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Speeding up trade:  
benefits and challenges  
of implementing the WTO  
Trade Facilitation Agreement

# WORLD TRADE REPORT 2015



What is the World Trade Report?

The World Trade Report is an annual publication that aims to deepen understanding about trends in trade, trade policy issues and the multilateral trading system.

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Using this report

The 2015 World Trade Report is split into two main parts. The first is a brief summary of the trade situation in 2014 and early 2015. The second part examines the benefits and challenges of implementing the WTO's Trade Facilitation Agreement.

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## Disclaimer

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# Foreword by the WTO Director-General

When WTO members concluded their negotiations on the Trade Facilitation Agreement (TFA) in Bali in December 2013, they created the first multilateral agreement since the WTO was founded nearly two decades earlier. It demonstrated how global rule-making was functioning effectively to address impediments to today's global commerce. As much as efforts to further liberalize trade policies, the streamlining, speeding up, and coordinating of trade processes are contributing to the expansion of world trade and helping developing and least-developed countries (LDCs) integrate into today's global economy.

Although there have been previous studies about trade facilitation, this report is the first major study since the Agreement was reached to offer a comprehensive analysis of the benefits, as well as the challenges, of implementing the TFA.

While the estimates of overall trade expansion provided here are in line with previous results, these estimates also strongly indicate that the benefits of the TFA can be substantially larger, particularly for developing countries and LDCs, depending on the scope and pace of implementation. The more extensive and the speedier the implementation of the TFA, the greater will be the gains. Implementation of the TFA could have a bigger impact on international trade than the elimination of all remaining tariffs.

Beyond just increasing global exports, this report gives a clear view of the wide array of benefits to be reaped from the TFA. Implementing the Agreement will help developing countries and LDCs to diversify their exports – enabling them to sell a wider assortment of goods and to enter more foreign markets. By simplifying trade procedures, it could lead to greater involvement by small and medium-sized enterprises in international trade. Shorter delivery times and greater predictability of deliveries will enable poor countries to increase their participation in global value chains. Since there is generally a positive link between the state of trade facilitation and inflows of foreign direct investments, it suggests that TFA implementation will assist developing countries in attracting more of such investments. By reducing delays at the border, TFA implementation will increase the volume of goods passing through customs and reduce the incidence of corruption, both of which should help developing country governments collect more revenues.

The key to reaping all these benefits is full and speedy implementation of the TFA. We need to see far speedier ratification of the Agreement than we have seen thus far, so that we can quickly turn to the task of implementation.

Based on the results of surveys of WTO members, implementing trade facilitation is a high priority for developing economies and LDCs. This is an important point, since strong political will at the highest levels and commitment to the process of trade facilitation are the most important factors in the success of any trade facilitation reform. This is not to say that lack of capacity and resources will not prove a challenge to poor countries as they implement the Agreement.

However, there is a large circle of donor countries and international organizations that have provided, and are willing to continue to provide, capacity building assistance for trade facilitation. To ensure that developing countries and LDCs receive the support they need to implement the Agreement, the Trade Facilitation Agreement Facility was established in 2014. The TFA Facility acts as a focal point to provide trade facilitation-related technical assistance and capacity-building support for implementation efforts, complementing existing efforts by regional and multilateral agencies, bilateral donors, and other stakeholders.

Finally, effective implementation of the Agreement will require that we carefully monitor the progress of the TFA after it comes into force. Good indicators, more data and better analytical tools are required to effectively undertake this task. The WTO, other international organizations and regional development banks all have an important role to play in this regard.



**Roberto Azevêdo**  
Director-General

# Executive summary

## A. Introduction

**Trade facilitation is critical to reducing trade costs, which remain high despite the steep decline in the cost of transportation, improvements in information and communication technology, and the reduction of trade barriers in many countries.**

In today's interconnected global economy, efforts to streamline, speed up and coordinate trade procedures, as much as efforts to further liberalize trade policies, will drive the expansion of world trade and help countries to integrate into an increasingly globalized production system, rather than being left on the margins of world trade. The *World Trade Report 2015* examines why the Trade Facilitation Agreement (TFA) is important, what its economic impact will be, and how the WTO is taking a number of important and novel steps to help countries to maximize its benefits.

**The TFA has the potential to reduce trade costs by a significant amount and thereby to increase both global trade and output.**

The global economy is still struggling to gain traction nearly seven years after the global financial crisis. International trade has shared in this stagnation. This has provoked broader discussion of whether the trade slowdown reflects a problem with structural rather than purely cyclical causes and is therefore a portent of things to come. The *World Trade Report 2013* examined the primary factors shaping the future evolution of trade and identified trade costs as one of those shaping factors (the others included demographics, capital accumulation, natural resources, and technology). The fundamental role they play means that any meaningful reduction in trade costs not only reduces the drag that is acting on the global economy at the present but also has the capacity to raise its future trajectory.

It is nevertheless important to remember, as the 2013 Report makes clear, that many factors drive changes in trade flows. Some, like technological progress, capital accumulation and labour force changes, can have impacts on trade flows that are much greater than tariff or trade cost changes. While this study estimates the potential, isolated effects of changes in trade costs due to the TFA, one should keep in mind that other factors also affect trade flows and the estimated effects here may be amplified or offset by these other factors.

Definitions of trade facilitation used by international organizations and in the academic literature vary considerably but can be differentiated along at least two dimensions. Narrow definitions of trade facilitation only include improvements in administrative procedures at the border, while broader definitions embrace changes to behind-the-border measures as well. Some definitions of trade facilitation do not go beyond investments in soft infrastructure while other definitions encompass investments in hard infrastructure as well.

WTO members have always shied away from formally defining trade facilitation, both as a result of the impossibility to agree on the definition and out of the wish not to exclude a potential aspect of future work. Based on a negotiating mandate adopted in August 2004, the treaty improves and clarifies Articles V, VIII and X of the General Agreement on Tariffs and Trade (GATT), and introduces provisions on customs cooperation, aimed at "further expediting the movement, release and clearance of goods, including goods in transit."

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## B. Trade facilitation in context

**WTO work on trade facilitation has passed through different stages, evolving from a fairly limited mandate to the launch of an ambitious negotiating exercise and finally, to a new multilateral agreement.**

As globalized production networks have spread throughout the world, countries have increasingly recognized the need for global rules on trade facilitation. Trade facilitation reforms have been pursued in other international fora, but the multilateral logic of trade facilitation eventually led to intensified negotiations in the WTO culminating in the TFA.

**Some articles of the TFA seek to improve and clarify the relevant GATT framework by specifying the existing requirements. Others have a broader, thematic link to the GATT, while a few others draw on measures from other WTO agreements.**

Specific disciplines in the TFA relate to the publication and availability of information (Article 1), the opportunity

to comment before entry into force of new/amended laws and regulations (Article 2), advance rulings (Article 3), procedures for appeal (Article 4), non-discrimination and transparency (Article 5), fees and charges (Article 6), the release and clearance of goods (Article 7), border agency cooperation (Article 8), the movement of goods (Article 9), import/export/transit formalities (Article 10), freedom of transit (Article 11) and customs cooperation (Article 12).

**In order to make implementation practicable, the TFA takes a new and innovative approach to special and differential (S&D) treatment for developing and least-developed countries (LDCs).**

The TFA introduces a category system, allowing each developing and least-developed member to self-determine when it will implement the respective provisions and what it needs in terms of related capacity-building support.

Category A contains provisions that developing and LDC members designate for implementation upon entry into force of the TFA (or within one year in the case of LDCs). Category B contains provisions that developing and LDC members will implement after a transition period following entry into force of the Agreement. Finally, Category C contains provisions that developing and LDC members will implement after a transition period "and requiring the acquisition of implementation capacity through the provision of assistance and support for capacity building."

Together with additional flexibilities, including the right of developing countries and LDCs to shift provisions from Category B to Category C, the TFA breaks new ground in its implementation philosophy, allowing members to tailor implementation to their particular circumstances.

**With negotiations on the TFA concluded, the focus of members has now shifted to ratification and implementation.**

Members have agreed on a road map for the TFA's entry into force. First milestones were reached when delegations concluded the legal review of the Bali text and adopted the amendment protocol. This cleared the way for the domestic ratification process to commence. Some members have already deposited their acceptance instruments, bringing the TFA closer to the ratification threshold of two-thirds of the WTO membership required for it to take legal effect.

**Trade facilitation is on the agenda not only of the WTO but of many regional trade agreements (RTAs).**

A number of important insights emerge when comparing trade facilitation provisions in RTAs and the TFA. It shows that RTAs typically include only a subset of the areas covered by the TFA. At the same time, RTAs often use a broader definition of trade facilitation and therefore may encompass areas not in the TFA. One very important area of the TFA that RTAs typically do not include is S&D treatment and technical assistance. Significant disparities also exist between RTAs with regard to the substantive coverage of provisions, as well as the strength and level of commitment. Also, some trade facilitation provisions of RTAs could potentially have discriminatory effects, although hard evidence of actual discrimination is scarce.

Taken together, these facts suggest that the TFA, once implemented, will extend the coverage of basic trade facilitation disciplines to many countries, and within countries to many areas that are not yet included in RTAs. In countries and areas already covered by RTAs, the TFA will not just substitute the disciplines in RTAs with its own disciplines.

**The widespread absence of S&D and technical assistance provisions in RTAs, often coupled with weak enforcement systems, suggests that the TFA will make a critical difference to trade facilitation through its emphasis on implementation.**

The TFA will reduce inefficiencies by providing common standards for the trade facilitation measures and by reducing regulatory overlap in countries that belong to several RTAs. It will also reduce discrimination where it exists. At the same time, complementarity between the regional and the multilateral level will remain strong. Trade facilitation disciplines in RTAs that are more ambitious or more specific than TFA disciplines will continue to complement the TFA.

**Several international organizations are active in the trade facilitation area, where they complement the role of the WTO.**

The World Bank, with its expertise in capacity building, supports the implementation process by providing financing to developing countries, collecting data and developing indicators as well as analytic tools relevant to trade facilitation. The World Customs Organization (WCO) has developed multiple trade facilitation tools and recommendations on procedures and has been building capacity in developing countries and LDCs. An important contribution on trade facilitation from the United Nations Conference on Trade and Development (UNCTAD) is the development and dissemination of the widely used Automated System

for Customs Data and Management (ASYCUDA) aimed at speeding up customs clearance. Finally, numerous other organizations, like the Organisation for Economic Co-operation and Development (OECD) have contributed to enhancing technical knowledge on customs measures by developing trade facilitation indicators and sharing research results.

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## C. The theory and measurement of trade facilitation

### **Existing models of international trade can be used to better understand the trade and economic effects of the TFA.**

Trade facilitation aims to reduce trade costs, which includes all costs apart from the cost of production incurred in getting a good from the producer to the final consumer. Though trade models may differ in their assumptions, their conclusions about how a reduction in trade costs creates economic benefits are in many ways complementary.

The simplest framework that can be used to understand the effect of trade facilitation is the “iceberg” model, which draws an analogy between the way trade costs reduce the value of goods to both exporters and importers and the way an iceberg melts as it moves through the ocean. Inefficient trade procedures result in the importer paying a higher price for the traded good and the exporter receiving a lower price for it. Compared to a tariff, inefficient trade procedures weigh more heavily on economies, since in the case of a tariff, part of the difference between what the importer pays and what the exporter receives ends up as tariff revenues to governments.

If a country improves its trade procedures so that trade costs are reduced to zero, this price wedge disappears. As a result, importers benefit from a lower price at the same time that exporters receive a higher price for the traded good. Trade facilitation increases the welfare of both exporting and importing countries by improving their terms of trade, producing a “win-win” outcome.

**The analysis in the “iceberg” model can be extended to more general settings that allow for complex interactions between products, markets and economies.**

The Ricardian and Heckscher-Ohlin theories of trade assume that differences in productivity and endowments of production factors, respectively, create a basis for countries to specialize in and export the good in which they have a comparative advantage. In both models, trade facilitation increases the scope for specialization and trade among countries. Furthermore, the Heckscher-Ohlin model predicts that trade facilitation can improve the real income of workers in labour-abundant developing countries.

The “new trade theory” associated with Krugman implies that high trade costs lead both to less trade and to a concentration of manufacturing production in developed countries. This is partly explained by the operation of increasing returns to scale in manufacturing – the average cost of production falls as the volume of production increases. This economic theory suggests that small developing countries that do not wish to be overly dependent on their agricultural or natural resource sectors should have a strong interest in implementing trade facilitation reforms, as lower trade costs increase demand for developing countries’ manufactured goods and reduce the concentration of manufacturing in bigger markets.

The latest research in trade theory brings firm heterogeneity and global value chains to the fore. The “new new trade theory” is meant to explain why only a few large and productive firms are able to enter the export market, while others only sell domestically. In this theory, trade facilitation reduces both variable trade costs (trade costs that vary with the scale of trade) and fixed trade costs (trade costs that must be incurred prior to entering the export market), such as learning the trade procedures in a country. This allows not only existing exporters to capture a larger share of the export market, but also firms with a lower level of productivity than incumbent exporters to enter the export market for the first time.

Supply chain models recognize that the components embodied in complex final goods are made in many different countries. As a result of this way of organizing global production, trade costs cumulate and are magnified along the value chain so that inefficient border procedures have a substantial deterrent effect on trade. Conversely, the positive effect of trade facilitation on value chain trade is magnified and will increase specialization in those production stages in which countries have a comparative advantage.

**Given the widespread benefits from trade facilitation, every country should have an incentive to undertake reform on its own. The signing of the TFA, however, suggests that incorporating trade facilitation in a multilateral**

**agreement creates additional benefits compared to what can be achieved unilaterally.**

It provides greater legal certainty to the changes in trade procedures. It helps in the adoption of common approaches to customs and related matters, which should increase the gains from trade facilitation by harmonizing customs procedures worldwide. By foreseeing that richer members will provide assistance and support for capacity building to developing and LDC members to help them implement the TFA, the Agreement helps to match the supply of capacity building with the demand for it. The TFA could also help governments address a credibility problem by integrating their trade facilitation commitments into an institution with an effective enforcement mechanism.

**Given the different definitions of trade facilitation employed by international organizations and the academic literature, a wide range of trade facilitation indicators has been developed.**

When last counted, more than a dozen indicators of trade facilitation had been developed, testifying to the importance of the subject as well as its complexity. Among others, they include the World Bank's Cost of Doing Business and Logistics Performance Index (LPI), the World Economic Forum's Enabling Trade Index (ETI) and the OECD's Trade Facilitation Indicators (TFIs).

