CHAPTER

Evaluating the impact of non-tariff measures on trade and investment in Asia and the Pacific

The previous chapters introduced NTMs, outlined trends in the Asia-Pacific region and explored the links between NTMs and SDGs. As noted, NTMs often serve legitimate and necessary purposes, such as protection of human, animal and plant health, and the environment. Indeed, not having NTMs in place, or their poor enforcement, may in some cases have devastating effects on trade and sustainable development (box 2.1). At the same time, however, NTMs do add costs to trade. In this context, this chapter examines the effects of NTMs on trade and present estimates of costs associated with NTMs. The chapter also discusses the effects of NTMs on foreign direct investment (FDI), using sectoral case studies. Finally, a regional analysis of national private sector surveys conducted in selected Asian countries provides insights on how much – and how – various NTMs affect those engaging in international trade.

"Not having certain NTMs or their poor enforcement may have a detrimental effect on sustainable development."

Box 2.1

The costs of not having NTMs or their poor enforcement

On 5 November 2010, *Pseudomonas syringae pv. Actinidiae* (Psa) – a bacterial disease – was first detected in New Zealand in one kiwifruit orchard. While posing no threat to other plants, humans or animals, it devastated kiwifruit exports from New Zealand – a billion dollar industry at that time (New Zealand Herald, 2010). By 2011, the disease had spread to other farms across the country, eventually infecting 80% of kiwifruit orchards nationwide (Boot, 2018). In the subsequent investigation, it was determined that the most likely source of Psa was contaminated imports of pollen from China (Butler and others, 2013). New Zealand's Ministry of Agriculture and Forestry (MAF) was blamed for the breach of its duty to care, including no formal risk analysis sign-off by MAF personnel before the import was permitted. Subsequently, a class action suit was filed by 212 growers accusing MAF of being negligent under the Biosecurity Act. The net present value of losses over 15 years were estimated to be up to NZ$885 million (Greer and Saunders, 2012). The High Court of New Zealand has ruled in favour of the growers, who claimed NZ$450 million in damages. The decision, however, was later appealed (New Zealand, 2019).

Similarly, the recent outbreak of the African swine fever (AFS) in parts of the East, North-East and South-East Asian subregions can be blamed on contaminated imports and inadequate SPS monitoring. The virus was previously present in the North and Central Asian economies of Armenia, Azerbaijan, Georgia and the Russian Federation (FAO, 2009). The diseases, first reported on 3 August 2018 in China, spread across that country before crossing the border into Cambodia, the Lao People's Democratic Republic, Mongolia, the Democratic People's Republic of Korea, the Philippines, the Republic of Korea and Viet Nam (Economist, 2019; FAO, 2019). While the disease is not harmful to humans, it kills up to 100% of infected pigs (FAO, 2019). Rabobank (2019) estimated that AFS could reduce China's pork production by 25% to 35%, or up to 200 million pigs. This is expected to increase pork prices by 70% in the second half of 2019 (*Economist*, 2019). This is a significant figure, since pork accounts for almost 3% of the Chinese consumer price index (Bloomberg, 2018). In addition, OECD and FAO (2019) have estimated that to compensate for the decrease in domestic production, China's share of world imports of pork would increase from 17% in 2018 to 23% in 2020.

A. EFFECTS OF NON-TARIFF MEASURES ON TRADE

> *"NTMs can provide quality assurance and a safety guarantee as well as indicate consumer preferences, which lead to trade-enhancing effect."*

The trade effects of NTMs can be quite substantial in a world of deepening economic integration and increasingly linked cross-border production in the form of regional and global value chains (GVCs). NTMs, in general, are not as transparent as tariffs, and their implementation is not always efficient, thus incurring a trade-cost effect. Furthermore, it is not possible to claim refunds and drawbacks on expenditures on most NTMs, unlike tariffs (which can be claimed on re-exports); their effects on costs are accumulative along the values chains. However, for certain sectors, they can provide quality assurance and a safety guarantee as well as indicating consumer preferences, which can have a trade-enhancing effect (box 2.2).

As discussed in the introductory chapter, the number of NTMs per economy in the Asia-Pacific region ranges from less than 50 in Tajikistan to more than 7,000 in China. The number of measures, however, is a poor gauge of the pervasiveness and trade effects of non-tariff regulations. Some measures may affect only one or a few products, whereas other measures may affect many. Furthermore, economies that do not trade in certain products have low incentives to adopt regulations affecting such trade. Conversely, economies that are highly integrated in GVCs, and which trade extensively in many product categories, tend to regulate more. In addition, some individual measures may be highly trade-restrictive (such as stringent SPS requirements), whereas others may be less restrictive (such as compulsory registration for importers). As such, a more

Box 2.2

Separating trade creating from trade inhibiting effects of NTMs

In order to evaluate the effects of NTMs on trade, ESCAP has conducted an econometric analysis of NTMs effects on trade flows (see online annex).[a] When controlling for all variables that typically explain trade between countries (i.e., level of development, distance, tariffs etc.), the incremental effect of an additional NTM (across all products) has been found to actually increase imports by 1.8%.

When separating NTMs into technical and non-technical measures, the analysis shows that an increase by one in the average number of technical NTMs applied to trade partners increases imports by 2.4%. This implies that having more technical measures in place creates a demand effect, whereby consumers (whether final or intermediate) are more confident in the quality of the product and therefore demand more. At the same time, an increase in the average number of non-technical measures by one decreases imports by 17%. As such, it could be concluded that technical measures (SPS and TBTs) are generally trade-creating, whereas non-technical measures such as quotas, price-control measures and finance measures (see table 1 in the Introduction on page 6) act as a deterrent to trade.

Caution, however, should be exercised when interpreting these high-level results, since excessive regulation, whether trade-creating or not, as a rule increase trade costs (see further discussion in this section). As such, there is a real risk of "over-regulating", where any trade-creating effects of NTMs are offset by increases in trade costs. What is paramount for any regulations is ensuring that their introduction does not unnecessarily burden traders with excessive costs that may reduce overall welfare, whether supporting overall levels of trade or not. In addition, as chapter 1 demonstrates, trade is but one consideration of NTMs; other important public policy objectives – including meeting SDGs – should be considered.

Source: Utoktham (forthcoming).

[a] http://unescap.org/resources/aptir-2019-online-annex-data-and-methodology-assessing-impacts-non-tariff-measures-trade

sophisticated analysis is required to measure the pervasiveness of NTMs, as well as to fully gauge their effect on trade.

1. Intensity of NTMs: how much is trade affected by NTMs and to what extent?

> *"57% of imports in the Asia-Pacific region are covered by at least one NTM and, on average, each imported product faces 2.5 NTMs."*

Two descriptive indicators commonly used to quantify the intensity of NTMs are coverage ratio and prevalence score (UNCTAD and World Bank, 2018). The coverage ratio captures an economy's share of trade subject to NTMs, and the prevalence score indicates an economy's average number of distinct NTMs that are applied to regulated products.[1] In general, less developed economies have lower coverage ratios and lower prevalence scores. Based on available data in the Asia-Pacific region, approximately 58% of trade volume is covered by NTMs, and each product faces 2.5 NTMs on average (figure 2.1). The region's coverage ratio and prevalence score are on a par with the global average of 57% for coverage ratio and a prevalence score of 2.5.

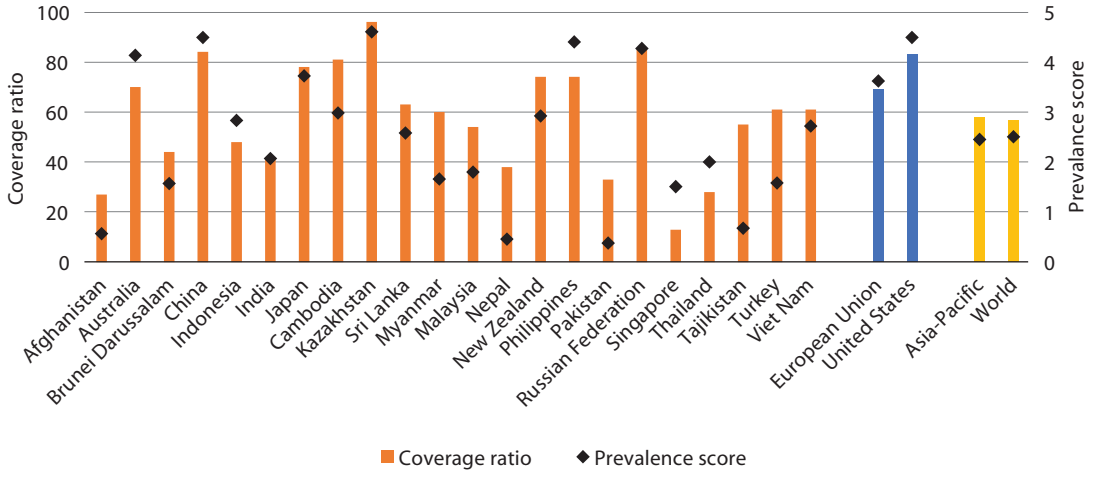
> *"83% of agricultural imports in Asia and the Pacific is covered by at least one NTM, with an average product facing more than 7 separate NTMs when imported."*

Sector-wise, agricultural products are generally more heavily regulated, with nearly 100% of trade volume being subject to at least one NTM in the European Union and the United States, and 83% in Asia and the Pacific (figure 2.2). While manufacturing and natural resource products are subject to fewer than

[1] Products are defined according to the Harmonized Commodity Description and Coding System.

two NTMs on average globally and in Asia and the Pacific, agricultural products are subject to approximately nine different NTMs globally, and eight in the Asia-Pacific region. Notably, the developed economies of the European Union and the United States impose, on average, 15 and 13 NTMs on imports of agricultural products, respectively. In the Asia-Pacific region, the highest prevalence scores on agricultural products are in China (16), and the Philippines and Australia (15), while the lowest score is in Nepal with only one measure imposed, on average.

