals; cermets; articles thereof
65	Headgear and parts thereof	82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof
66	Umbrellas, sun umbrellas, walking-sticks, seat- sticks, whips, riding- crops and parts thereof	83	Miscellaneous articles of base metal
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair	84	Nuclear reactors, boilers, machinery and mechanical appliances
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	85	Electrical machinery and equipment and parts; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such
69	Ceramic products	86	Railway or tramway locomotives, rolling-stock and parts; railway or tramway track fixtures and fittings and parts; mechanical traffic signalling equipment of all kinds
70	Glass and glassware	87	Vehicles other than railway or tramway rolling-stock, and parts and accessories

88	Aircraft, spacecraft, and parts thereof	93	Arms and ammunition; parts and accessories thereof
89	Ships, boats and floating structures	94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	95	Toys, games and sports requisites; parts and accessories thereof
91	Clocks and watches and parts thereof	96	Miscellaneous manufactured articles
92	Musical instruments; parts and accessories of such articles	97	Works of art, collectors' pieces and antiques