The Cost of Doing Business measures the effects of business regulation and the protection of property rights on businesses, especially on small and medium-sized domestic firms, including the costs related to standardized import and export activities (through the indicator "trading across borders"). The LPI measures the logistic friendliness of countries, ranking them according to customs, infrastructure, ease of arranging shipments, quality of logistics services, tracking, tracing and timeliness. The ETI assesses the extent to which economies have in place institutions, policies, infrastructure and services facilitating the flow of goods over borders and their destinations.

The OECD's TFIs are constructed on the basis of the WTO TFA, enabling almost every TFI to be mapped to provisions of the TFA. As such, it is well suited to analysing the trade and economic effects of implementing the WTO TFA, and is the primary indicator used in this report for this purpose.

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## D. Estimating the benefits of the Trade Facilitation Agreement

**Trade costs are high, especially in low-income economies.**

Trade costs in developing countries are equivalent to applying a 219 per cent ad valorem tariff on international trade. Even in high-income countries, the same product would face an ad valorem equivalent of 134 per cent in trade cost.

Aggregate estimates of trade costs conceal large differences across sectors and regions, suggesting that the implementation of the TFA will have a greater trade effect on some product sectors and regions than on others.

By speeding up the clearance of goods across borders, trade facilitation could provide a big boost to trade in perishable agricultural goods. The same effect is likely to apply to intermediate manufactured goods, which feature prominently in global value chains where lead time and predictability in delivery time are critical.

**By some estimates, full implementation of the TFA has the ability to reduce members' trade costs by an average of 14.3 per cent.**

The range of trade cost reduction will be between 9.6 per cent and 23.1 per cent. African countries and LDCs are expected to see the biggest average reduction in trade costs (in excess of 16 per cent) from full implementation of the TFA. Full implementation will reduce trade costs of manufactured goods by 18 per cent and of agricultural goods by 10.4 per cent.

Full implementation of the TFA also has the ability to reduce time to import by over a day and a half (a 47 per cent reduction over the current average) and time to export by almost two days (a 91 per cent reduction over the current average).

**By reducing both the variable and fixed costs of exporting, trade facilitation increases the exports of those firms already involved in international trade, while enabling new firms to export for the first time. Furthermore, the trade and output gains are bigger with full and accelerated implementation of the TFA.**

The two most commonly used economic approaches to estimating the trade impact of trade facilitation reform are gravity and computable general equilibrium (CGE) models. This report employs estimates from these two methodologies to ensure that results are consistent

and to provide complementary perspectives on the benefits of implementing the TFA.

The results obtained from computable general equilibrium (CGE) model simulations predict export gains from the TFA of between US\$ 750 billion and over US\$ 1 trillion dollars per annum. Results from gravity model estimations suggest that full implementation of the TFA has the potential to increase global exports by between US\$ 1.8 trillion and US\$ 3.6 trillion. In both cases, the magnitude of the gains is larger with full and accelerated implementation of the TFA.

Since trade costs are among the shaping factors of global trade, implementation of the TFA not only gives a badly needed boost to the global economy at the present, but has the ability to give a significant lift to its trajectory and to carry it forward in the future. Over the 2015-30 horizon, implementation of the TFA can add up to 2.7 per cent a year to world export growth and more than half a per cent a year to world GDP growth.

#### **Developing countries have the most to gain from swift and full implementation of the TFA.**

Developing countries' exports are expected to increase by between US\$ 170 billion and US\$ 730 billion per annum. Further, the CGE simulations indicate that over the 2015-30 horizon, full and accelerated implementation of the TFA could augment developing countries' economic growth by 0.9 per cent annually and boost their exports by an additional 3.5 per cent annually.

Gravity model estimates in turn suggest that LDCs can increase the volume of traditional export products to existing markets by between 13 per cent and 36 per cent. Beyond this, there are also significant export diversification gains from trade facilitation reform for developing countries, and particularly for LDCs. Export diversification helps insulate developing countries and LDCs from adverse trade shocks in specific sectors or destination markets. Full implementation of the TFA by LDCs has the potential to increase the number of products they export to a given destination by 36 per cent. Likewise, they could increase the number of export destinations per product by nearly 60 per cent if they fully implement the TFA.

#### **Trade facilitation is particularly important for trade of time-sensitive goods.**

Timeliness and predictability of delivery times are critical to the successful management of global value chains as well as to trade in perishable agricultural goods and clothing and textiles, which are subject to rapid fashion cycles. Trade facilitation boosts trade in

these goods because it reduces the time needed to export and increases predictability in delivery time.

#### **There is growing evidence that trade facilitation boosts participation by small and medium-sized enterprises (SMEs) in trade.**

Burdensome trade procedures, customs and trade regulation are often mentioned as major obstacles to SMEs' export participation. This is because large firms, especially multinational firms, are better equipped to navigate complex regulatory environments. For instance, there is evidence to show that the longer the time to export, the more exporting is dominated by large firms.

By reducing delays in export time, the TFA has the capacity to boost SMEs' role in exports. Using data from the World Bank's Enterprise Survey, covering nearly 130 developing countries, this report finds statistical evidence that micro, small and medium-sized firms are far more likely to export and to increase their export shares than large firms when the time spent to clear exports is reduced.

#### **The poor have a lot to gain from trade facilitation.**

Not only do low-income countries have potentially more to gain from improving trade facilitation than high-income countries, trade facilitation can also have redistributive effects within a country that favours the poor within it. By reducing delays and uncertainty in delivery, trade facilitation reforms benefit the rural poor who export perishable products. In addition, trade facilitation results in the simplification of regulations, which provides significant benefits to small/informal/women traders because they often do not have the necessary capacity or resources to deal with complex documentation requirements.

#### **The attraction of more foreign direct investment, better collection of government revenues and reduced corruption are among the other benefits from trade facilitation.**

In the case of small economies, trade facilitation not only leads to more trade but also to greater inflows of foreign direct investment (FDI). This is confirmed by empirical analysis showing a positive and statistically significant link between trade facilitation and inward FDI flows using a dataset covering 141 countries over a 10-year period (2004-13).

Trade facilitation reforms help boost government revenues by increasing trade flows, hence expanding the tax base, increasing tax collection efficiency for any given level of imports, and increasing detection of customs fraud and corruption.

The wider adoption of information communication technology and the automation of customs management are some of the most effective tools for facilitating trade and achieving improvements in revenue collection.

The incentives to engage in fraudulent practices at the border are greater the longer the time needed to complete trade procedures. Since trade facilitation is expected to shorten the duration of these procedures, it creates an important avenue for reducing the incidence of trade-related corruption.

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## E. Implementing the Trade Facilitation Agreement

**Trade facilitation is a high priority for developing economies and LDCs, according to surveys of WTO members. However, they also report a great deal of uncertainty about the benefits and costs of the TFA. Donor countries and agencies expect to increase aid for trade facilitation, but are concerned that political will may be lacking in partner countries.**

Nearly 65 per cent of developing economies and 77 per cent of landlocked developing countries ranked trade facilitation in their top three aid priorities out of 12 possible choices in an Aid for Trade questionnaire. In terms of particular measures, more ambitious reforms such as single window and border agency cooperation tend to be given the highest priority by developing countries. However, when asked how the TFA would affect their trade costs, almost half of developing countries replied “Unsure” or “No capacity to estimate”.

A majority of developing countries (55 per cent) and LDCs (nearly 60 per cent) identified “border agency cooperation” as the provision of the TFA that they would have the most difficulty implementing. Regarding the agreement as a whole, low-income countries and African countries anticipated the greatest difficulty in implementation. On the other hand, developed economies identified absence of political will as a major obstacle to implementation of the TFA.

**Available information on the cost of implementing trade facilitation reforms is quite limited.**

The cost of implementing trade facilitation is difficult to quantify for two main reasons. First, trade facilitation

reforms are rarely carried out independently of other broader policy objectives, such as customs modernization. Second, costs may vary considerably depending on the type of trade facilitation measures considered. The main cost categories are: (1) diagnostic, (2) regulatory, (3) institutional, (4) training, (5) equipment and infrastructure, (6) awareness-raising, (7) political, and (8) operational.

**Keeping in mind the shortcomings of the data, this report has assembled statistics on implementation of previous trade facilitation reforms that can help to understand the nature and magnitude of the costs of implementing the TFA.**

The available data on trade facilitation costs confirm that the magnitude of inception costs vary according to the trade facilitation measure examined. The inception costs of a given trade facilitation measure also vary significantly between countries depending on the initial state of trade facilitation, the needs and priorities, and the level of ambition.

Human resources and training costs are often viewed as the most important element in implementing trade facilitation measures, since trade facilitation reform is mainly about changing border agencies' practices and behaviours.

**Trade facilitation measures related to transparency and to the release and clearance of goods generally have smaller implementation costs than those related to border agency cooperation and formalities, the requirements of which may include investments in information technology, infrastructure and equipment.**

While information and communication technology (ICT), equipment and infrastructure are not prerequisites in implementing most trade facilitation measures, they tend to be the most expensive components of trade facilitation reform. However, it is important to note that in many cases ICT investments serve other purposes besides trade facilitation, such as improving regulation enforcement by preventing corruption and smuggling, enhancing customs operations productivity, and improving revenue collection.

Trade facilitation reforms are, on average, less costly than broader initiatives, such as customs modernization and upgrading of transport infrastructure, like road, rail, and port modernization.

**The special and differential treatment provisions of the TFA allow developing countries and LDCs to implement the TFA depending on their acquisition of capacity.**

This is consistent with economic thinking about allowing developing countries to tailor trade commitments in the light of their often small size, significant resource constraints and the existence of many market failures.

Developing countries and LDCs have a demand for capacity building in light of the economic benefits that will follow from improving trade procedures. Developed country members in turn have an incentive to provide this capacity building, since speedier and more efficient trade procedures everywhere around the globe benefit the biggest trading nations.

**The Trade Facilitation Agreement Facility (TFAF) plays a vital coordinating role in matching demands for capacity building from developing countries and LDCs with the supply of capacity building and assistance from donors. It also serves as a mechanism for spreading international best practice in trade procedures. While countries can individually draw up trade procedures, it will be far more efficient to have common approaches to reduce the time and costs required to become familiar with procedures in different countries.**

The TFAF's specific functions will include:

- supporting LDCs and developing countries to assess their specific needs and identify possible development partners to help them meet those needs;
- ensuring the best possible conditions for the flow of information between donors and recipients through the creation of an information-sharing platform for demand and supply of trade facilitation-related technical assistance;
- disseminating best practices in the implementation of trade facilitation measures;
- providing support to find sources of implementation assistance, including formally requesting that the Director-General act as a facilitator in securing funds for specific project implementation;
- providing grants for the preparation of projects in circumstances where a member has identified a potential donor but has been unable to develop a project for that donor's consideration, and is unable to find funding from other sources to support the preparation of a project proposal; and
- providing project implementation grants related to the implementation of TFA provisions in circumstances where attempts to attract funding

from other sources have failed. These grants will be limited to "soft infrastructure" projects, such as modernization of customs laws through consulting services, in-country workshops, or training of officials.

**Empirical evidence suggests that, while the availability and sustainability of financial resources are crucial, they do not constitute sufficient conditions to ensure positive outcomes from trade facilitation initiatives. Other interrelated factors play a critical role in the successful implementation of trade facilitation reforms.**

Strong political will at the highest levels and commitment to the process of trade facilitation are often identified as the most important success factors of any trade facilitation reform. Political will frequently represents the overarching factor upon which most of the other success factors rest and depend.

Besides national ownership, other key success factors include cooperation and coordination between ministries and border management agencies, private sector stakeholders' participation, and adequacy of human and material resources, including technical assistance.

Another factor critical to the success of trade facilitation initiatives is the correct sequencing of reforms. Sufficient time is often needed to prepare the ground, bring all stakeholders on board and build internal capacity through outreach, training activities and additional investment. In addition, the magnitude of the implementation costs of certain trade facilitation measures might depend on their sequencing, speed and pace. In this context, transparency and monitoring of the progress achieved and difficulties encountered can also contribute to successful trade facilitation reform.

**Monitoring the implementation of the TFA should include economic monitoring and evaluation of outcomes.**

One of the core functions of the WTO is to monitor the implementation of WTO agreements. Under the TFA, a Committee on Trade Facilitation will be established to review its operation and implementation four years from entry into force, and periodically thereafter. The Secretariat can complement WTO members' monitoring efforts through the collection of economic information and the evaluation of economic outcomes.

Even if governments in poor countries are able to translate multilateral commitments into national law

and practice, the administrative capacity to carry them out effectively may not be sufficient, thus creating a wedge between expectations and outcomes. Economic monitoring will enable problems that hinder developing countries and LDCs from acquiring implementation capacity to be quickly identified and solutions found. Ultimately, economic evaluation should give members a better picture of how the TFA is working to reduce trade costs and increase trade.

More data, particularly implementation costs, better indicators and analytical tools are required to effectively evaluate the economic impact of the TFA. International organizations and regional development banks need to pool resources and expertise so that existing indicators, data and analytic tools are improved and, where necessary, new ones developed so as to effectively monitor and evaluate the implementation of the TFA.

See page 106

# I. The world economy and trade in 2014 and early 2015

World trade growth remained modest in the opening months of 2015 following three years of weak expansion. Annual increases in merchandise trade in volume terms were very small in that period, measuring just 2.5 per cent in 2014, 2.5 per cent in 2013, and 2.2 per cent in 2012. The exports of developing and emerging economies grew faster than those of developed countries in 2014, 3.1 per cent in the former and 2.0 per cent per cent in the latter. Meanwhile, imports of developing countries grew more slowly than those of developed economies, 1.8 per cent compared to 2.9 per cent. Seasonally adjusted quarterly trade volume indices for the first quarter of 2015 showed import demand accelerating in developed economies but slowing in developing countries.

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## 1. Introduction

The modest 2.5 per cent rise in world merchandise trade volume in 2014 was again roughly equal to the 2.5 per cent increase in world GDP for the year (see Figure 1). It also marked the third consecutive year in which world trade volume grew less than 3 per cent. Trade growth averaged just 2.4 per cent between 2012 and 2014, the slowest rate on record for a three-year period when trade was expanding (excluding years like 1975 and 2009 when world trade actually declined).

Several factors contributed to the sluggishness of trade and output in 2014 and in the first half of 2015, including slowing GDP growth in emerging economies, an uneven economic recovery in developed countries, and rising geopolitical tensions, among others.

Strong exchange rate fluctuations, including an appreciation of roughly 15 per cent in the US dollar against a broad basket of currencies since the start of 2014, further complicated the trade situation and outlook.