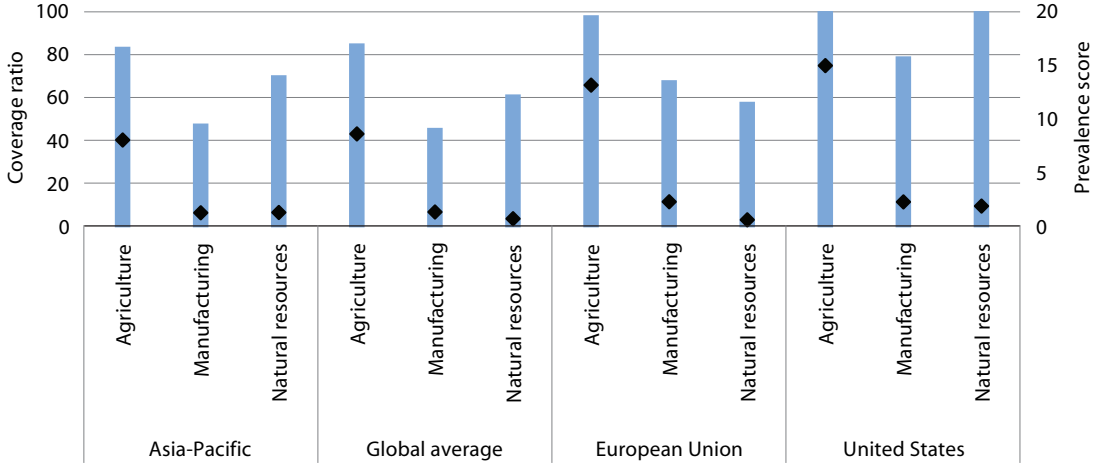
Figure 2.1 **Coverage ratios and prevalence scores of NTMs**



Source: UNCTAD, NTM hub: Data on non-tariff measures (accessed 1 May 2019).

Note: Averages are simple averages of the indicators.

Figure 2.2 **Coverage ratios and prevalence scores of NTMs, by sector**



Source: UNCTAD, NTM hub: Data on non-tariff measures (accessed 1 May 2019).

Note: Averages are simple averages of the indicators.

2. Trade costs of NTMs

The impact of NTMs on trade can be quantified by estimating the ad valorem tariff equivalent (AVE) of NTMs, i.e., calculating the level of an ad valorem tariff that would have an equally trade-restricting effect as an NTM. Using the UNCTAD TRAINS database on NTMs, United Nations Comtrade data on trade flows as well as other databases on economic statistics and trade indicators, ESCAP calculated the AVEs of technical and non-technical non-tariff measures.[2] As noted in chapter 1, technical measures comprise more than 90% of import-related measures currently available through the TRAINS database.

"The average trade costs of NTMs in the Asia-Pacific region are 8.2% and 7.1% for technical and non-technical measures, respectively."

The global average AVE of technical NTMs is 6.8%, and 3.3% for non-technical measures.[3, 4] The averages in the Asia-Pacific region are 8.2% and 7.1% for technical and non-technical measures, respectively. In 2016, the applied tariffs were only 5% and 5.8% globally and in Asia and the Pacific, respectively. As such, NTMs – particularly in certain sectors (see next subsection) – now impose higher costs on trade than ordinary customary tariffs. Technical measures are estimated to cost as much as 1.6% of global GDP (box 2.3).

"Even though the European Union and the United States impose more NTMs, their trade costs are lower than in Asia and the Pacific."

Figure 2.3 shows import-weighted AVEs of technical NTMs imposed by Asia-Pacific economies, the European Union, the United States and the rest of the world (RoW) for which sufficient data were available to allow estimation. Notably, both the European Union and the United States have lower overall costs of NTMs, as well as non-technical measures in particular, than global averages and all individual subregions in the Asia-Pacific region. This is likely due to those economies having relatively streamlined importing procedures as well as their adherence to international standards.[5] As such, although in absolute terms, the European Union and the United States have above average coverage ratios and prevalence scores of NTMs, their effects on price are lower as measured by AVE estimation. The private sector survey analysis presented in section C below gives further credence to this conclusion since developed economies with a high level of digital trade facilitation generally attract fewer complaints of burdensome NTMs from traders.

Conversely, looking at AVEs of NTMs that exporters in Asia-Pacific subregions face (figure 2.4) shows that the costs of Asia-Pacific exporters are generally lower than those of importers in the same subregions (i.e., when comparing with figure 2.3). This is, in part, due to the European Union and the United States – major markets for Asia-Pacific exporters – having generally lower costs associated with NTMs. This may seem paradoxical, as previous discussion has noted their higher than average coverage ratios and prevalence scores of NTMs. However, the lower costs can be, in part, attributed to the relatively efficient trade procedures of these economies (i.e., enhanced trade facilitation). The European Union and the United States, on the other hand, face higher costs than what they impose because their export markets and product mixes have relatively higher NTM-related costs; this is due, in part, to the Asia-Pacific

[2] The AVEs are estimated through gravity modelling. In essence, the technique relies on attributing the difference in the price of imports of merchandise goods (derived through dividing value imported by quantity imported) to the number of NTMs facing those goods at the bilateral level, while accounting for other potential explanatory variables, such as distance, gross domestic product (GDP), tariff levels etc. See Kravchenko and others (2019) for details.

[3] Caution, however, should be exercised when interpreting these figures as data limitations mean that in some cases only a limited volume of trade data that had sufficient information on NTMs were used in estimation. Furthermore, these estimates are trade-weighted, meaning that high AVEs for products that are imported receive more weight. Conversely, products that are not heavily imported receive less weight, meaning that some NTMs that may be very restrictive receive relatively less weight. As such, two countries that have essentially the same NTM profiles (such as in the case of members of the European Union) may have different AVEs of NTMs because of their differing import product mix. Furthermore, as discussed in section C below on the private sector perspective, it is often not NTMs that are deemed burdensome (and thus raise costs), but related procedural obstacles.

[4] UNCTAD and World Bank (2018), using a different (quantity-based) methodology, estimated AVEs of 11% for technical measures and 9% for other types of measures.

[5] For example, even though the European Union has higher coverage ratio and prevalence score of NTMs than India (see figure 2.1), the Indian Council for Research on International Economic Relations (ICRIER) reports that despite recent advancements in import facilitation: "the time and cost to import [food products] into India is still significantly high and there is a need to further streamline the import process" (ICRIER , 2019).

Box 2.3

The cost of technical regulations

While AVEs can give an idea of the costs associated with NTMs for certain traded products, due to the pervasiveness of value chains, the effects on the global welfare are accumulative and, as such, trade costs underestimate their net effect. One way to obtain a sense of the true costs of NTMs is through using computable general equilibrium (CGE) modelling, which takes into account these linkages. By assuming that removal of technical NTMs is equivalent to improvements in efficiency of imports, the estimated AVEs of technical measures are introduced in the global CGE model (Global Trade Analysis Project (GTAP)). When such efficiencies are introduced, global GDP is estimated to increase by 1.6%, i.e., $1.4 trillion.

These estimates, however, should be considered as upper bounds of true costs because not all costs associated with NTMs are wasteful. For example, some payments made to government agencies are added to the national budget. In addition, the estimates do not include the positive effects of NTMs on trade (box 2.2), as well as benefit derived from protecting animal and human health (box 2.1), and the environment.

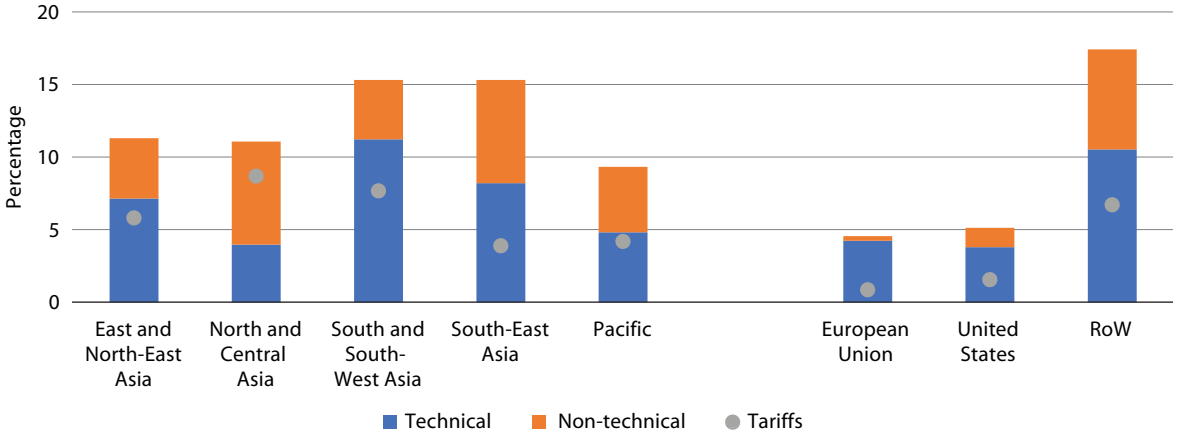
While outright removal of technical NTMs is not suggested (see chapter 1 on the importance of NTMs and box 2.1 in this chapter on what can happen if those NTMs are not implemented properly), the estimate does show that these public policy objectives carry a significant cost. The key is to ensuring that while public policy objectives are met, traders are not unnecessarily burdened, and that these costs are minimized. In general, according to OECD (2016), these costs include:

- Information costs – associated with finding information on NTMs and related procedures;
- Conforming assessment costs – associated with proving that products meet the required standards;
- Specification costs – changing product/production processes in order to meet NTMs of importing countries.