Collapsing world oil prices in 2014 (down 47 per cent between 15 July and 31 December) and weakness in other commodity classes hit export receipts and reduced import demand in exporting countries, but also boosted real incomes and imports in importing countries. Whether this development would turn out to be positive or negative on balance for world trade in 2015 was still unclear at the end of the second

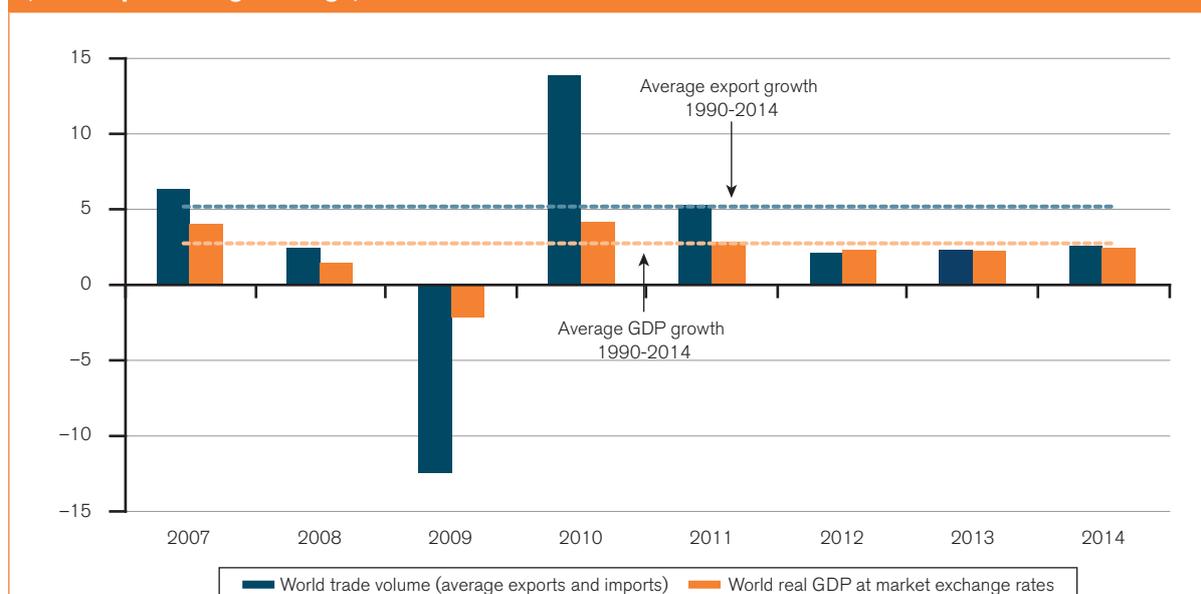
quarter. The 3.5 per cent year-on-year increase in the first quarter suggested that trade growth for the year would be slightly stronger than in 2014 (although still below average), but prospects for the second half of the year were clouded by several risk factors including the Greek sovereign debt crisis, slowing economic growth in emerging economies, and the possibility of rising interest rates in the United States

The 2.5 per cent growth rate for world trade in 2014 refers to the average of merchandise exports and imports in volume terms, i.e. adjusted to account for differences in inflation and exchange rates across countries. The pace of trade expansion last year ended up being well below analysts' predictions at the start of the year. A number of factors contributed to the initial overestimates, most of which could not have been anticipated.

The sharp declines in commodity prices since July 2014 were not foreseen and did not figure in early economic forecasts. The oil price drop was driven by surging production in North America, although falling demand in emerging markets also played a part.

At the start of 2014, most economic forecasters were predicting above-trend GDP growth in the United States and near-trend growth in the euro area. Both predictions promised to support increasing trade but neither materialized, as a mix of strong and weak quarterly GDP results in the United States only produced average growth for the year, while activity in the euro area was consistently mediocre.

**Figure 1: Growth in volume of world merchandise trade and real GDP, 2007-14 (annual percentage change)**



Source: WTO Secretariat for trade and consensus estimates for real GDP at market exchange rates.

Geopolitical tensions and natural phenomena also weighed on trade growth in 2014. The crisis in the Ukraine persisted throughout the year, straining trade relations between Russia on the one hand and the United States and European Union on the other. Conflict in the Middle East also stoked regional instability, as did an outbreak of Ebola haemorrhagic fever in West Africa. Finally, declines in first quarter trade and output in the United States were attributed to unusually harsh winter weather and a port strike.

In the opening months of 2015, a variety of economic data, including quarterly GDP statistics and surveys of business sentiment, pointed to a firming of the recovery in the European Union, an easing of output growth in the United States, and moderating activity in emerging economies. The euro area saw GDP increases of 1.6 per cent (annualized) in both the last quarter of 2014 and the first quarter of 2015 after recording growth of 0.7 per cent on average in the previous three quarters. Meanwhile, growth turned slightly negative in the United States in the first quarter after three quarters of solid growth. Similarly contrasting results were seen in emerging economies. China's GDP growth slowed for the third consecutive quarter in the first quarter of 2015, but remained strong compared to other countries at around 5.5 per cent (annualized). At the same time, India's growth accelerated to 8.7 per cent while Brazil's economy registered a decline of 0.8 per cent. Meanwhile, economic activity in Russia was weak throughout 2014 and in early 2015.

From the vantage point of the second quarter of 2015, the divergence of monetary policies in the United States and the euro area was seen as a significant risk to global trade and output in the second half of the year, as the Federal Reserve contemplated raising interest rates just as the European Central Bank was entering a phase of monetary easing. Rising interest rates in the United States could have unpredictable knock-on effects in developing economies, stoking volatility in financial markets, exchange rates and investment flows.

The rough two-to-one relationship that prevailed for many years between world trade volume growth and world GDP growth appears to have broken down, as illustrated by the fact that trade and output have grown at around the same rate for the last three years. Based on first quarter results in 2015, modest recoveries in both world trade and output appear to be underway in the first half of 2015, which suggests little change in this ratio for the year.

## 2. Trade developments in 2014

Annual data on merchandise and commercial services trade in current US dollar terms are presented in

Appendix Tables 1 to 6. These tables show that the dollar value of world merchandise trade stagnated in 2014, as exports rose just 0.6 per cent to US\$ 18.93 trillion. This growth rate is lower than the one for merchandise trade in volume terms mentioned above (2.5 per cent for the average of exports and imports), reflecting falling export and import prices from one year to the next, particularly for primary commodities.

By comparison, growth in the dollar value of world commercial services exports was stronger, increasing by 4 per cent in 2014 to US\$ 4.85 trillion. It should be noted that the commercial services values are compiled using a new services classification in the balance of payments. Thus, figures are not directly comparable to those from earlier years.<sup>1</sup>

One striking feature of the merchandise trade values in 2014 is the weakness of trade flows in natural resource exporting regions. The dollar value of exports from South America, the Commonwealth of Independent States (CIS), Africa and the Middle East fell 5.8 per cent, 5.8 per cent, 7.6 per cent and 4.4 per cent, respectively, as lower commodity prices cut in to export revenues. A sharp drop in South America's imports (4.6 per cent) reflected recessionary conditions in leading regional economies, while an even steeper decline in CIS imports (11.4 per cent) stemmed from a combination of factors, including falling oil prices and regional conflict.

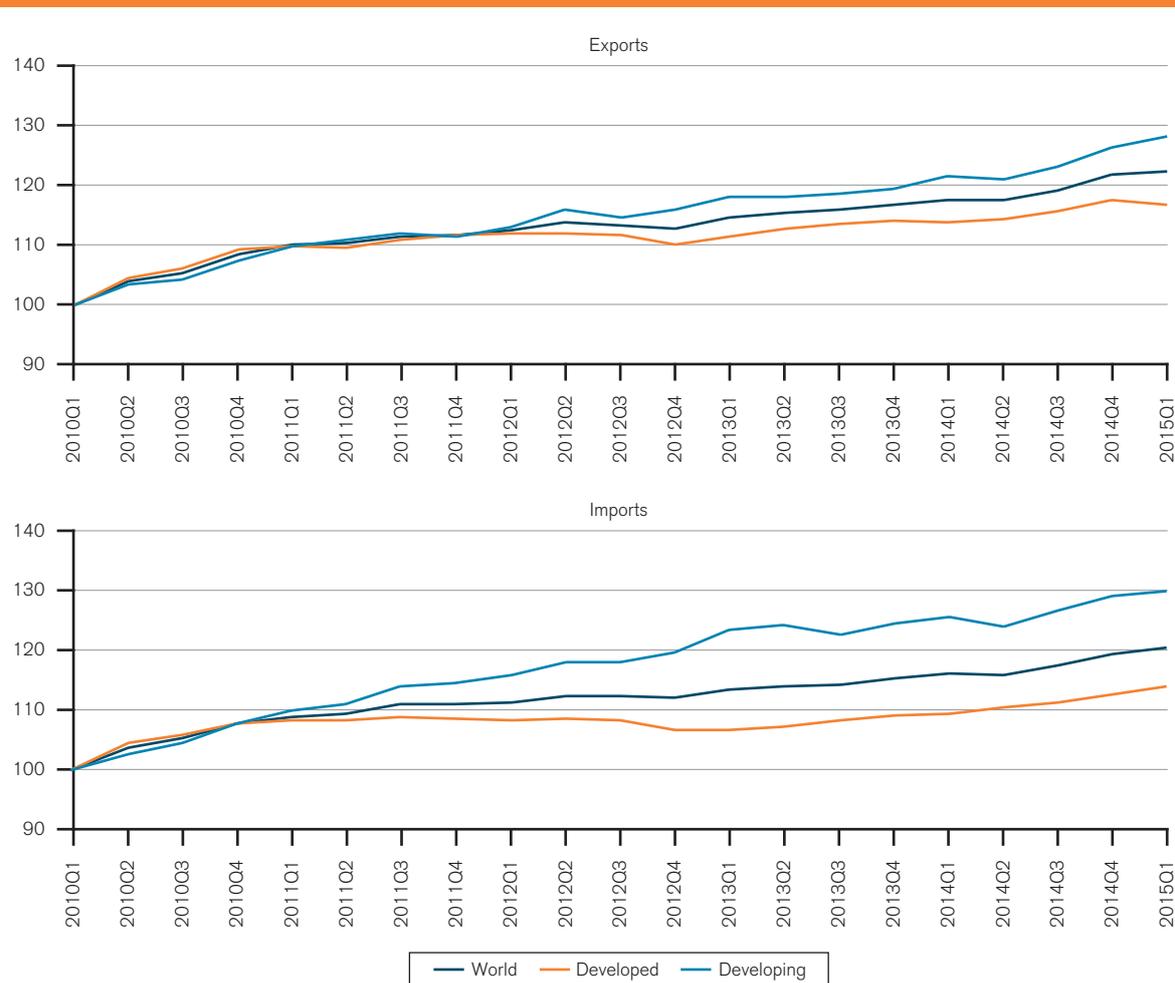
### (a) Quarterly merchandise trade developments

For broad country aggregates and regions that do not export natural resources predominantly, trade statistics in volume terms provide a clearer picture of trade developments. The WTO and UNCTAD jointly produce a variety of short-term trade statistics, including seasonally adjusted quarterly merchandise trade volume indices. These are shown in Figure 2 by level of development.

World exports in volume terms only increased by 2.0 per cent in the first half of 2014 compared to the same period in 2013, but year-on-year growth in the second half rose to 3.4 per cent. Exports of developed and developing/emerging economies were both slow in the first half (1.7 per cent and 2.6 per cent, respectively) but shipments from developing/emerging countries grew faster in the second half (2.4 per cent for developed, 4.8 per cent for developing).

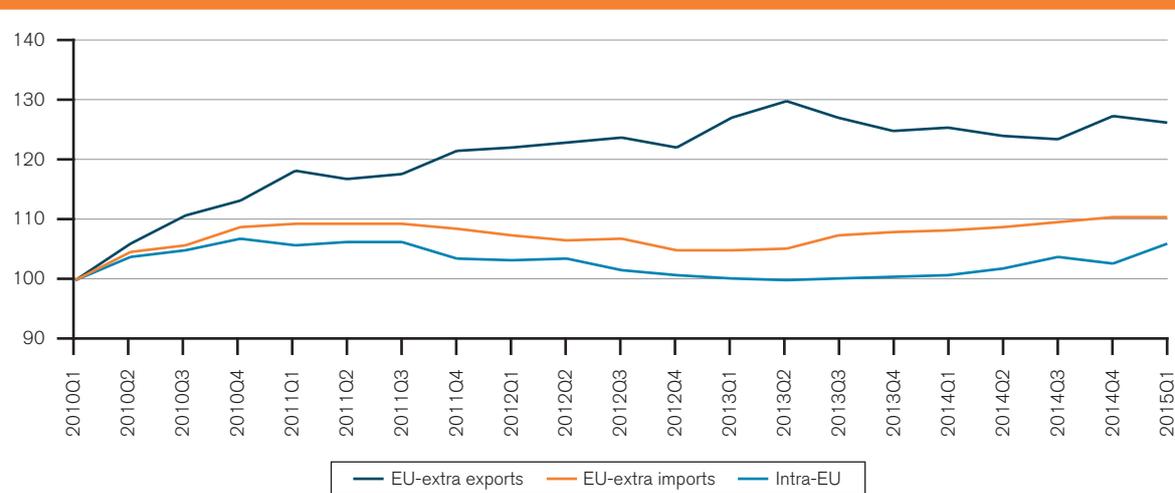
Weak import demand in the European Union has weighed heavily on world trade in recent years due to the large share of the EU in world imports (32 per cent in 2014 including trade between EU member countries,

**Figure 2: Merchandise export and import volume by level of development, 2010Q1-2015Q1 (seasonally adjusted volume indices, 2010Q1=100)**



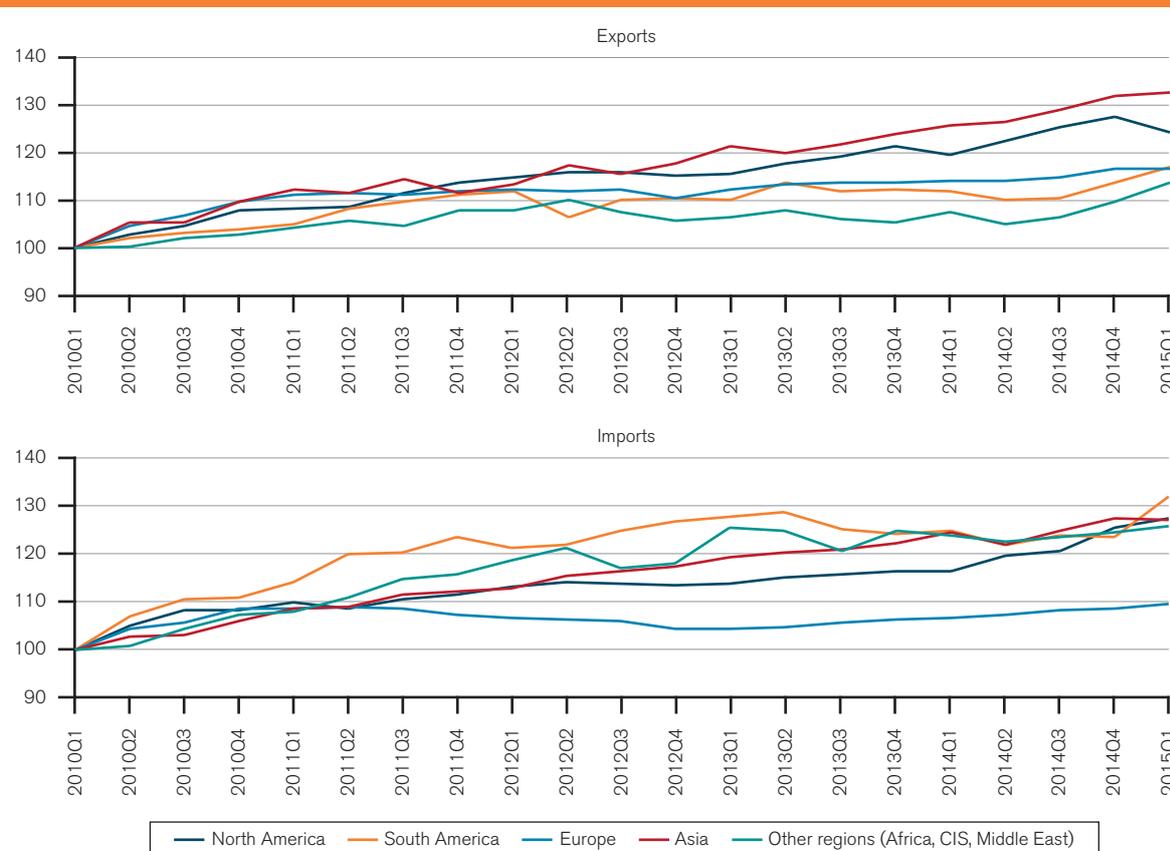
Source: WTO and UNCTAD Secretariats.

**Figure 3: Merchandise export and import volume of the European Union, 2010Q1-2015Q1 (seasonally adjusted volume indices, 2010Q1=100)**



Source: WTO and UNCTAD Secretariats.

**Figure 4: Merchandise export and import volume by region, 2010Q1-2015Q1**  
(seasonally adjusted volume indices, 2010Q1=100)



Source: WTO and UNCTAD Secretariats.

15 per cent excluding it). Quarterly EU trade volume developments are shown in Figure 3.

Extra-EU exports in volume terms were flat for most of 2014 as demand in trading partners faltered. Meanwhile, EU imports staged a recovery as total imports (i.e. intra plus extra) rose 3.2 per cent over the previous year. Imports stalled toward the end of the year, growing 0 per cent in the fourth quarter before resuming their upward trajectory. A strong economic recovery in Europe may be necessary before the world can expect to see higher rates of global trade growth.

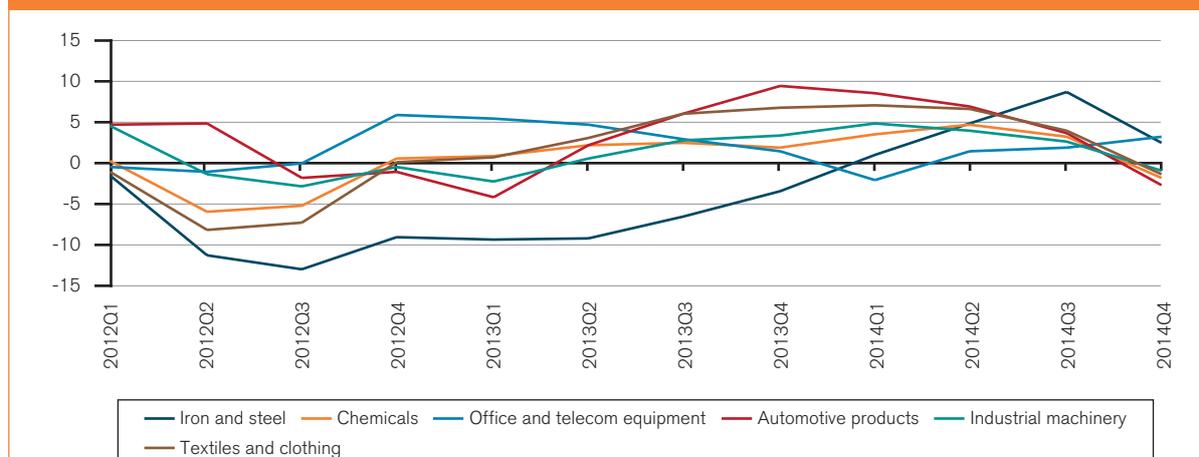
Regional trade developments in volume terms are shown in Figure 4. Asia and North America had the fastest export growth in 2014. Shipments from South America and other regions (i.e. Africa, the CIS and the Middle East) were mostly flat, but this is to be expected since traded quantities of oil and other natural resources tend to be insensitive to price changes. European exports grew more slowly, held back by weak import demand in the region.

North American imports in volume terms grew steadily in 2014, as did Asian imports following a setback in the

second quarter. Imports of other regions (i.e. Africa, the Middle East and the CIS) also grew in the second half of the year despite falling commodity prices, but South America's imports continued to trend downward after peaking in the second quarter of 2013. South American imports bounced back sharply in the first quarter of 2015, but whether this rebound is durable remains to be seen). Finally, European imports remained depressed, having only recently surpassed their level of 2011Q3.

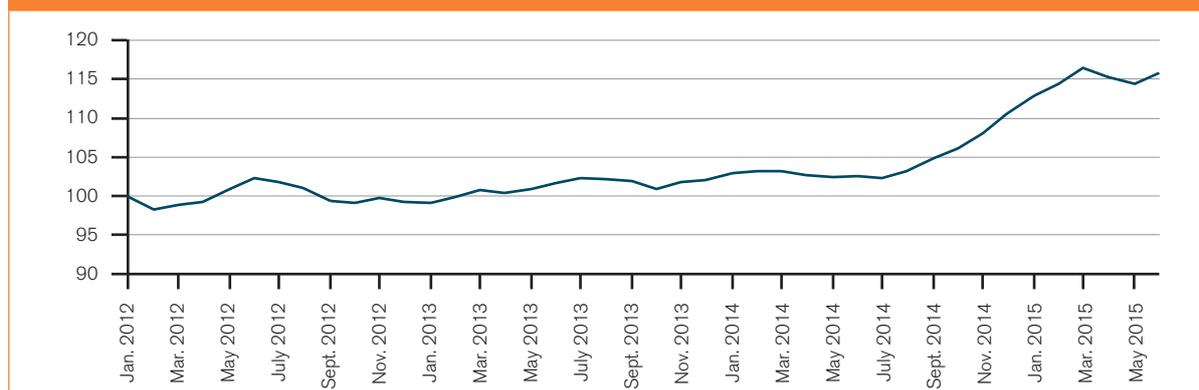
Figure 5 shows estimated year-on-year growth in the dollar value of world trade in selected categories of manufactured goods. By the fourth quarter of 2014, trade in iron and steel had risen by 2.4 per cent compared to the same quarter in 2013, while shipments of office and telecom equipment were up 3 per cent. However, year-on-year growth in the dollar value of trade in other manufactured goods turned negative in Q4, with declines of between 1 per cent and 3 per cent. Since the financial crisis of 2008-09, trade in automotive products has tended to be a leading indicator of world trade, while trade in iron and steel has been a lagging indicator. With demand for automobiles turning down, steel exporters like China may face reduced demand for the products overseas.

**Figure 5: Quarterly world exports of manufactured goods by product, 2012Q1-2014Q4 (year-on-year percentage change in US\$ values)**



Source: WTO Secretariat estimates based on mirror data for available reporters in the Global Trade Atlas database, Global Trade Information Systems.

**Figure 6: Trade-weighted US dollar index: broad, January 2012 – June 2015 (index, January 2012=100)**



Source: Federal Reserve Bank of St. Louis.

Merchandise trade figures in dollar terms should be interpreted with caution since these data are strongly influenced by exchange rates, including the appreciation of the US dollar since the middle of last year (up around 12 per cent on average between July 2014 and June 2015 – see Figure 6).

(b) Trade developments in commercial services

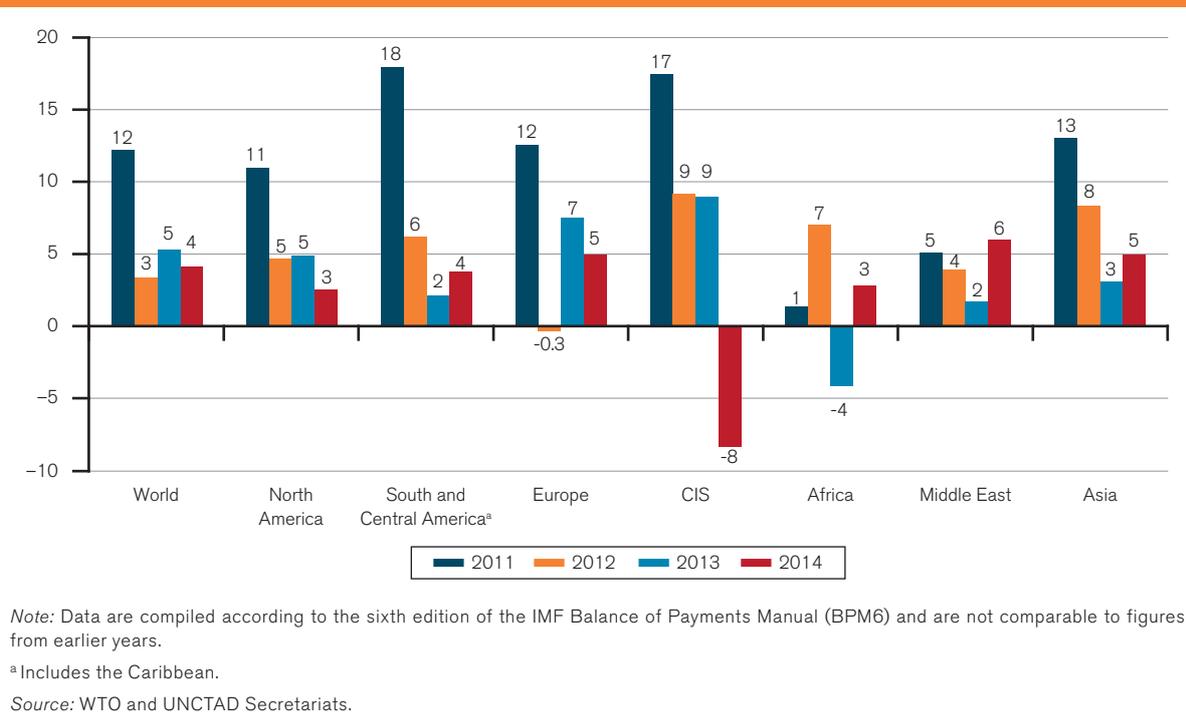
Figure 7 provides a breakdown of commercial services exports by WTO geographic region. All regions saw modest increases in services exports of between 1 and 5 per cent in 2014, except the CIS, which registered a strong decline of 7 per cent that included drops in transport services (-2.3 per cent), travel (-12.1) and other business services (-6.3). Imports are not shown in Figure 6, but the story is similar, with all regions recording modest increases except the CIS, which declined by 2 per cent in the latest year.

At the global level, the weakest component of services trade in 2014 was manufacturing services on physical inputs owned by others, which were down 7.6 per cent as measured by exports. Meanwhile, exports of other commercial services, which include financial services and account for more than half (52 per cent) of world commercial services trade, rose 5.1 per cent last year.

3. Trade in the first half of 2015

Monthly merchandise trade statistics in current dollar terms are timelier than quarterly statistics in volume terms, and are available for a larger number of countries. These are shown in Appendix Figure 1 for the period January 2010 to April 2015.

Trade flows in dollar terms turned down sharply in many countries in the first half of 2015. For example, the US

**Figure 7: Growth in the value of commercial services exports by region, 2011-14 (annual percentage change)**

dollar value of extra-EU exports dropped around 12 per cent year-on-year in April, while imports were down 19 per cent over the same period. In January, extra-EU exports hit their lowest level in dollar terms since April 2010, while imports for the month were down by the same 19 per cent as in April. However, much of this decline can be attributed to dollar appreciation, which undervalues trade denominated in other currencies, and by lower oil prices, which reduces the dollar value of any given quantity of oil exported or imported. By comparison, if trade values are expressed in euros, extra-EU exports were actually up 12 per cent in April compared to the same month in 2014, while extra-EU imports rose 4 per cent.

Exchange rates and oil prices do not explain all of the nominal downturns in the first quarter of 2015, and some countries did indeed enter a soft patch in the first half of the year. However, quarter-on-quarter growth in the volume of world trade was in fact slightly positive at 0.7 per cent in the first quarter, equivalent to an annual rate of 2.9 per cent. The discrepancy between trade statistics in value and volume terms highlights the need to interpret dollar-denominated trade data very carefully in light of the strong price fluctuations observed since the middle of 2014.

Returning to Figure 2, we see that import demand slowed in volume terms in developing economies in the first quarter of 2015 while import growth was steady in developed countries. On the export side, shipments from developed economies turned down while those from

developing countries picked up. Overall, world trade growth slowed from 1.8 per cent in the fourth quarter of 2014 to 0.7 per cent in the first quarter of 2015, but remained positive. Some of the slowdown originated in Asia, where import growth decelerated from 2.1 per cent in the fourth quarter of 2014 to -0.3 per cent in the first quarter of 2015, but North America and other regions also saw import demand slowing (see Figure 4).

#### 4. Additional perspectives on trade developments

World trade continued to grow at a moderate pace in the first quarter of 2015 but the outlook for the second half was clouded by numerous risk factors, many of which are on the downside. US GDP growth has swung from strongly negative to strongly positive and back since the beginning of 2014. Continued strength in the US economy could buttress global demand and reinforce the trade recovery. Conversely, any shortfall in the US performance would leave few alternative sources of rising import demand. US GDP growth could disappoint if tighter monetary conditions and lower oil prices choke off investment, including in the energy sector.

Economic conditions in the European Union were improving in early 2015 improving, but EU-wide unemployment remains high (9.7 per cent in April) while fallout from the Greek debt crisis threatens to revive financial instability.

The outlook for China also looks less certain than before, as activity in the world's largest economy (measured at purchasing power parity) has eased over time. The 7.4 per cent increase in Chinese GDP in 2014 was the smallest such rise in 24 years, and Chinese officials have downgraded their output targets going forward. China's growth may continue to exceed that of other major economies for some time, but it is likely to do so by smaller margins than in the past. This suggests slower rather than accelerating import demand in China.