As such, reducing costs associated with NTMs can be addressed through each of the above components. Addressing information costs requires a greater degree of transparency and notification. Conformity assessment costs may be addressed through mutual recognition arrangements (see chapter 4) and specification costs are minimized through harmonization between economies as well as adherence to international standards (see chapter 3). Through addressing each component of the costs associated with NTMs it is, in principle, possible to effectively achieve intended public policy objectives, including those embedded in the 2030 Agenda for Sustainable Development.

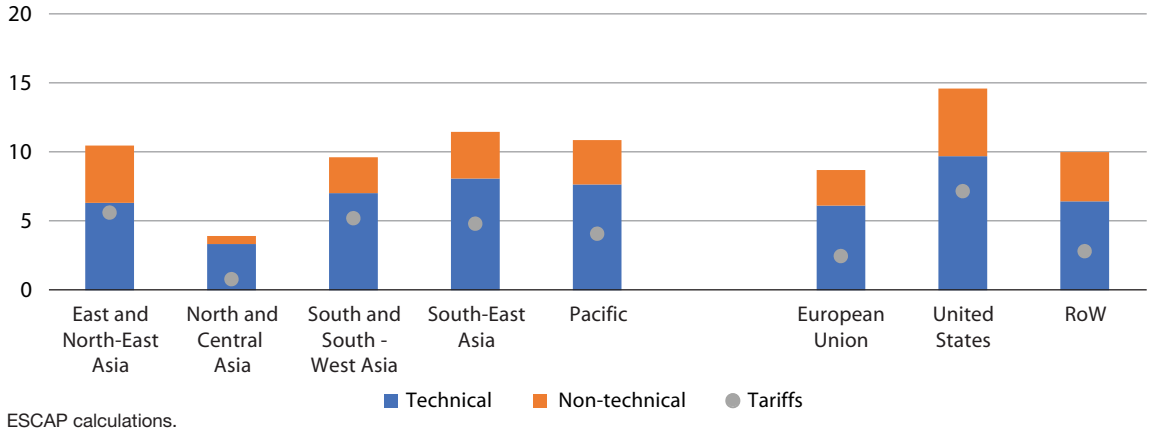
Figure 2.3

Import-weighted tariffs and AVEs of NTMs imposed by economies, by subregion



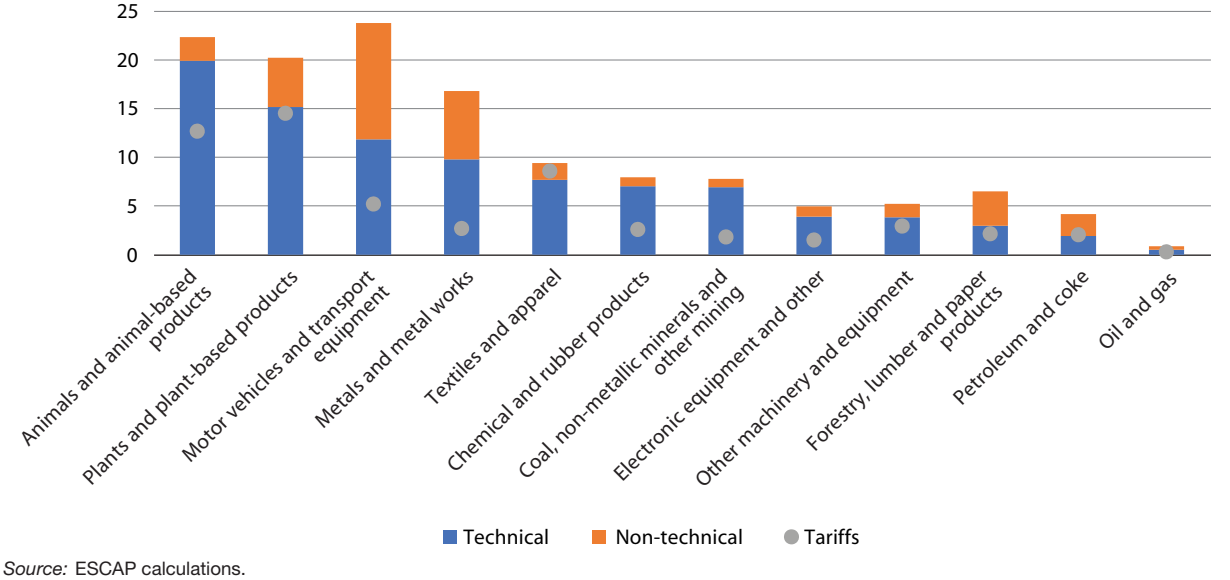
Source: ESCAP calculations.

Figure 2.4 **Import-weighted AVEs of NTMs and tariffs faced by exporters, by subregion**



Source: ESCAP calculations.

Figure 2.5 **Import-weighted AVEs of NTMs and tariffs, by sector**



Source: ESCAP calculations.

economies having, on average, lower trade facilitation achievements (see section C).

> *"Animal and plant-based products have the highest trade costs of NTMs, followed by motor vehicle and transport equipment sectors."*

Sector-wise disaggregation of AVEs of technical NTMs shows that, in general, food and food-related products face the higher costs associated with NTMs, mainly due to technical measures (figure 2.5). The motor vehicle and other transport sector is the third-most affected by technical NTMs, also attracting the highest costs of non-technical measures among all sectors. Notably, oil and gas, together with petroleum and coke, attract relatively lower levels of NTMs. This is because economies generally try to minimize the costs of intermediate goods (even subsidizing consumption in some cases) to ensure the competitiveness of exported products.

It is also important to note that costs associated with NTMs in different sectors are not uniform across subregions. For example, in terms of technical measures, plants and plant-based products have the highest AVEs in South and South-West Asia at more than 40%, whereas in other subregions the costs are well below 20%. For motor vehicles and other transport, AVEs of technical measures in East and North-East Asia are 30%, whereas they are half that in other subregions. The large difference among AVEs of NTMs for similar products suggests that harmonizing NTM regimes can significantly reduce trade costs.

3. Regulatory distance

While coverage ratios and prevalence scores describe the amount of trade covered by NTMs and the average number of NTMs facing each imported product, these figures do little to highlight the differences between economies, in terms of their overall NTM regulations. One simple measure for examining such differences proposed by UNCTAD (2015) is regulatory distance. This measures the degree to which regulations of the same type are applied by two economies to each product, and is a potential indicator of NTM harmonization. Specifically, this indicator compares NTM profiles of two economies and assigns a value of 0 when both economies regulate imports of a product using the same NTM (or, equally, both do not), and 1 when either economy regulates import of a product and the other does not. These values are summed up and divided by the number of observed product-NTM combinations.

The regulatory distance indicator ranges between zero, meaning that NTMs are completely harmonized (such as in the case of the members of the European Union) and 1, meaning that NTM profiles are diametrically opposed. Excluding the special case of the European Union, for all the available pairs of economies for which NTM data are available, the indicator ranges between the values of 0.02 and 0.32, with a global simple average of 0.11. The simple average for the Asia-Pacific region is 0.12, suggesting that NTM regulations may be slightly less harmonized among the countries of the region than globally.

"The high average regulatory distances among economies in Asia and the Pacific strongly puts forward a case for regulatory harmonization."

Figure 2.6 depicts simple averages of regulatory distance scores of Asia and the Pacific economies with their regional trade partners. China's high NTM coverage ratio and prevalence scores mean that its NTM regulation is quite different from that of other economies in the Asia-Pacific region, resulting in a high average regulatory distance score (0.22). The Philippines follows closely with an average ratio of 0.20. Notably, the bilateral regulatory distance between the Philippines and China is the highest in the region (0.28), suggesting that considerable scope exists for harmonizing bilateral regulations and enhancing trade between the two countries.[6]

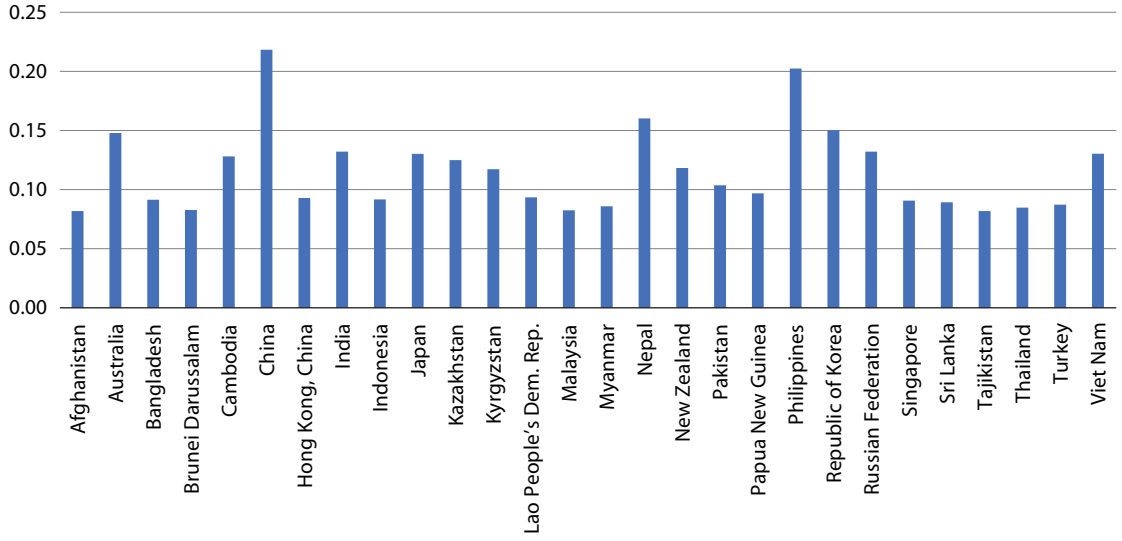
"North and Central Asia economies have the most harmonized regulations in Asia and the Pacific."

Table 2.1 presents average regulatory distance scores within and among the subregions in Asia and the Pacific, together with the European Union and the United States, calculated using the latest UNCTAD TRAINS data. The lowest average regulatory distance (in bold) within the Asia-Pacific subregions is in North and Central Asia, in large part due to the Eurasian Economic Union's efforts at harmonization. South and South-West Asia are next with the next lowest internal regulatory distance, followed by South-East Asia, thus also reflecting efforts to harmonize regulations among neighbouring trade partners – notably, without the Philippines, the average regulatory distance in South-East Asia is 0.7.

China's average regulatory distance pushes up the average in East and North-East Asia subregion, not only among subregion's economies, but also with other subregions and beyond. In terms of regulatory distance with the Asia-Pacific's major trading partners the results suggest that regulatory distance of Asia-Pacific subregions is significantly lower with the European Union than with the United States. In fact, Asia-Pacific subregions appear to be more harmonized with the European Union than with each

[6] Harmonizing NTM regulations in bilateral cases is, however, rather a "whack-a-mole" game, potentially resulting in increased regulatory distance with other trade partners. As such, it is important that harmonization is conducted plurilaterally or, ideally, multilaterally on the basis of international standards (see chapter 3).

Figure 2.6 **Average regulatory distance of Asia-Pacific economies with regional trade partners**



Source: ESCAP calculations, based on the UNCTAD TRAINS database.

Table 2.1 **Average regulatory distance scores within and among Asia-Pacific subregions, the European Union and the United States**

	East and North-East Asia	North and Central Asia	Pacific	South-East Asia	South and South-West Asia	European Union	United States
East and North-East Asia	**0.17**	0.14	0.15	0.14	0.15	0.14	0.20
North and Central Asia	0.14	**0.08**	0.12	0.11	0.11	0.10	0.18
Pacific	0.15	0.12	**0.12**	0.11	0.12	0.12	0.19
South-East Asia	0.14	0.11	0.11	**0.10**	0.10	0.10	0.18
South and South-West Asia	0.15	0.11	0.12	0.10	**0.09**	0.10	0.18
European Union	0.14	0.10	0.12	0.10	0.10	–	0.16
United States	0.20	0.18	0.19	0.18	0.18	0.16	–

Source: ESCAP calculations, based on the UNCTAD TRAINS database.

other. This confirms a study by Stoler (2011), who noted that regional trade agreements (RTAs) involving the European Union often required partner countries to harmonize their SPS and TBT regulations with those of the European Union (see box 2.4).

Knebel and Peters (2019) assessed the regulatory distance among the Association of Southeast Asian Nations (ASEAN) countries and differentiated agriculture and manufacturing. They found that the regulatory distance of ASEAN countries was much lower in the manufacturing sectors. A lower regulatory distance in the manufacturing sector may indicate that higher regulatory convergence has contributed towards the advanced industrial integration and value chains within ASEAN. The ASEAN members with the lowest shares of intraregional trade (Cambodia, the Philippines, Viet Nam and Indonesia),

Box 2.4

SPS regulation as a promoter of exports in Georgia

In 2014, the Governments of Georgia and the European Union signed the Association Agreement (AA), paving the way to establish a Deep and Comprehensive Free Trade Area (DCFTA). The Agreement entered into force on 1 July 2016 (Emerson and Kovziridze, 2016). The purpose of the Agreement, in part, is to increase Georgia's trade with the European Union and other major trading partners across the world, by reforming economic regulations. In particular, part of the Agreement envisaged the adoption by Georgia of SPS legislation in line with that of the European Union. According to the European Commission (2018), the benefits of adopting stricter standards for Georgia are:

1. Higher quality of Georgian food products;
2. More protection of consumer health and public health in general, as higher quality products reduce the spread of diseases;
3. Georgia's food products will meet international standards and will face simplified legislation when trading with the European Union and other markets;
4. Having higher quality products builds the credibility of Georgian exports in the international market.

Prior to DCFTA, Georgia's SPS regulation was devoid of most forms of SPS control (Emerson and Kovziridze, 2016). This was largely due to previous rounds of Georgia's unilateral liberalization efforts and its fight against corruption. However, in the process of meeting the conditions for DCFTA, in 2010 Georgia started to harmonize its SPS regulations with those of the European Union. This "approximation process" involved ongoing adoption of 271 separate Acts of legislation, of which 102 concerned food safety, 84 were veterinary and 85 were phytosanitary. While SPS regulation was only a part of DCFTA, it was arguably the most difficult to address, both for regulators as well as for producers. The reforms were costly, with exports to the world and the European Union declining by 4% and 11%, respectively, immediately before the new legislation was put in place.[a] However, uninhibited access to the agricultural market of the European Union and beyond, together with increased protection of food safety and animal welfare, have evidently been worth the trouble: between 2016 and 2018, Georgia's total exports have increased by 28% and 59% to the European Union and the world, respectively.

[a] ESCAP calculations, based on trade data from the United Nations Comtrade database (accessed May 2019).

by contrast, exhibit a relatively large regulatory divergence from the rest of the ASEAN group. In agriculture, Knebel and Peters (2019) found that the four ASEAN countries that are net exporters of agricultural goods (Thailand, Indonesia, Malaysia and Viet Nam) converge towards the more highly-regulated developed countries, the United States, the European Union and Japan. However, there are no signs of regulatory similarity in agriculture between those four ASEAN member States.

"Regulatory distance between Asia-Pacific economies and major trade partners of the European Union and the United States is higher for NTMs addressing SDGs."

As discussed in chapter 3, regulatory harmonization is an effective method of bringing down the costs associated with NTMs while ensuring that they achieve the public policy objectives. As such, a priority among policymakers should be to harmonize NTM regulations that address these objectives, most of which are embedded in the SDG framework. Following the identification of measures related to SDGs presented in chapter 1, regulatory distances were calculated only for measures that were evaluated as having a direct and positive impact on SDGs (table 2.2). The average regulatory distance of 0.12 within and between Asia-Pacific subregions is slightly higher than for all measures (0.11). Most notable, however, is significantly higher regulatory

Table 2.2 **Average regulatory distance scores within and among Asia-Pacific subregions, the European Union and the United States, for measures directly addressing SDGs only**

	East and North-East Asia	North and Central Asia	Pacific	South-East Asia	South and South-West Asia	European Union	United States
East and North-East Asia	0.20	0.16	0.17	0.16	0.15	0.17	0.27
North and Central Asia	0.16	0.09	0.14	0.12	0.11	0.12	0.24
Pacific	0.17	0.14	0.15	0.13	0.11	0.14	0.25
South-East Asia	0.16	0.12	0.13	0.10	0.08	0.12	0.24
South and South-West Asia	0.15	0.11	0.11	0.08	0.05	0.09	0.23
European Union	0.17	0.12	0.14	0.12	0.09	–	0.23
United States	0.27	0.24	0.25	0.24	0.23	0.23	–

Source: ESCAP calculations, based on UNCTAD TRAINS database and methodology developed by ESCAP and UNCTAD (Kravchenko and others, 2019).

dissonances with the European Union and the United States (compare the European Union and the United States columns in tables 2.1 and 2.2). This suggests that NTM regulations that support sustainable development in the region are not harmonized with those of major trade partners outside the Asia-Pacific region.

B. NON-TARIFF MEASURES AND FOREIGN DIRECT INVESTMENT

While considerable attention in the literature has been paid to understanding the relationship between NTMs and trade, less has been dedicated to investigating the relationship between NTMs and FDI. By definition, NTMs affect trade first, and consequentially economists have concentrated on studying their impact on trade. Nonetheless, as trade and investment are intrinsically linked to each other, either as complements or substitutes, it stands to reason that NTMs can also either directly or indirectly influence the decision of firms to invest abroad; this should also be reflected in aggregate FDI patterns (box 2.5).