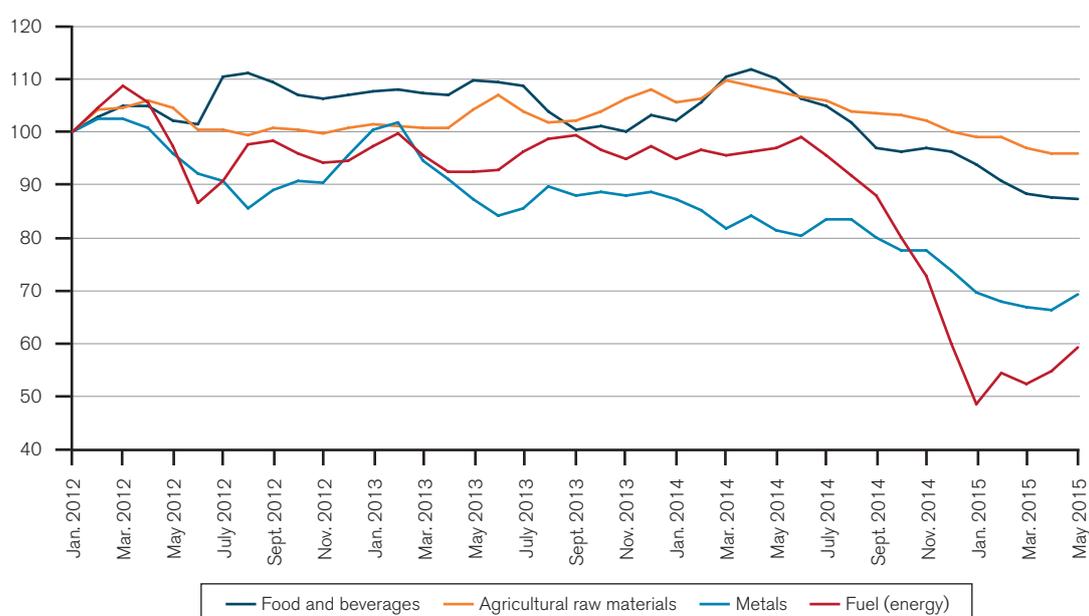
Lower prices for oil and other primary commodities could boost global GDP and trade going forward if their positive impact on net importers of these products outweighs the negative impact on net exporters. The extent of the recent slide in commodity prices is illustrated by Figure 8. World trade could also grow faster than expected if a stronger economic recovery takes hold in the euro zone as a result of the European Central Bank's current programme of monetary easing. Any recovery in demand in the European Union would have a disproportionate impact on world trade statistics due to the fact that trade between EU members is counted in global totals.

WTO estimates of annual trade volume growth and consensus estimates of world real GDP at market

exchange rates from 2010 to 2014 are shown in Table 1. Much attention has been paid to the fact that the rough two-to-one relationship that prevailed for many years between world trade growth and world GDP growth appears to have broken down, as illustrated by the fact that trade and output have grown at around the same rate for the last three years. A number of explanations have been offered for the slower rate of increase in trade recently, including adverse macroeconomic conditions, the maturation of global supply chains, and the accumulation of post-crisis protectionist measures, among others.

No definitive explanation has emerged, but some stylized facts can at least be discerned. First, the ratio of world trade growth to world GDP growth (referred to as the "income elasticity of world trade") peaked sometime in the 1990s, long before the financial crisis, but has fallen since then (see Figure 9). Second, it is normal for world trade to grow slowly for a time after a global economic shock before faster growth resumes (e.g. the oil crises of the 1970s and early 1980s). Finally, lower global trade elasticity does not imply a lower world trade/GDP ratio, which remains at or near record levels. These facts suggest a combination of cyclical and structural factors at work behind the trade slowdown.

**Figure 8: Prices of primary commodities, January 2012 – May 2015 (indices, January 2012 = 100)**



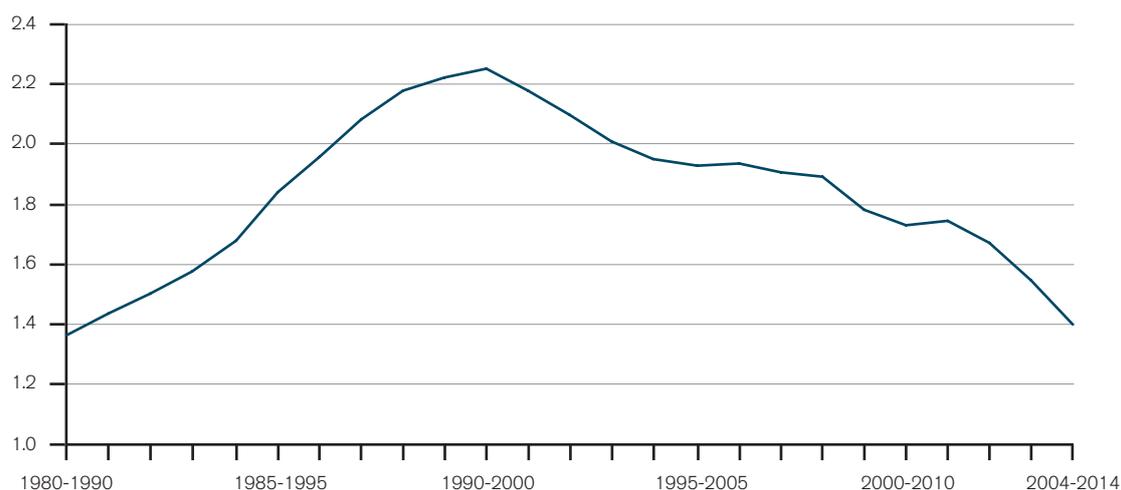
Source: IMF Primary Commodity Prices.

**Table 1: Merchandise trade volume and real GDP at market exchange rates, 2010-14  
(annual percentage change)**

	2010	2011	2012	2013	2014
<b>Volume of world merchandise trade</b>	13.9	5.3	2.2	2.5	2.5
<b>Exports</b>					
Developed economies	13.4	5.1	1.1	2.2	2.0
Developing and emerging economies <sup>a</sup>	15.2	5.9	3.7	3.8	3.1
North America	14.9	6.6	4.4	2.7	4.2
South and Central America	4.5	6.4	0.9	1.9	-1.3
Europe	11.5	5.5	0.8	2.4	1.6
Commonwealth of Independent States (CIS)	6.3	1.6	0.8	1.1	0.0
Africa	6.5	-7.3	6.6	-2.0	-3.3
Middle East	5.3	7.9	4.8	1.7	0.7
Asia	22.8	6.4	2.7	5.0	4.7
<b>Imports</b>					
Developed economies	10.9	3.4	0.0	-0.1	2.9
Developing and emerging economies <sup>a</sup>	18.2	7.7	4.9	5.2	1.8
North America	15.8	4.3	3.2	1.2	4.6
South and Central America	21.8	12.1	2.3	3.4	-2.4
Europe	9.9	3.2	-1.8	-0.2	2.3
Commonwealth of Independent States (CIS)	18.2	16.9	6.5	-1.2	-9.8
Africa	8.0	4.0	13.3	5.0	4.2
Middle East	8.4	4.4	9.9	7.4	1.8
Asia	18.3	6.5	3.7	4.8	3.4
<b>Real world GDP at market exchange rates</b>	4.1	2.9	2.3	2.3	2.5
Developed economies	2.6	1.5	1.1	1.2	1.7
Developing and emerging economies <sup>a</sup>	7.5	5.9	4.7	4.6	4.2
North America	2.7	1.9	2.4	2.2	2.4
South and Central America	6.3	5.1	2.8	3.3	1.0
Europe	2.3	2.0	-0.2	0.3	1.4
Commonwealth of Independent States (CIS)	4.6	4.9	3.5	2.1	0.6
Africa	5.4	1.1	5.3	3.6	3.4
Middle East	5.2	6.4	3.2	2.8	3.1
Asia	7.2	4.2	4.4	4.5	4.0

<sup>a</sup> Includes all economies not classified as developed.

Source: WTO Secretariat.

**Figure 9: Elasticity of world merchandise trade volume with respect to world GDP at market exchange rates, 1980-2014**

Note: Elasticities calculated by regressing log of world merchandise trade volume on log of world GDP at market exchange rates over 10 years.

Source: WTO *International Trade Statistics* for trade, IMF *World Economic Outlook* database for GDP at market exchange rates.

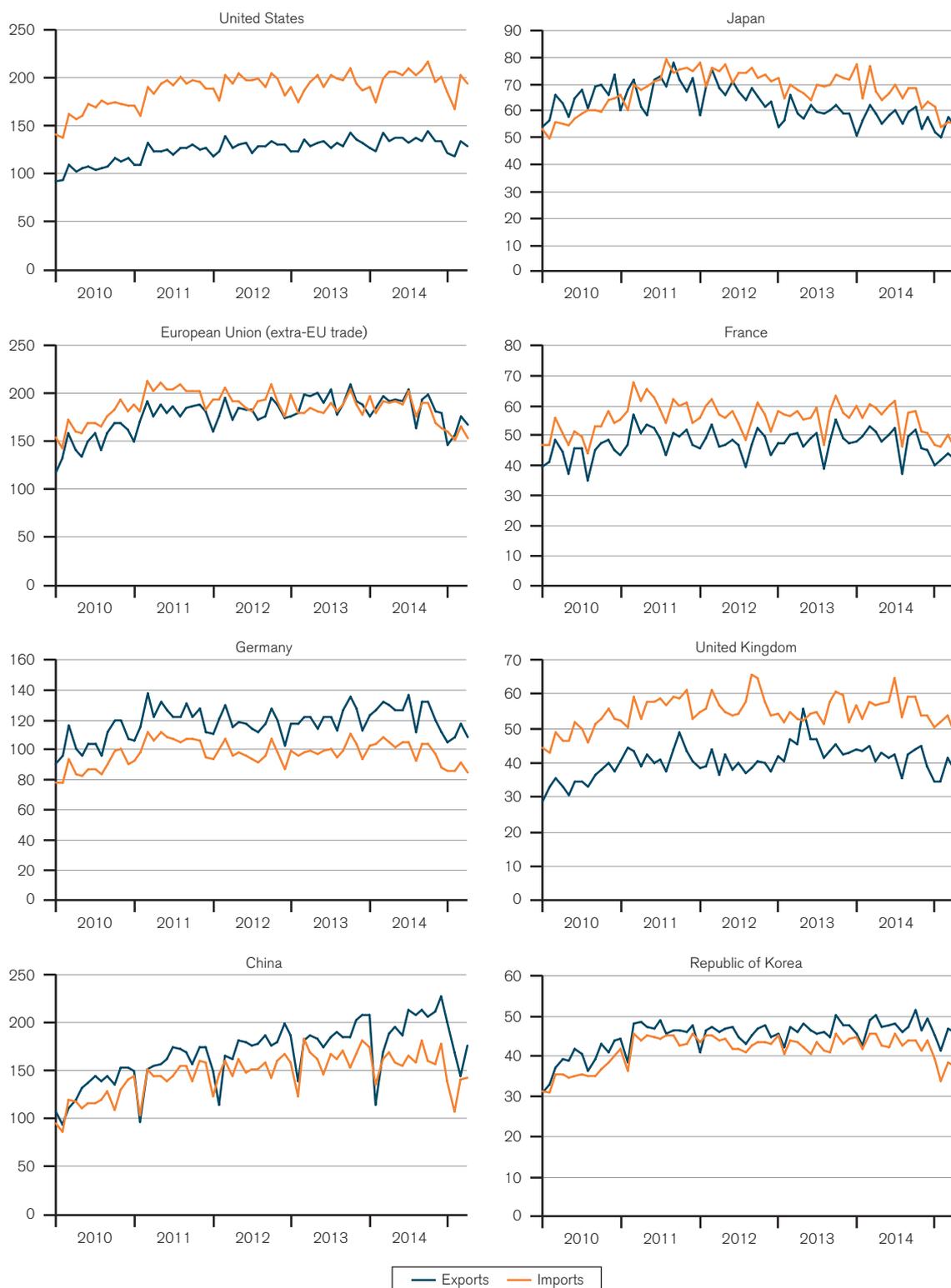
## Endnote

1 Comprehensive annual, quarterly and monthly data on merchandise and commercial services trade can be

downloaded from the WTO's website at: <http://www.wto.org/statistics>

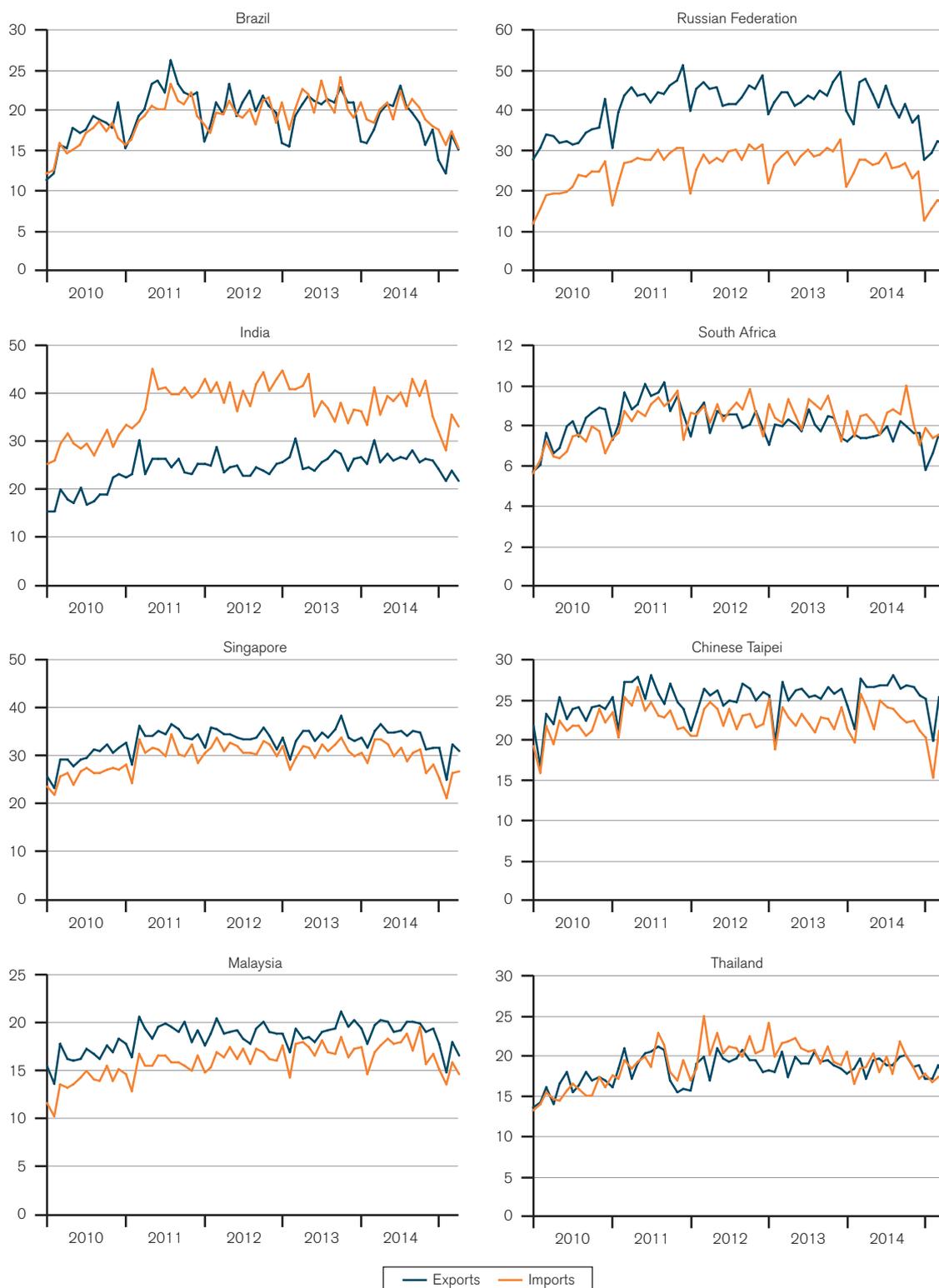
# Appendix Figure

**Appendix Figure 1: Merchandise exports and imports of selected economies, January 2010 – April 2015 (billion US\$)**



Source: IMF International Financial Statistics, Global Trade Information Services GTA database, national statistics.