> *"The effect of technical measures in inducing FDI ranges from 14% to 21%."*

Conventional FDI theory presupposes that a firm will pursue FDI instead of exporting when faced with market imperfections. NTMs, when significantly affecting trade, can be thought of as a type of market imperfection. The type and trade cost of an NTM as well as the strategic choice constraints facing a firm will determine that firm's response to the NTM. A firm may choose to circumvent an NTM through FDI when the cost of doing so is lower than the cost implications for exporting. Furthermore, to the extent that tariffs may trigger tariff-jumping, NTMs may also induce inward FDI to the country imposing NTM because they increase market access barriers. Indeed, Nicoletti, Golub and Hajkova (2003) confirmed such a positive relationship between NTMs and FDI. Yet, there has been no follow-up research to confirm this relationship. For policymakers to fully assess and understand the implications of NTMs, they must also begin to focus attention on how NTMs affect FDI.

Different NTMs will have different cost implications for firms. Consequently, certain NTMs may be more likely to motivate a firm to pursue FDI instead of trade. Government procurement restrictions and local content requirements (LCR)[7] may sway a firm towards FDI, especially as they could exclude foreign firms from trade because of their domicile. In such instances, firms are faced with the choice between market entry through FDI or market exclusion, and therefore the cost of these types of NTMs for the firm is the eschewed profit from not operating in the market.

[7] The focus is on LCR put in place in host countries on (imported) goods.

Box 2.5

Estimating the effect of NTMs on FDI

To evaluate the effects of NTMs on FDI, similar to the analysis described in box 2.2, ESCAP has conducted an econometric analysis linking NTMs to FDI flows. The results first confirm strong complementary linkages between trade and FDI – imports have a strong and positive link with inward FDI, whereas the reverse relationship (i.e., the effect of FDI on imports) is weaker. As such, through their effects on imports, NTMs may indirectly affect inward FDI. Overall, the analysis suggests that an incremental increase in the average number of NTMs imposed could boost FDI by approximately 12%. When disaggregated, the effect of technical measures in inducing FDI ranges from 14% to 21%. An important policy implication of these findings is that NTMs, while generally examined through prism of merchandise trade alone, also have a strong effect on FDI; thus any sustainability impact assessment of NTMs needs to consider their effects on FDI as well.

Source: Utoktham (forthcoming).

Both technical standards and intellectual property rights (IPRs) increase the costs for firms, regardless of whether firms choose to export or pursue FDI. Differences in technical standards may force firms to produce different models of their products to meet multiple market requirements, consequently increasing expenditure and reducing economies of scale for batch production. In certain sectors, firms may pursue FDI to circumvent NTM if it is easier and cheaper to comply with the technical standards when producing locally.

Intellectual property rights protection may constitute an important NTM (chapter N in ICNTM classification of NTMs). Different IPR regimes may increase the cost of research and development (R&D) and lead to higher administrative and legal costs. While strongly enforced IPR regimes may also serve to encourage inward FDI and exporting, the opposite would be true when IPRs are weakly enforced, because the risk of patent or copyright infringements is higher.[8] This is particularly relevant for developing countries, where implementation of stronger IPR regimes may not only serve to incentivize imports and inward FDI, but also help their indigenous firms learn how to comply with IPRs and thereby enable them to better pursue outward FDI in countries with stronger IPR regimes.

These are just several illustrations of potential ways in which NTMs may be linked to the investment decisions of firms and thereby affect aggregate FDI patterns. To test these assumptions, ESCAP conducted several qualitative case studies that can be extended and replicated in future research to further confirm the impacts of NTMs on FDI patterns. Three types of NTMs were selected as the focus of these case studies – IPRs, LCR and technical barriers to trade in India, Indonesia and China, respectively. The NTMs were implemented in specific sectors in each country, and the case studies examined their impacts on inward FDI. These case studies were chosen based on the availability of data and availability of information on the NTM itself. In each case study, aggregate figures were used to illustrate the link between the NTM and FDI. The case studies do not contain econometric findings but rather focus on providing context and making use of descriptive metrics to understand and draw conclusions on the relationship under study. The results of these case studies are given below.

1. Case study 1: FDI and IPRs in the Indian pharmaceutical sector

> *"Striking the right balance between a stricter IPR regime and affordability and availability of life saving medicines is essential."*

The case study on IPRs in the Indian pharmaceutical sector analysed aggregate FDI patterns both before and after implementation of stronger IPRs, in line with

[8] These risks may also extend to trademarks and geographical indications which, although not protected under IPRs, are still important means of protecting traditional knowledge.

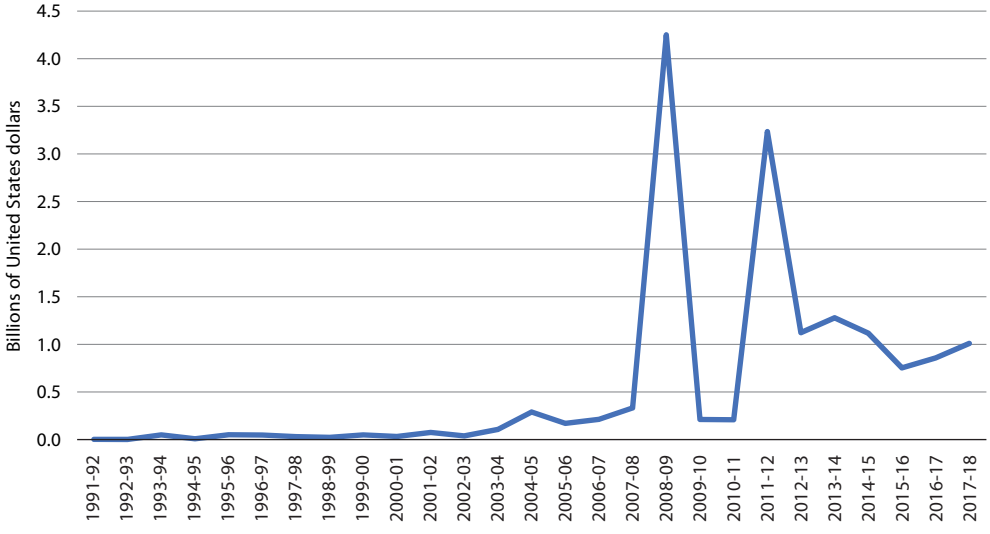
India's commitment as a WTO developing country member State to become fully compliant with the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) by 2005. Between 1995 and 2005, India simultaneously slowly phased in stronger TRIPS compatible IPRs in the pharmaceutical sector, which were extremely significant for encouraging growth in inward FDI.[9]

During 1991-1995, FDI inflows in the pharmaceutical sector averaged a moderate $17 million, and totalled $68.7 million. In comparison, during the TRIPS transition period (1995-2005), inward FDI averaged roughly $73 million annually, with the largest year-on-year increases occurring in the years closest to full implementation of TRIPS in 2005. During the 1995-2005 transition period, the largest jumps in inward FDI came in 2003-2004 in anticipation of TRIPS, and then again in 2004-2005 once implementation had begun. Furthermore, inward FDI into pharmaceuticals as a percentage of total FDI inflows has also increased since TRIPS implementation began (figure 2.7). This is illustrated by the fact that between 1991 and 2003 pharmaceutical inward FDI in India averaged about 2% of total FDI inflows; however, since then it has doubled and averaged about 5% of total FDI inflows annually.

As illustrated by figure 2.7, inward FDI increased after the full implementation of stronger patent protection in 2005 and remained much higher than previous levels in the years that followed the implementation. However, despite higher overall levels of FDI flows, significant volatilities have remained apparent following IPR implementation. The most volatile years for FDI have also been years in which there were a series of intellectual property rulings in India against foreign pharmaceutical firms, related to TRIPS Agreement violations. These cases corresponded with dramatic declines in inward FDI. However, inward FDI quickly recovered after each decline, largely due to the large market potential. Thus, while the introduction of a legal framework for IPR facilitated greater FDI flows in the pharmaceutical sector, the lack of stable and consistent enforcement mechanisms hindered further growth in FDI. Enforcement challenges in the Indian pharmaceutical IPR context are largely driven by the priority India has

Figure 2.7

Inward FDI to the Indian pharmaceutical sector, 1991-2018



Source: ESCAP calculations based on the Department of Industry Policy and Promotion, FDI Statistics (various years).

Note: Data based on total equity flows, minus reinvested earnings and portfolio investments.

[9] During this period, India also enacted several liberalizing economic reforms that also opened the sector up to inward FDI. These reforms were also considered in detail in the full case study analysis.

consistently placed on ensuring the availability and affordability of life-saving drugs. This priority drove the development of the intellectual property framework and has come to the forefront again through the multiple IPR-related court cases in India since TRIPS, concerning issues related to patent linkages, evergreening and compulsory licensing.

Maximizing the potential gains from FDI that can come through strengthened IPRs requires more efforts to strike a delicate balance between (a) moving towards a stricter IPR regime with consistent enforcement mechanisms and (b) enabling the affordability and availability of life saving medicines for its population. Striking such a balance will be essential to attracting consistent and increased inward FDI flows while also leading to increased outward FDI.

2. Case study 2: FDI and local content requirement in Indonesian smartphone market

"There is extensive and growing evidence on the harmful impacts of local content requirements on trade and investment."

In the second case study, ESCAP analysed the impact of implementation of LCRs (falling under chapter I of ICNTM classification) on 4G smartphones in Indonesia in 2015. In its original form in 2015, LCR required firms to set up manufacturing facilities and to conduct 20% research and development in Indonesia. Later iterations of LCR in 2016, however, introduced different schemes in which both domestic and foreign firms could meet the 4G smartphone LCR, each of which is summarized in table 2.3.

Table 2.3 **Tracks to meet 4G smartphone LCRs in Indonesia**

No.	Scheme	Description
1	Hardware	• Manufacturing of 70%, consisting of 95% material, 2% labour, 3% production machinery; • 20% R&D consisting of 10% licence, 40% firmware, 20% industrial design, 30% integrated circuit layout design; • Applications of 10%, with a minimum of two embedded local applications or four embedded local games that are actively being used by 250,000 users, with the software injection process being done in the country, the use of a domestic server, and own local online applications store.
2	Software	• Manufacturing of 10%, consisting of 95% material, 2% labour and 3% production machinery; • 20% R&D consisting of 10% licence, 40% firmware, 20% industrial design, 30% integrated circuit layout design; • Applications of 70%, with a minimum of seven preload local applications or 14 preload local games that are actively being utilized by 1 million users, with the software injection process being done in the country, the use of a domestic server, own local online application store, and a cost, insurance, and freight (CIF) price of a minimum of 6 million IDR.
3	Investment	• Investment of 400 billion to 550 billion IDR, equal to 25% local content; • Investment of 550 billion to 700 billion IDR, equal to 30% local content; • Investment of 700 billion IDR to 1 trillion IDR, equal to 35% local content; • Investment of more than 1 trillion IDR, equal to 40% local content; • This applies to investment only and the investment must be completed within three years. Vendors must realize 40% of investment during the first year and provide details of its annual investment.

Source: Global Business Guide Indonesia (2017).

A big challenge that is preventing causal conclusions on the LCR impact on inward FDI is the lack of reliable sector FDI data on 4G smartphones in Indonesia. However, through analysing greenfield investment data, the case study was able to illustrate that the immediate response of firms to LCR was to increase their investments in the local market. LCR most likely did not deter firms because of the market potential – the Indonesian smartphone market is one of the few markets left in the world that have not fully matured. On the contrary, it has been forecast to boom between 2015 and 2022 (BMI Research, various years; Fitch Solutions, 2018).

Nonetheless, the increase in inward greenfield FDI was only temporary. Although inward FDI expanded in 2015 when LCR was announced, since then it has dramatically declined. Firms with the largest market share are now already capable of meeting the LCR requirements and are able to cater to the local market. The principal recommendation coming from this case study is that a performance evaluation of LCR in its current form is urgently needed, as it only resulted in a one-time spike in inward FDI and has since discouraged FDI. Such a performance evaluation should focus on determining if and how LCR could be redesigned or removed to better achieve its stated aims as well as support indigenous industry growth and value chain integration of indigenous firms in the smartphone sector.

A word of caution at this point – there is extensive and growing evidence of the harmful impacts of LCRs on trade and investment.[10] This case study does not veer far from this evidence. Although the immediate impact of LCR was positive for inward FDI, it was short-lived and context-specific. It was short-lived because it was a one-time immediate increase, whereas over the medium-term, LCR has resulted in a dramatic reduction of FDI to levels to almost below that before LCR. It was context-specific because it was only able to persuade firms to continue to invest, given the smartphone market potential in Indonesia during 2015-2022. While LCR may have the potential to contribute to short-term gains in FDI, they are more likely to be FDI-reducing in the long term.[11] In the instances when they are applied for short-term gains, it is critical that they are properly designed and implemented as well as continuously monitored and evaluated to determine whether they are indeed achieving their intended purpose or if they need to be redesigned or removed.

3. Case study 3: FDI and TBTs in Chinese pharmaceutical and medical device markets

> *"A potentially positive effect of NTMs on FDI may be offset by their negative effect on trade; hence, these impacts cannot be seen in isolation."*

The final case study analysed the extent to which removal of sector-specific TBTs in the pharmaceutical drug and medical device sector has encouraged inward FDI in China by removing barriers to entry. In particular, the case study examined two key reforms enacted in 2015 – the introduction of eased registration requirements in the pharmaceutical drug subsector, and the removal of duplicate local clinical trial testing requirements in the medical device subsector. These reforms were aimed in particular at gradually relaxing the market entry and operating barriers for foreign firms and imported pharmaceutical products, and therefore should have led to increases in import-associated inward FDI.

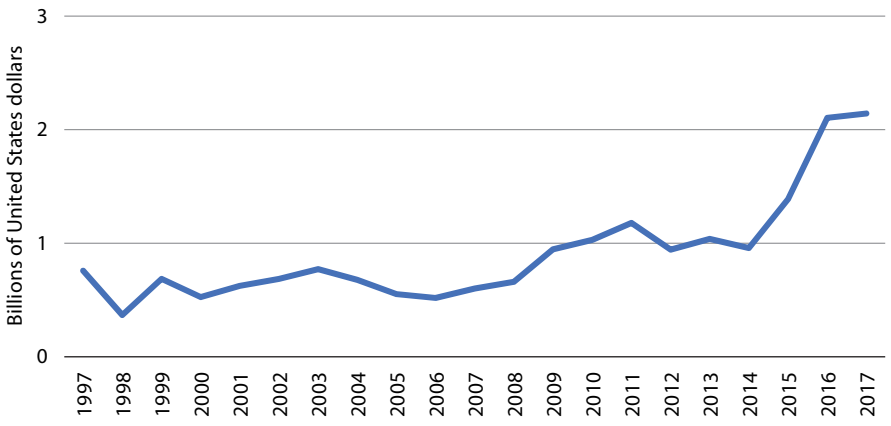
As figure 2.8 illustrates, while FDI had been growing steadily prior to regulatory reform in 2015, there were considerable fluctuations. However, inward FDI in both subsectors of the industry have skyrocketed since the implementation of reforms of both the registration and clinical trial requirements. Between 2014 and 2017, inward FDI jumped from $956 million to $2.1 billion. The largest year-on-year increase in FDI between 1997-2017 occurred during 2015-2016, when inward FDI increased by 52%. Indeed, the large jump in FDI corresponds to the year in which reforms were loosened both on pharmaceutical drugs and on devices, suggesting a positive correlation between the removal of the complex requirements and inward FDI.

The reforms have had a positive impact on FDI by removing some of the upfront risks as well as the investment[12] that is required to enter the Chinese market. Nonetheless, meeting the medical needs

[10] For example, see Evenett and Fritz (2016), Hufbauer and Schott (2013), and Stone, Messant and Flaig (2015).
[11] Unless domestic suppliers can provide high-quality inputs, in which case a mandatory LCR would no longer be necessary.
[12] In this instance, the up-front risk and investment referred to here are associated with the cost of registration requirements and often-duplicated local clinical trials that were previously required.

Figure 2.8

Inward FDI flows to China in pharmaceutical products (drugs and devices), 1997-2017



Source: ESCAP calculations, based on CEIC data.

of China's growing and ageing population, while also building an innovative and competitive pharmaceutical sector, critically depends on developing a well-crafted long-term strategy for the industry that allows pharmaceutical products produced both at home and abroad to flourish, but which also supports R&D activities at home. Removal of further TBTs that continue to hamper investment, and a loosening of the strict drug and device price controls in the sector, must be made critical components of such a strategy.

These case studies illustrate the impact that NTMs can have on FDI. However, they are limited – one case study on one type of NTM in one country cannot broadly confirm a causal link between one specific NTM and its impact on FDI. Extension and verification are needed. The main takeaway from these case studies for policymakers is that NTMs do indeed have an impact on FDI. Putting the limitations of the conclusions of these case studies aside, the clearly demonstrated links between NTMs and FDI patterns point to the need for NTMs to be carefully designed and monitored. Furthermore, because some NTMs may have the capacity to encourage FDI levels, this could prove increasingly relevant to policymakers aiming to generate investment in key SDG sectors.

As countries are currently involved in establishing policies for implementing SDGs, the ability to design targeted NTMs to build a base of quality FDI in key SDG sectors is particularly relevant. It is also important to understand how NTMs may prevent or hamper FDI in key SDG sectors, such as TBT measures in the health sector. A potentially positive effect of NTMs on FDI may be offset by the negative effect on trade; hence, these impacts cannot be considered in isolation. Furthermore, the effects of any NTM on FDI will certainly be tied to the political and economic context in which they are implemented; therefore, they need to be carefully designed and based on an effective assessment of country and sector needs.