**Appendix Figure 1: Merchandise exports and imports of selected economies, January 2010 – April 2015 (billion US\$) (continued)**



Source: IMF International Financial Statistics, Global Trade Information Services GTA database, national statistics.

# Appendix Tables

**Appendix Table 1: World merchandise trade by region and selected economies, 2014  
(billion US\$ and per cent)**

	Exports					Imports				
	Value	Annual per cent change				Value	Annual per cent change			
	2014	2005-14	2012	2013	2014	2014	2005-14	2012	2013	2014
<b>World</b>	18,422	7	0	2	1	18,569	6	0	1	1
<b>North America</b>	2,493	6	4	2	3	3,300	4	3	0	3
United States	1,621	7	4	2	3	2,413	4	3	0	4
Canada <sup>a</sup>	475	3	1	1	4	475	4	2	0	0
Mexico	398	7	6	3	5	412	7	5	3	5
<b>South and Central America<sup>b</sup></b>	695	7	-1	-2	-6	739	10	3	3	-5
Brazil	225	7	-5	0	-7	239	13	-2	7	-5
Other South and Central America <sup>b</sup>	470	7	1	-3	-5	500	9	5	0	-5
<b>Europe</b>	6,739	5	-4	4	1	6,722	4	-6	1	2
<b>European Union (28)</b>	6,162	5	-5	5	1	6,133	4	-6	1	2
Germany	1,508	5	-5	3	4	1,216	5	-7	2	2
Netherlands	583	3	-5	2	0	678	3	-6	1	-1
France	672	6	-2	2	0	588	5	-1	0	0
United Kingdom	506	3	-7	14	-7	684	3	2	-5	4
Italy	529	4	-4	3	2	472	2	-13	-2	-2
<b>Commonwealth of Independent States (CIS)</b>	735	9	2	-2	-6	506	10	6	0	-11
Russian Federation <sup>a</sup>	498	8	1	-1	-5	308	10	4	2	-10
<b>Africa</b>	555	7	5	-6	-8	642	11	9	3	1
<b>South Africa</b>	91	7	-8	-4	-5	122	8	2	-1	-3
<b>Africa less South Africa</b>	464	7	8	-6	-8	520	12	11	4	2
Oil exporters <sup>c</sup>	286	5	11	-11	-13	202	12	10	10	0
Non oil exporters	178	9	1	3	0	318	11	11	0	3
<b>Middle East</b>	1,288	10	6	0	-4	784	10	8	6	0
<b>Asia</b>	6,426	9	2	3	2	6,325	9	4	2	0
China	2,342	13	8	8	6	1,959	13	4	7	0
Japan	684	2	-3	-10	-4	822	5	4	-6	-1
India	322	14	-2	6	2	463	14	5	-5	-1
Newly industrialized economies (4) <sup>d</sup>	1,312	7	-1	1	1	1,316	7	0	0	1
<b>Memorandum</b>										
MERCOSUR <sup>e</sup>	316	7	-5	1	-8	328	12	-3	7	-6
ASEAN <sup>f</sup>	1,295	8	1	2	2	1,235	8	6	2	-1
EU (28) extra-trade	2,262	6	0	7	-2	2,232	5	-4	-3	0
Least-developed countries (LDCs)	207	11	1	4	-2	266	13	11	9	5

<sup>a</sup> Imports are valued FOB (free on board).

<sup>b</sup> Includes the Caribbean.

<sup>c</sup> Algeria, Angola, Cameroon, Chad, Congo, Equatorial Guinea, Gabon, Libya, Nigeria, Sudan.

<sup>d</sup> Hong Kong, China; Republic of Korea; Singapore; and Chinese Taipei.

<sup>e</sup> Calculated on the basis of Argentina, Brazil, Paraguay and Uruguay.

<sup>f</sup> Association of Southeast Asian Nations: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam.

Source: WTO Secretariat.

**Appendix Table 2: World commercial services trade by region and selected country, 2014  
(billion US\$ and per cent)**

	Exports					Imports				
	Value	Annual per cent change				Value	Annual per cent change			
	2014	2005-14	2012	2013	2014	2014	2005-14	2012	2013	2014
<b>World</b>	4,860	7	3	5	4	4,740	7	4	6	5
<b>North America</b>	793	7	5	5	3	593	6	4	3	3
United States	686	8	4	5	3	454	6	4	3	4
<b>South and Central America<sup>a</sup></b>	156	9	6	2	4	202	12	6	7	1
Brazil	40	12	5	-2	6	87	17	7	7	5
<b>Europe</b>	2,349	6	0	7	5	1,988	6	-1	8	5
<b>European Union (28)</b>	2,153	...	...	8	5	1,810	...	...	8	5
Germany	267	6	-3	8	5	327	5	-2	13	1
United Kingdom	329	4	1	3	4	189	1	2	4	-1
France	263	6	0	7	4	244	7	0	14	6
Netherlands	156	...	-4	8	11	165	10	-4	6	8
Spain	133	5	12	9	10	142	2	3	16	8
<b>Commonwealth of Independent States (CIS)</b>	110	10	9	9	-8	169	12	18	15	-4
Russian Federation	66	10	7	12	-5	119	13	19	18	-5
Ukraine	14	4	4	2	-35	12	6	10	11	-23
<b>Africa</b>	94	6	7	-4	3	169	10	2	1	5
Egypt <sup>b</sup>	19	3	12	-16	7	16	6	18	-4	11
South Africa	14	3	2	-6	0	15	3	-11	-7	-5
Nigeria	1	0	-10	-7	-22	22	15	0	-8	9
<b>Middle East</b>	124	...	4	2	6	271	...	5	5	9
United Arab Emirates <sup>b, c</sup>	17	...	18	15	...	72	...	12	12	...
Saudi Arabia, Kingdom of	12	...	-5	5	7	60	...	-9	4	17
<b>Asia</b>	1,236	10	8	3	5	1,349	9	8	4	6
China	222	11	17	-4	8	382	18	18	17	16
Japan	158	5	-3	1	19	190	4	5	-8	12
India	154	13	5	2	4	124	11	4	-3	-1
Singapore	133	12	7	4	2	130	10	9	4	0
Korea, Republic of	106	9	14	0	3	114	8	6	1	4
Hong Kong, China	107	9	8	7	2	78	4	3	0	2
Australia	52	6	3	0	0	62	8	6	3	-7
<b>Memorandum</b>										
EU (28) extra-trade	994	...	5	9	7	739	...	-2	7	6

<sup>a</sup> Includes the Caribbean.

<sup>b</sup> WTO Secretariat estimates.

<sup>c</sup> Data according to BPM5 (fifth edition of the IMF Balance of Payments Manual) methodology.

... indicates unavailable or non-comparable figures.

Note: While provisional full year data were available in mid-March for some 50 countries accounting for more than two-thirds of world commercial services trade, estimates for most other countries are based on data for the first three quarters.

Sources: WTO and UNCTAD Secretariats.

**Appendix Table 3: Leading merchandise exporters and importers, 2014  
(billion US\$ and per cent)**

Rank	Exporters	Value	Share	Annual per cent change	Rank	Importers	Value	Share	Annual per cent change
1	China	2,342	12.4	6	1	United States	2,413	12.7	4
2	United States	1,621	8.6	3	2	China	1,959	10.3	0
3	Germany	1,508	8.0	4	3	Germany	1,216	6.4	2
4	Japan	684	3.6	-4	4	Japan	822	4.3	-1
5	Netherlands	672	3.6	0	5	United Kingdom	684	3.6	4
6	France	583	3.1	0	6	France	678	3.6	-1
7	Korea, Republic of	573	3.0	2	7	Hong Kong, China	601	3.2	-3
8	Italy	529	2.8	2		– retained imports	151	0.8	6
9	Hong Kong, China	524	2.8	-2	8	Netherlands	588	3.1	0
	– domestic exports	16	0.1	-20	9	Korea, Republic of	526	2.8	2
	– re-exports	508	2.7	-1	10	Canada <sup>a</sup>	475	2.5	0
10	United Kingdom	506	2.7	-7	11	Italy	472	2.5	-2
11	Russian Federation	498	2.6	-5	12	India	463	2.4	-1
12	Canada	475	2.5	4	13	Belgium	452	2.4	0
13	Belgium	471	2.5	1	14	Mexico	412	2.2	5
14	Singapore	410	2.2	0	15	Singapore	366	1.9	-2
	– domestic exports	216	1.1	-1		– retained imports <sup>b</sup>	173	0.9	-5
	– re-exports	194	1.0	1	16	Spain	358	1.9	5
15	Mexico	398	2.1	5	17	Russian Federation <sup>a</sup>	308	1.6	-10
16	United Arab Emirates <sup>c</sup>	360	1.9	-5	18	Chinese Taipei	274	1.4	2
17	Saudi Arabia, Kingdom of <sup>c</sup>	354	1.9	-6	19	United Arab Emirates <sup>c</sup>	262	1.4	4
18	Spain	325	1.7	2	20	Turkey	242	1.3	-4
19	India	322	1.7	2	21	Brazil	239	1.3	-5
20	Chinese Taipei	314	1.7	3	22	Australia <sup>c</sup>	237	1.2	-2
21	Australia	241	1.3	-5	23	Thailand	228	1.2	-9
22	Switzerland	239	1.3	4	24	Poland	220	1.2	6
23	Malaysia	234	1.2	3	25	Malaysia	209	1.1	1
24	Thailand	228	1.2	0	26	Switzerland	203	1.1	1
25	Brazil	225	1.2	-7	27	Austria	182	1.0	-1
26	Poland	217	1.1	6	28	Indonesia	178	0.9	-5
27	Austria	178	0.9	2	29	Saudi Arabia, Kingdom of <sup>c</sup>	163	0.9	-3
28	Indonesia	176	0.9	-3	30	Sweden	163	0.9	1
29	Czech Republic	174	0.9	7					
30	Sweden	164	0.9	-2					
	Total of above <sup>d</sup>	15,542	82.1	-		Total of above <sup>d</sup>	15,592	82.0	-
	World <sup>d</sup>	18,930	100.0	1		World <sup>d</sup>	19,018	100.0	1

<sup>a</sup> Imports are valued FOB.

<sup>b</sup> Singapore's retained imports are defined as imports less re-exports.

<sup>c</sup> WTO Secretariat estimates.

<sup>d</sup> Includes significant re-exports or imports for re-export.

Source: WTO Secretariat.

**Appendix Table 4: Leading merchandise exporters and importers excluding intra-EU(28) trade, 2014 (billion US\$ and per cent)**

Rank	Exporters	Value	Share	Annual per cent change	Rank	Importers	Value	Share	Annual per cent change
1	China	2,342	15.6	6	1	United States	2,413	16.0	4
2	Extra-EU(28) exports	2,262	15.1	-2	2	Extra-EU(28) imports	2,232	14.8	0
3	United States	1,621	10.8	3	3	China	1,959	13.0	0
4	Japan	684	4.5	-4	4	Japan	822	5.4	-1
5	Korea, Republic of	573	3.8	2	5	Hong Kong, China	601	4.0	-3
6	Hong Kong, China	524	3.5	-2		– retained imports	151	1.0	6
	– domestic exports	16	0.1	-20	6	Korea, Republic of	526	3.5	2
	– re-exports	508	3.4	-1	7	Canada <sup>a</sup>	475	3.1	0
7	Russian Federation	498	3.3	-5	8	India	463	3.1	-1
8	Canada	475	3.2	4	9	Mexico	412	2.7	5
9	Singapore	410	2.7	0	10	Singapore	366	2.4	-2
	– domestic exports	216	2.9	-1		– retained imports <sup>b</sup>	173	1.1	-5
	– re-exports	194	1.3	1	11	Russian Federation <sup>a</sup>	308	2.0	-10
10	Mexico	398	2.6	5	12	Chinese Taipei	274	1.8	2
11	United Arab Emirates <sup>c</sup>	360	2.4	-5	13	United Arab Emirates <sup>c</sup>	262	1.7	4
12	Saudi Arabia, Kingdom of <sup>c</sup>	354	2.4	-6	14	Turkey	242	1.6	-4
13	India	322	2.1	2	15	Brazil	239	1.6	-5
14	Chinese Taipei	314	2.1	3	16	Australia <sup>c</sup>	237	1.6	-2
15	Australia	241	1.6	-5	17	Thailand	228	1.5	-9
16	Switzerland	239	1.6	4	18	Malaysia	209	1.4	1
17	Malaysia	234	1.6	3	19	Switzerland	203	1.3	1
18	Thailand	228	1.5	0	20	Indonesia	178	1.2	-5
19	Brazil	225	1.5	-7	21	Saudi Arabia, Kingdom of <sup>c</sup>	163	1.1	-3
20	Indonesia	176	1.2	-3	22	Viet Nam	149	1.0	13
21	Turkey	158	1.0	4	23	South Africa <sup>c</sup>	122	0.8	-3
22	Viet Nam	150	1.0	14	24	Norway	89	0.6	-1
23	Norway	144	1.0	-7	25	Israel	75	0.5	1
24	Qatar <sup>c</sup>	132	0.9	-4	26	Chile	72	0.5	-9
25	Kuwait <sup>c</sup>	104	0.7	-9	27	Philippines	68	0.4	4
26	Nigeria <sup>c</sup>	97	0.6	-7	28	Egypt <sup>c</sup>	67	0.4	16
27	South Africa	91	0.6	-5	29	Argentina	65	0.4	-11
28	Iran <sup>c</sup>	89	0.6	8	30	Colombia	64	0.4	8
29	Iraq <sup>c</sup>	85	0.6	-6					
30	Venezuela, Bolivarian Rep. of <sup>c</sup>	80	0.5	-10					
	Total of above <sup>d</sup>	13,608	90.5	-		Total of above <sup>d</sup>	13,585	89.9	-
	World <sup>d</sup> (excl. intra-EU(28))	15,030	100.0	0		World <sup>d</sup> (excl. intra-EU(28))	15,118	100.0	0

<sup>a</sup> Imports are valued FOB.