C. NON-TARIFF MEASURES: A PRIVATE SECTOR PERSPECTIVE

The previous sections examined the effects of NTMs on trade, trade costs and FDI. The analysis was largely based on high-level trade and FDI data. Such analysis, however, is susceptible to missing important micro-level nuances from the point of view of companies that engage in international trade. As such, ESCAP in collaboration with ITC, have synthesised country-level ITC studies on NTMs in the Asia-Pacific region (ESCAP and ITC, 2019). This section briefly discusses the key results of the study (see box 2.6 for a summary of the findings). Conclusions are drawn from two types of ITC data – direct NTM data from ITC business surveys conducted in nine Asia-Pacific economies, and mirror statistics derived from this NTM data covering 44

Box 2.6

A snapshot of NTM survey findings

NTM survey findings at a glance:

- NTMs have a significant impact on exporters in the Asia-Pacific region, with 56% of all interviewed firms reporting burdensome NTMs;
- Intraregionally applied NTMs comprise exactly half of all reported NTMs, broadly reflecting the weighting of intraregional trade versus total trade, which comprises almost three fifths of Asia-Pacific exports (57%) and imports (59%);
- Businesses perceive that burdensome NTMs are typically applied by export partners (80%) rather than domestic governments (20%);
- Almost 90% of all export partner NTMs come from only three types of import-related NTMs: technical barriers to trade, sanitary and phytosanitary measures and rules of origin;
- More than 40% of all domestic government NTMs come from only three types of export-related NTMs: export certification, inspection and licensing.

Domestic procedural obstacles are the primary reason why NTMs are found to be burdensome, with more than 80% of export partner NTMs and more than 90% of domestic government NTMs found to be problematic as a result.

ESCAP members. This analysis thus includes both country-level and regional data on NTMs in the Asia-Pacific region, identifying commonalities and differences across subregions and highlighting areas for action and cooperation. However, only nine Asia-Pacific economies have thus far been surveyed and the results of this report should be interpreted with this caveat in mind.

> *"Domestic procedural obstacles are the primary reason why NTMs are found to be burdensome, with more than 80% of export partner NTMs and more than 90% of domestic NTMs found to be problematic as a result."*

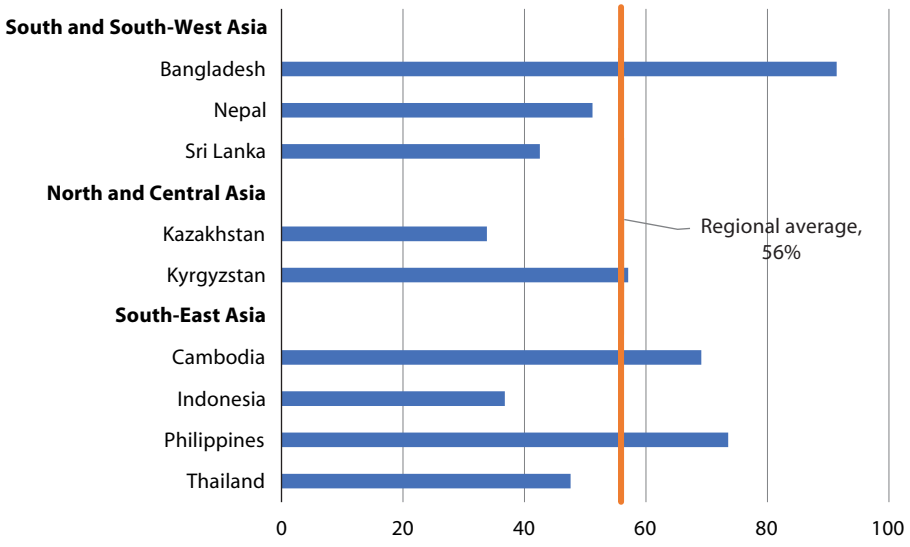
1. Burdensome NTMs in Asia and the Pacific

> *"The majority of all interviewed companies in the Asia-Pacific region reported facing burdensome NTMs, applied by either export partners or domestically by their own home country."*

In surveyed Asia-Pacific economies, an average of 56% of all interviewed companies (comprising both exporters and importers) reported facing burdensome NTMs, applied either by export partners or domestically by their own home country. The 56% average ratio of firms encountering "burdensome" NTMs is higher than the 44% regional average reported by the Arab States, but lower than in African regions such as West Africa (73%) and East Africa (64%). However, when comparing this figure both across countries and regions, it is important to consider national differences in survey implementation, as responses (and response rates) may be affected by socio-economic factors, cultural biases, business environments and the quality of stakeholder relationships between the entities that collaborate to supply data for the survey.

These differences are illustrated in figure 2.9 that shows, for example, that many more (91%) Bangladesh companies report facing burdensome NTMs than all other economies in Asia and the Pacific. This could be due to the particularly undiversified nature of the Bangladesh economy, which primarily exports garments and textiles, and where ITC survey results show that a quarter of all burdensome NTMs are attributed to very stringent rules of origin requirements (ITC, 2017a). Other Asia-Pacific economies that have higher affectedness rates than the regional average include Kyrgyzstan (57%), Cambodia (69%) and the Philippines (74%). Kyrgyzstan only joined the Eurasian Economic Union

Figure 2.9 **Share of surveyed companies in nine Asia-Pacific economies that reported encountering burdensome NTMs**



Source: ESCAP and ITC (2019).

in 2015, which may imply that many of the reported NTMs in the country come from adjustment issues to a common regulatory environment (ITC, 2018). While at the outset Filipino exporters generally feel that all barriers are de facto non-negotiable, when prompted on costs, paperwork requirements and time frames, the exporters concede that some regulations are, in fact, burdensome (ITC, 2017b). These and other factors (such as trade facilitation implementation (box 2.7) may have an impact on the difference in survey results across countries in the Asia-Pacific region.

> *"Traders encounter fewer 'burdensome' NTMs when doing trade with economies that have higher levels of trade facilitation implementation."*

Exactly half of all recorded burdensome NTMs originate intraregionally, which is to be expected given that more than half of all trade flows occur between partners within the region (see *Asia-Pacific Trade and Investment Report 2018* for intraregional trade figures (ESCAP, 2018)). However, the relationship between the shares of trade and the rate of encountering burdensome NTMs does not hold when disaggregated subregionally. To assess the difficulty of accessing an export market, figure 2.10 compares the share of burdensome NTM cases reported by traders in nine Asia-Pacific economies examined in this study and the share of their combined exports to each subregion and other major export markets.

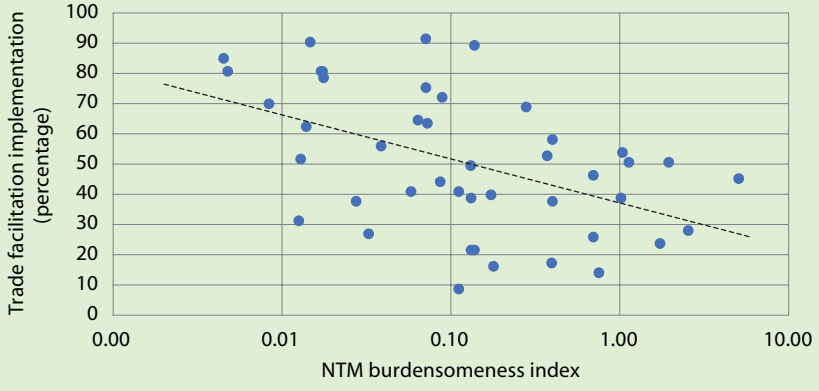
For each destination market, if the share of burdensome NTMs is higher than its share of regional exports, it can be concluded that that market is relatively difficult for exporters to access. For example, South-East Asia, East and North-East Asia (both major intraregional export destination markets) and the United States appear to be relatively easier to access than the European Union – which accounts for a much larger share of burdnesome NTMs in the region – while its share of Asia-Pacific exports is only two percentage points higher than that of the United States. NTMs in North and Central Asia seem to be particularly problematic, as the subregion accounts for as many burdensome NTMs cases as the European Union, although it has a very small share of regional exports. Last, while it is not (formally) as big a market as other intraregional export destinations, South and South-West Asia features a high percentage of burdensome NTMs compared with its export shares; however, although this may be due to the incidence of informal and illegal border trade, which is especially high between Bangladesh and India (ITC, 2017a).

Box 2.7

Burdensome NTMs and trade facilitation

Figure shows the trade facilitation implementation rates and incidence of NTM "burdensomeness" among the 44 ESCAP member economies, with NTM "burdensomeness" calculated as the ratio between NTM incidence (by implementing economies) and export trade values in these economies in 2015. Indeed, it indicates that the level of burdensome NTM incidence is inversely related to an increase in trade facilitation implementation levels, reinforcing the sentiment that greater trade facilitation implementation does indeed make it easier for countries to trade (i.e., traders encounter fewer burdensome NTMs when doing trade with economies that have higher levels of trade facilitation implementation). A detailed discussion on the rates of implementation of trade facilitation is presented in chapter 4.