<sup>b</sup> Singapore's retained imports are defined as imports less re-exports.

<sup>c</sup> WTO Secretariat estimates.

<sup>d</sup> Includes significant re-exports or imports for re-export.

Source: WTO Secretariat.

**Appendix Table 5: Leading exporters and importers of commercial services, 2014  
(billion US\$ and per cent)**

Rank	Exporters	Value	Share	Annual per cent change	Rank	Importers	Value	Share	Annual per cent change
1	United States	686	14.1	3	1	United States	454	9.6	4
2	United Kingdom	329	6.8	4	2	China	382	8.1	16
3	Germany	267	5.5	5	3	Germany	327	6.9	1
4	France	263	5.4	4	4	France	244	5.1	6
5	China	222	4.6	8	5	Japan	190	4.0	12
6	Japan	158	3.3	19	6	United Kingdom	189	4.0	-1
7	Netherlands	156	3.2	11	7	Netherlands	165	3.5	8
8	India	154	3.2	4	8	Ireland	142	3.0	16
9	Spain	135	2.8	5	9	Singapore	130	2.7	0
10	Ireland	133	2.7	9	10	India	124	2.6	-1
11	Singapore	133	2.7	2	11	Russian Federation	119	2.5	-5
12	Belgium	117	2.4	4	12	Korea, Republic of	114	2.4	4
13	Switzerland	114	2.3	2	13	Italy	112	2.4	4
14	Italy	114	2.3	2	14	Belgium	108	2.3	4
15	Hong Kong, China	107	2.2	2	15	Canada	106	2.2	-5
16	Korea, Republic of	106	2.2	3	16	Switzerland	93	2.0	2
17	Luxembourg	98	2.0	11	17	Brazil	87	1.8	5
18	Canada	85	1.7	-4	18	Hong Kong, China	78	1.6	2
19	Sweden	75	1.5	3	19	United Arab Emirates <sup>a, b</sup>	72	1.5	...
20	Denmark	72	1.5	2	20	Spain	72	1.5	11
21	Russian Federation	66	1.4	-5	21	Luxembourg	67	1.4	13
22	Austria	65	1.3	2	22	Sweden	65	1.4	8
23	Chinese Taipei <sup>a</sup>	57	1.2	12	23	Denmark	64	1.3	1
24	Thailand	55	1.1	-6	24	Australia	62	1.3	-7
25	Macao, China	53	1.1	-1	25	Saudi Arabia, Kingdom of	60	1.3	17
26	Australia	52	1.1	0	26	Thailand	53	1.1	-4
27	Turkey	50	1.0	9	27	Norway	53	1.1	-5
28	Norway	49	1.0	1	28	Austria	51	1.1	3
29	Poland	46	0.9	2	29	Chinese Taipei <sup>a</sup>	46	1.0	8
30	Greece	42	0.9	14	30	Malaysia	44	0.9	-2
	Total of above	4,058	83.5	-		Total of above	3,871	81.7	-
	World	4,860	100.0	4		World	4,740	100.0	5

<sup>a</sup>Data according to BPM5 (fifth edition of the IMF Balance of Payments Manual) methodology.

<sup>b</sup>WTO Secretariat estimate.

... indicates unavailable or non-comparable figures.

- indicates non-applicable.

*Note:* Figures for a number of countries and territories have been estimated by the Secretariat. Annual percentage changes and rankings are affected by continuity breaks in the series for a large number of economies, and by limitations in cross-country comparability.

*Sources:* WTO and UNCTAD Secretariats.

**Appendix Table 6: Leading exporters and importers of commercial services excluding intra-EU(28) trade, 2014 (billion US\$ and per cent)**

Rank	Exporters	Value	Share	Annual per cent change	Rank	Importers	Value	Share	Annual per cent change
1	Extra-EU(28) exports	994	26.8	7	1	Extra-EU(28) imports	739	20.1	6
2	United States	686	18.5	3	2	United States	454	12.4	4
3	China	222	6.0	8	3	China	382	10.4	16
4	Japan	158	4.3	19	4	Japan	190	5.2	12
5	India	154	4.2	4	5	Singapore	130	3.5	0
6	Singapore	133	3.6	2	6	India	124	3.4	-1
7	Switzerland	114	3.1	2	7	Russian Federation	119	3.2	-5
8	Hong Kong, China	107	2.9	2	8	Korea, Republic of	114	3.1	4
9	Korea, Republic of	106	2.9	3	9	Canada	106	2.9	-5
10	Canada	85	2.3	-4	10	Switzerland	93	2.5	2
11	Russian Federation	66	1.8	-5	11	Brazil	87	2.4	5
12	Chinese Taipei <sup>a</sup>	57	1.5	12	12	Hong Kong, China	78	2.1	2
13	Thailand	55	1.5	-6	13	United Arab Emirates <sup>a, b</sup>	72	2.0	...
14	Macao, China	53	1.4	-1	14	Australia	62	1.7	-7
15	Australia	52	1.4	0	15	Saudi Arabia, Kingdom of	60	1.6	17
16	Turkey	50	1.4	9	16	Thailand	53	1.4	-4
17	Norway	49	1.3	1	17	Norway	53	1.4	-5
18	Brazil	40	1.1	6	18	Chinese Taipei <sup>a</sup>	46	1.2	8
19	Malaysia	38	1.0	-4	19	Malaysia	44	1.2	-2
20	Israel	34	0.9	1	20	Indonesia	33	0.9	-4
21	Philippines	24	0.7	7	21	Mexico	32	0.9	9
22	Indonesia	23	0.6	1	22	Qatar	31	0.8	24
23	Mexico	21	0.6	5	23	Turkey	23	0.6	3
24	Egypt	19	0.5	7	24	Nigeria	22	0.6	9
25	United Arab Emirates <sup>a, b</sup>	17	0.5	...	25	Angola <sup>b</sup>	22	0.6	...
26	Lebanese Republic	15	0.4	6	26	Israel	22	0.6	9
27	Morocco	15	0.4	11	27	Kuwait <sup>b</sup>	21	0.6	...
28	Ukraine	14	0.4	-35	28	Philippines	20	0.5	23
29	Argentina	14	0.4	-3	29	Argentina	17	0.5	-8
30	South Africa	14	0.4	0	30	Venezuela, Bolivarian Rep. of	17	0.5	-13
	Total of above	3,429	92.6	-		Total of above	3,266	89.0	-
	World (excl. intra-EU(28))	3,700	100.0	4		World (excl. intra-EU(28))	3,670	100.0	5

<sup>a</sup> Data according to BPM5 (fifth edition of the IMF Balance of Payments Manual) methodology.

<sup>b</sup> WTO Secretariat estimate.

... indicates unavailable or non-comparable figures.

- indicates non-applicable.

*Note:* Figures for a number of countries and territories have been estimated by the Secretariat. Annual percentage changes and rankings are affected by continuity breaks in the series for a large number of economies, and by limitations in cross-country comparability.

*Sources:* WTO and UNCTAD Secretariats.

# II. Speeding up trade: benefits and challenges of implementing the WTO Trade Facilitation Agreement

The WTO Trade Facilitation Agreement (TFA), which was agreed by WTO members at the Ministerial Conference in Bali in December 2013, is the first multilateral trade agreement concluded since the establishment of the World Trade Organization in 1995. The TFA represents a landmark achievement for the WTO, with the potential to increase world trade by up to US\$ 1 trillion per annum. The 2015 *World Trade Report* is the first detailed study of the potential impacts of the TFA based on a full analysis of the final agreement text. The Report finds that developing countries will benefit significantly from the TFA, capturing a large part of the available gains.

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# A. Introduction

In today's open and interconnected global economy, efforts to streamline, speed up, and coordinate trade processes, as much as efforts to further liberalize trade policies, will contribute to the expansion of world trade and help countries to connect to an increasingly globalized production system.

While trade agreements in the past were about “negative” integration – countries lowering tariff and non-tariff barriers – the WTO Trade Facilitation Agreement (TFA) is about positive integration – countries working together to simplify processes, share information, and cooperate on regulatory and policy goals. The *World Trade Report 2015* examines why the TFA is so important, what its economic impact is projected to be, and how the WTO is taking a number of important and novel steps to help countries to maximize its benefits.

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### Some key facts and findings

- Trade facilitation has emerged as a key issue for the world trading system in recent years. Its importance was confirmed in December 2013, when WTO members concluded the Trade Facilitation Agreement (TFA) at the WTO's Ninth Ministerial Conference in Bali, and in November 2014, when WTO members adopted a Protocol of Amendment to insert this new agreement into the Marrakesh Agreement Establishing the World Trade Organization.
- The TFA will enter into force once two-thirds of WTO members have completed their domestic ratification process.
- The TFA focuses on streamlining, harmonizing and modernizing customs procedures. It has enormous potential for reducing trade costs and times, particularly in developing and least-developed countries.
- The TFA is groundbreaking because it provides for assistance to developing and least-developed countries to help them implement the Agreement. The Trade Facilitation Agreement Facility, launched by the WTO in July 2014, is designed to help deliver this support to them.

## 1. Why trade facilitation?

Trade facilitation – the simplification, modernization, and harmonization of export and import processes – has emerged as a key issue for the world trading system. It was not even on the WTO's agenda two decades ago, yet it became one of the main objectives of the Doha Round – the WTO's current round of global trade negotiations. This culminated in a decision by members to conclude an early Trade Facilitation Agreement, the major achievement of the Round so far and the first global trade accord reached in 20 years, at the WTO's Ninth Ministerial Conference in Bali in 2013.

The Trade Facilitation Agreement (TFA) is important because the global trade landscape is changing, probably even faster than we realise. Thanks to falling tariff barriers, declining transport and communications costs, and the rise of new emerging markets, companies are now organizing the production of goods and services and adding value across different countries and through complex transnational networks. The last century's assembly line has become today's global value chain. Rather than decreasing the importance of trade, this highly connected global economy is increasing it. Even modest differences in trade costs, and especially in trade times, can make the difference between a country seamlessly linking up to an integrated, just-in-time production network or being left on the margins of a big part of world trade.

If broadly defined, trade facilitation can cover a wide range of issues, from information technology capabilities to transport and logistics services. Notwithstanding this, the efficiency of governments' administrative processes and regulatory requirements remain a key factor. This is why the TFA, which focuses on streamlining, harmonizing, and modernizing customs procedures, will have a major impact on reducing trade costs and times.

A second reason why the TFA is critical has to do with the current economic environment. The global economy is still struggling to gain traction nearly seven years after the global financial crisis. International trade has shared in this stagnation. After the initial rebound in 2010, global trade has grown at a rate substantially below its historical average. The available forecasts of trade growth do not promise a return to the historical norm anytime soon. This has provoked broader discussion of whether the trade slowdown reflects a problem with structural rather than purely cyclical causes and is therefore a portent of things to come.

The 2013 *World Trade Report* examined the primary factors shaping the future evolution of trade and identified trade costs as one of those shaping factors (the others included demographics, capital accumulation, natural resources and technology). That report makes clear that many factors drive changes in trade flows, and that some of these factors, like technological progress, capital accumulation and labour force changes, can have impacts on trade flows that are much greater than tariff or trade cost changes.

While this study estimates the potential isolated effects of changes in trade costs due to the TFA, it is useful to keep in mind that other factors also affect trade flows and the estimated effects here may be amplified or offset by other factors. The fundamental role that trade costs play in shaping the future of world trade means that any meaningful reduction to trade costs not only reduces the drag that is acting on the global economy at present but also alters its future evolution. As this year's report will make clear, the TFA reduces trade costs by a substantial amount and makes possible a significant upward movement to the trajectory of international trade and the global economy.

The TFA is also valuable because it signals an important shift in the focus and operation of the multilateral trading system itself. When world trade was dominated by the exchange of discrete products, trade negotiations were driven mainly by the swapping of market access "concessions", whereby countries reduced tariffs and other trade barriers only when other countries reduced theirs. But in a world of interconnected production networks, where countries' exports depend on imports, and where their connectivity to the global marketplace is only as efficient as their connectivity to every other link in the production chain, countries have a greater incentive to work collaboratively in order to reduce barriers, eliminate bottlenecks and harmonize processes.

One striking feature of the WTO's trade facilitation negotiations was that they were driven not by market access trade-offs, but by the search for cooperative solutions to shared challenges, such as standardizing customs procedures, harmonizing documentation requirements, or improving information exchanges. There was a broad recognition that while members would benefit by individually reforming their trade procedures, they would benefit even more by collectively taking these steps. This goes a long way to explaining why the "bottom-up" trade facilitation negotiations, in which every member was involved in the design of the Agreement at every stage, were the most inclusive and

transparent in the history of the General Agreement on Tariffs and Trade (GATT)/WTO.

This collaborative approach was further reinforced by the fact that many of the issues under negotiation were inherently global, in turn underscoring the logic of reaching solutions in the WTO. It made little sense, for example, for countries to agree to a single window<sup>1</sup> on a bilateral or regional basis, for if such a window were built for one trade partner, it would thereby automatically have been built for all trade partners. It made even less sense to streamline customs procedures or to standardize paperwork bilaterally or regionally, especially for increasingly “multinational” products. Anything less than a multilateral approach to these issues meant complicating, not facilitating, cross-border transactions. In its more cooperative and inclusive approach to negotiations, the TFA may offer an important lesson in how to address other WTO rule-making challenges.

Since WTO members have a shared interest in facilitating trade, the Agreement also breaks new ground in the way that it encourages and helps developing-country members to implement their commitments. It is the first WTO agreement in which members determine their own implementation schedules and in which progress in implementation is explicitly linked to technical and financial capacity. Although a large part of the trade facilitation agenda involves policy changes – especially coordination and information-sharing, both within and among governments – modernizing customs systems and adapting new technologies can also involve significant technical capacity and financial resource demands. With this in mind, the TFA sets out a framework for trade facilitation-related technical assistance and capacity-building support, as well as detailed transparency procedures for monitoring this support.