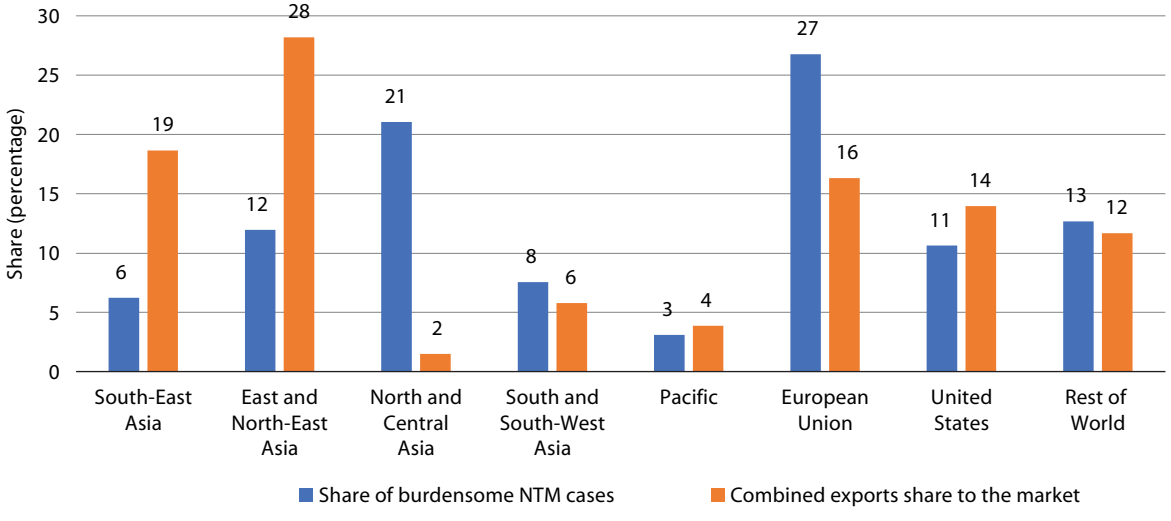
Figure. Trade facilitation implementation and NTM "burdensomeness" of 44 Asia-Pacific economies



Sources: Global Report of the United Nations Global Survey on Trade Facilitation and Paperless Trade Implementation, conducted by the United Nations regional commissions in 2017 (available at https://unnext.unescap.org/AP-TFSurvey2017/); and ESCAP and ITC (2019).

Figure 2.10

Burdensome NTM cases versus combined export shares of the nine economies covered in this study



Source: International Trade Centre, NTM surveys, 2010-2016.

Note: Australia and New Zealand are included in the Pacific subregion.

However, it should also be noted that NTMs are highly heterogenous and have widely different potential effects on trade and welfare. For example, a labelling requirement might not be as problematic as a quota, although both are given the same weight as NTMs. Thus, allocating the "share of burdensome NTMs cases" as an indicator of market access constraints must also be considered with caution.

2. Domestic procedural obstacles form the biggest challenge

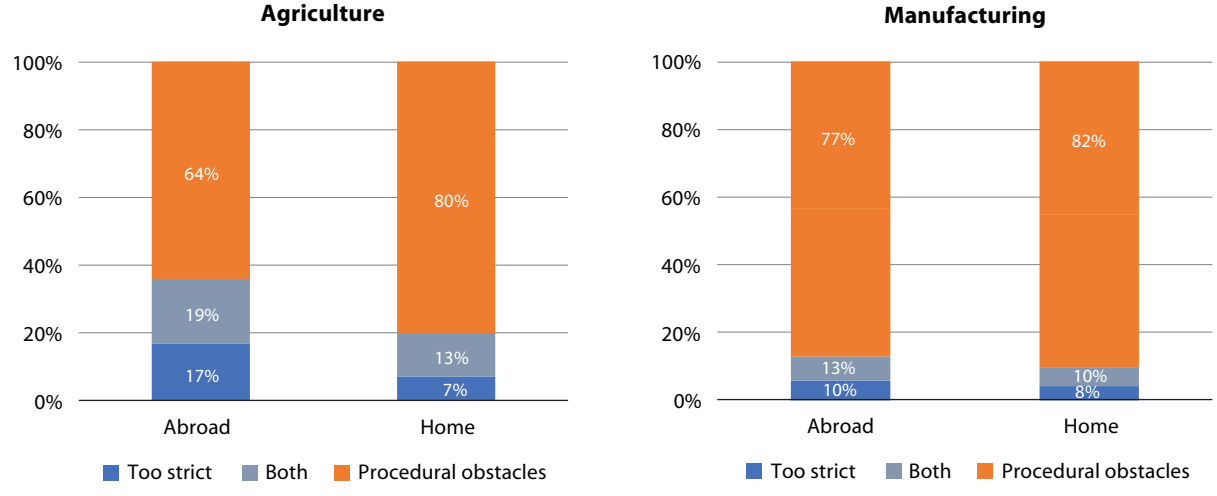
"Procedural obstacles encountered by Asia-Pacific exporters in compliance with NTMs – whether applied by export partners abroad or by home Governments, and not NTMs themselves – are the predominant reason why companies complain about regulatory obstacles to trade."

In line with results from other ITC surveys, figure 2.11 shows that procedural obstacles encountered by Asia-Pacific exporters in compliance with NTMs[13] – not NTMs themselves – are the predominant reason why companies complain about regulatory obstacles to trade. This means that for a typical firm, it is much more difficult to get the relevant certification to comply with a rule than complying with the rule (NTM) itself. For NTMs applied by export partners abroad, manufacturing procedural obstacles appear to create more difficulties for NTMs than agriculture procedural obstacles. Domestic NTMs applied by home Governments, on the other hand, are found to be about equally problematic in both sectors. In particular, 90% of NTMs applied by export partners in the manufacturing sector are found to be problematic because of procedural obstacles (either exclusively procedural obstacles or as a combination of procedural obstacles and their related NTMs), compared with only 83% of NTMs applied by export partners in agriculture. In contrast, more than 90% (93% in agriculture and 92% in manufacturing) of the difficulties with NTMs applied by home Governments are attributed to procedural obstacles.

"The most common procedural obstacles in the region are reported to be time delays related to regulation (28% of all cases) and the occurrence of informal payments or unusually high fees and charges for regulation (27.5%)."

The next graph (figure 2.12) gives an overview of the most common types of procedural obstacles reported by exporters when dealing with burdensome

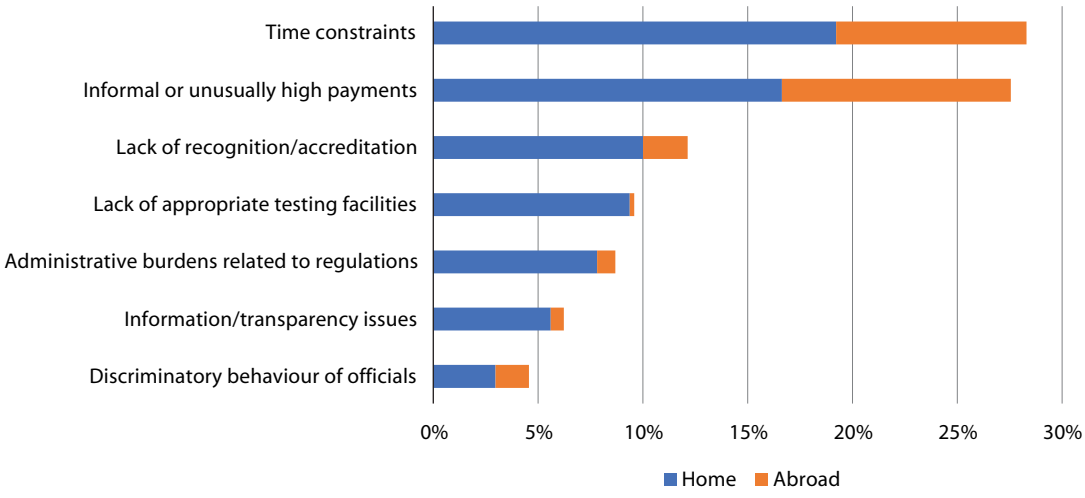
Figure 2.11 **Why exporters find NTMs a burden, either abroad or at home**



Source: International Trade Centre, NTM surveys, 2010-2016.

[13] Whether applied by export partners abroad or home Governments.

Figure 2.12 **Types of procedural obstacles encountered by exporters when complying with NTMs of export partners**



Source: International Trade Centre, NTM surveys, 2010-2016.

NTMs applied by export partners, including whether they are encountered at home or abroad. The most common procedural obstacles deal with time delays related to regulation (28% of all procedural obstacles), and the occurrence of informal payments or unusually high fees and charges for regulation (27.5%). A significant portion of procedural obstacles (in blue) that hinder compliance with export partner NTMs are encountered at home. Only a third or less (in orange) are reported to occur in partner countries.

D. CONCLUSION

While chapter 1 highlighted how NTMs address SDGs, this chapter highlighted the trade costs associated with NTMs, and the effects of NTMs on trade and investment. While technical NTMs serve important public policy objectives, and can even incentivize trade, their global cost is estimated to be as high as $1.4 trillion. In addition, a private sector perspective was presented that highlighted that in most cases it is not the NTMs themselves, but rather the procedural obstacles related to NTMs in home countries that are the main cause of concern among traders. Trade costs associated with NTMs can be broken down into information costs, conforming assessment costs and specification costs. Information costs could be reduced through greater transparency, together with regional cooperation and dialogue to improve information exchange. While NTMs are more prevalent in the more developed economies of the European Union and in the United States, their trade costs are higher in the Asia-Pacific region due, in part, to lower levels of trade facilitation implementation, confirming the fact that the impact cannot be simply derived from prevalence. In general, countries that have higher rates of trade facilitation implementation also have fewer instances of traders' complaints of burdensome NTMs in those economies. As such, conformity assessment costs could, in part, be addressed through enhanced trade facilitation and mutual recognition arrangements. This is discussed in greater detail in chapter 4. Specification costs – cost associated with changing products and/or production processes – can be addressed through NTM harmonization, which is shown to be largely lacking in the Asia-Pacific region. One way that harmonization across countries could be achieved is through adherence to international standards; this issue is discussed in further detail in chapter 3.

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