The WTO has also launched a new TFA Facility to complement existing efforts from regional and multilateral agencies, bilateral donors, and other stakeholders, and more broadly to serve as a focal point for on-going implementation efforts. In its multispeed approach to members’ obligations and its pro-active approach to implementation, the TFA also marks a departure for the WTO with potential lessons for other aspects of the organization’s work.

## 2. Defining trade facilitation

This report will explore these and other themes in more detail. However, a few preliminary remarks are in order.

While many of the studies that will be referred to in this report use the term “trade facilitation”, they may not be referring to the TFA. More likely than not, they have different conceptions of what the term encompasses. Different definitions of trade facilitation have been developed by international organizations; contributors to academic publications have also approached trade facilitation in a variety of ways.<sup>2</sup>

Furthermore, trade facilitation is on the agenda of many regional trade agreements (RTAs) and they do not have a uniform conception of trade facilitation (see subsection B.2). The various definitions of trade facilitation can be differentiated along at least two dimensions:

- **Broad or narrow:** Narrow definitions focus on improving administrative procedures at the border, while broad definitions include changes to behind-the-border measures such as technical barriers to trade as well.
- **Soft or hard infrastructure:** Some definitions limit trade facilitation to improvements in trade procedures which do not require making investments in physical infrastructure (apart, perhaps, from better information technology equipment for customs), while other definitions of trade facilitation include investments in hard infrastructure such as ports, transportation links within the country (roads, railways, etc.) and information and communications technology as well.

WTO members have always shied away from formally defining trade facilitation, both as a result of the impossibility to agree on the delineation and out of the wish not to exclude any potential aspects of future work. However, one can find an indication of how they see the scope for WTO work in that area when looking at the coverage of the recently adopted TFA. Based on a negotiating mandate adopted by WTO members in August 2004, the treaty improves and clarifies GATT Articles V, VIII and X<sup>3</sup> and introduces provisions on customs cooperation “with a view to further expediting the movement, release and clearance of goods, including goods in transit.”<sup>4</sup> It is challenging to benchmark this WTO position, first because members may decide to update it over time, and second because non-WTO definitions could be interpreted to lie somewhere between the poles set out by the two dimensions above.

Table A.1 provides a non-exhaustive list of definitions that have been developed by international organizations or used in the academic literature. Given the diversity of meaning assigned to the term, the present report will be clear when it refers to the TFA.

**Table A.1: Definitions of trade facilitation**

<b>a) Academic literature</b>	
<b>Study</b>	<b>Definition</b>
Duval (2007).	Trade facilitation involves increasing the efficiency of trading processes. Trade facilitation involves making customs, transport, and banking and insurance (services and infrastructure) more efficient. Trade facilitation cannot simply be limited either to at-the-border or to customs control processes, since these two sets of processes are only two of a number of other processes (e.g., payment and logistics) that affect the efficiency of a trade transaction.
Grainger (2011).	Trade facilitation looks at how procedures and controls governing the movement of goods across national borders can be improved to reduce associated cost burdens and maximize efficiency while safeguarding legitimate regulatory objectives.
Persson (2013).	Trade facilitation refers to making it easier for traders to move goods across borders by making cumbersome cross-border trade procedures more efficient.
Portugal-Perez and Wilson (2012).	Trade facilitation measures can be undertaken along two dimensions: a "hard" dimension related to tangible infrastructure such as roads, ports, highways, telecommunications, as well as a "soft" dimension related to transparency, customs management, the business environment, and other institutional aspects that are intangible.
Zaki (2014).	Trade facilitation includes five main elements: 1) simplification of trade procedures and documentation; 2) harmonization of the trade practices and rules; 3) more transparent information and procedures of international flows; 4) recourse to new technologies to promote international trade; 5) more secured means of payment for international commerce.
<b>b) International organizations</b>	
<b>Institution/source</b>	<b>Definition</b>
Asia-Pacific Economic Cooperation (APEC) Source: APEC (2007).	Trade facilitation refers to the simplification and rationalization of customs and other administrative procedures that hinder, delay or increase the cost of moving goods across international borders.
European Commission Source: <a href="http://ec.europa.eu/taxation_customs/customs/policy_issues/trade_facilitation/index_en.htm">http://ec.europa.eu/taxation_customs/customs/policy_issues/trade_facilitation/index_en.htm</a>	Trade facilitation can be defined as the simplification and harmonization of international trade procedures including import and export procedures. Procedures in this context largely refer to the activities (practices and formalities) involved in collecting, presenting, communicating and processing the data required for movement of goods in international trade.
International Chamber of Commerce (ICC) Source: ICC (2007).	Improvements in the efficiency of the processes associated with trading in goods across national borders.
Organisation for Economic Co-operation and Development (OECD) Source: Moisé <i>et al.</i> (2011).	Trade facilitation refers to policies and measures aimed at easing trade costs by improving efficiency at each stage of the international trade chain.
United Nations Economic Commission for Europe (UNECE) Source: <a href="http://ftig.unece.org/details.html">http://ftig.unece.org/details.html</a>	The simplification, standardization and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payment.
United Nations Conference on Trade And Development (UNCTAD) Source: UNCTAD (2006).	Trade facilitation seeks to establish a transparent and predictable environment for cross-border trade transactions based on simple, standardized customs procedures and practices, documentation requirements, cargo and transit operations, and trade and transport arrangements.

### 3. Structure of the report

Section B looks at the evolution of the WTO's trade facilitation agenda, explaining how the negotiations in the WTO began, what was addressed and why, what they led to, the current state of play, the special and differential provisions in the TFA, and the road ahead for WTO members. It suggests that while the WTO was relatively late to the subject, the logic of multilateral

cooperation in this area soon generated a widening circle of support for the initiative and a more ambitious agenda. Section B also explores how trade facilitation issues are treated in other international bodies and regional trade arrangements, and documents how wide-ranging trade facilitation can sometimes be in these arrangements, extending beyond reform of trade procedures to include behind-the-border measures and infrastructure provision.

Section C explores the economic rationale for reforming trade procedures. Using widely used models of international trade, the section articulates the economic effects of trade facilitation reform and explains the added value of establishing a multilateral agreement on the issue. It then examines the various indicators currently used for assessing countries' trade connectivity and identifies which indicator would best represent implementation of the TFA.

Using the insights from international trade models about the likely impact of trade facilitation, Section D estimates the potential benefits arising from the implementation of the TFA, particularly for developing countries. These estimates include reductions in trade costs, increases in trade and GDP, and greater diversification of exports. In addition, Section D examines the prospect of implementing countries being better able to link up to global value chains and of small and medium-sized enterprises (SMEs) increasing their participation in international trade. Beyond these potential benefits, Section D also calculates other likely gains from trade facilitation – increases in customs collections, the

attraction of more foreign direct investment (FDI), and reductions in the incidence of corruption. The estimates suggest that while all members will benefit from more efficient customs and administrative procedures, the greatest benefits will accrue to those countries with the least efficient systems.

Section E looks at the various challenges involved in ratifying and implementing the Agreement. It identifies what the main needs are, the estimated costs, the important lessons to be drawn from past experiences in customs reforms, and the role of the special and differential provisions of the TFA in helping developing members overcome the practical difficulties ahead of them. While many developing members remain concerned about the financial costs involved in trade facilitation – which is why the Agreement explicitly links implementation to capacity – these costs are outweighed by the potential trade, investment and output gains that will flow from the Agreement.

Finally, Section F summarizes the main messages of this report.

## Endnotes

- 1 A single window allows traders to submit the relevant documents and/or data requirements and be notified of a decision to release the goods from border control through a single entry point.
- 2 See for example Iwanow and Kirkpatrick (2009), Grainger (2011), Orliac (2012), and Portugal-Perez and Wilson (2012), as well as Table A.1.
- 3 These articles deal with freedom of transit, fees and formalities connected with importation and exportation, and publication and administration of trade regulations, respectively.
- 4 See WTO document WT/L/579, Annex D, "Modalities for Negotiations on Trade Facilitation".

## B. Trade facilitation in context

Successive rounds of multilateral trade negotiations, culminating in the Uruguay Round in 1994, succeeded in dramatically reducing tariffs and other barriers to international trade, but trade costs remained high due in part to administrative burdens and inefficient customs procedures. In a world increasingly characterized by globalized manufacturing, just-in-time production, and integrated supply chains, there has been a growing recognition of the need for global rules to facilitate trade. This section looks at how trade facilitation issues have been dealt with in the WTO and other fora, including a review of the negotiations that led to the recent Trade Facilitation Agreement (TFA), a summary of the content of the TFA itself, an evaluation of the steps that need to be taken to move forward, and a survey of trade facilitation initiatives in regional trade agreements and other international organizations. This discussion is intended to establish the state of trade facilitation reform as it currently stands, and to set the stage for the theoretical and empirical discussions to follow.

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### Some key facts and findings

- WTO work on trade facilitation culminated in the adoption of the Trade Facilitation Agreement (TFA) at the WTO's Ninth Ministerial Conference in Bali in December 2013. It is the first multilateral agreement since the establishment of the WTO in 1995.
- The TFA clarifies and improves three articles of the General Agreement on Tariffs and Trade (GATT), negotiated in the 1940s, which were considered inadequate to meet the needs of the modern business world. It also takes an innovative, tailor-made approach to providing assistance and support to developing and least-developed country members in implementing the TFA, relating the extent and timing of implementation to the implementation capacities of those members.
- Trade facilitation has been part of the negotiations for many regional trade agreements (RTAs). More than 90 per cent of notified RTAs currently in force have provisions on trade facilitation. By providing them with common standards for trade facilitation and reducing overlaps in cases where countries are parties to several RTAs, the TFA will reduce inefficiencies and discrimination, where they exist.
- The widespread absence of special and differential treatment and technical assistance provisions in RTAs, often coupled with weak enforcement systems, suggests that the TFA will make a critical difference to trade facilitation through its emphasis on implementation.
- Many international organizations are active in the trade facilitation area where they complement and support the role of the WTO by providing financing, knowledge about best practices, data, and analytical tools that will help members implement the TFA.

## 1. Trade facilitation in the WTO

### (a) How it all began

In many ways, the WTO's engagement in trade facilitation began at the Singapore Ministerial Conference in December 1996. Work on trade facilitation matters had already taken place before this, but only in a broader context, linked to aspects of other WTO/General Agreement on Tariffs and Trade (GATT) treaties, such as the Agreements on Customs Valuation, Rules of Origin, Import Licensing, Sanitary and Phytosanitary Measures or Technical Barriers to Trade. It took until 1996 for members to agree on work under a separate conceptual heading.

The first mandate was fairly limited, directing the WTO Goods Council "to undertake exploratory and analytical work . . . on the simplification of trade procedures in order to assess the scope for WTO rules in this area". It reflected the fact that members still held different views about the desirability of a trade facilitation agreement. Some wanted to launch negotiations right away whereas others remained unconvinced that the WTO should get involved in such an exercise. As a result, the first years were largely spent on advocacy work. Proponents of trade facilitation negotiations tried to make the case for a new agreement which they first hoped to see launched at the 1999 Seattle Ministerial.

It would, however, take until the 2001 Doha Ministerial Conference to get a step closer to the negotiating track. Ministers' agreement that "negotiations will take place after the Fifth Session of the Ministerial Conference" – i.e. in Cancún in 2003 – was, however, conditioned by the call for this to take place "on the basis of a decision to be taken, by explicit consensus [...] on modalities of negotiations". And while an agreement was meant to be brought about "at that session" – the Cancún Ministerial – it took until mid-2004 to actually obtain the green light for negotiations to commence.

### (b) What was addressed and why?

After an initial phase of exploring the possibilities for a broader scope of work, it soon became clear that the focus had to be narrowed to find the necessary consensus on a negotiating mandate. Three provisions of the GATT – Articles V (freedom of transit), VIII (fees and formalities connected with importation and exportation) and X (publication and administration of trade regulations) – emerged as a commonly acceptable basis in this regard. They became a regular component of draft negotiating mandates prepared for various ministerial conferences, starting with the Seattle Conference in 1999.

This focus became even more pronounced over time. The Doha Ministerial Declaration concentrated on the three provisions when defining the trade facilitation work programme, calling on members to "review and, as appropriate, clarify and improve relevant aspects of Articles V, VIII and X of the GATT 1994 [...]".

These articles were also a key focus of the negotiating mandate that was finally agreed upon. Building on the language of the Doha Ministerial Declaration, the 2004 General Council decision to launch negotiations stated that "Negotiations shall aim to clarify and improve relevant aspects of Articles V, VIII and X of the GATT 1994 with a view to further expediting the movement, release and clearance of goods, including goods in transit". The scope was only broadened by a call for the development of "provisions for effective cooperation between customs or any other appropriate authorities on trade facilitation and customs compliance issues".

The reference to an improvement of the three GATT articles reflected the fact they were considered to suffer from several shortcomings. Negotiated in the 1940s and unchanged ever since, the provisions were considered inadequate to meet the needs of the modern business world. Many members saw them as limited in scope and imprecise in some of their prescriptions. Complaints were also made about a perceived softness in their level of commitment.

### (c) What did it lead to?

An analysis of how this mandate was translated into concrete provisions (see Table B.1 for an overview of the disciplines of the TFA) shows that members chose a combination of implementation strategies.

Some articles of the TFA reflect a direct attempt to "improve and clarify" the relevant GATT framework by specifying its requirements and by tightening the existing obligations (such as by mandating information to be published in "a non-discriminatory and easily accessible manner" instead of the unqualified obligation to publicize it "in order to enable governments, traders and other interested parties to become acquainted with [it]"). There are also cases where measures are imported from other WTO agreements and translated into a trade facilitation context. See, for instance, the obligation to set up an enquiry point – which is similar to the enquiry points required by the Agreement on the Application of Sanitary and Phytosanitary (SPS) Measures and the Agreement on Technical Barriers to Trade (TBT) – or to issue advance rulings on matters other than rules of origin.

The vast majority of provisions, however, have only a broader, thematic link to the three GATT Articles in

## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

question. They can be seen as complements to the relevant GATT framework or as its further development, without there being a direct anchor in Articles V, VIII or X. Examples for this third category include TFA Article 7 (release and clearance of goods), Article 8 (border agency cooperation), Article 9 (movement of goods under customs control intended for import) and most of Article 10 (formalities connected with importation and exportation and transit).

As far as the level of commitment is concerned, the TFA shows a combination of binding and best-effort elements, often within the same article. Mandatory “shall” language is frequently softened by the insertion of flexibility elements (such as “to the extent practicable”, “as appropriate” or “within its available resources”). Some provisions are drafted in general terms whereas others are rather specific.

Similar differences can be found with respect to the range of stakeholders involved. Articles with a broad scope, such as those referring to “interested parties”, are mixed with provisions that target a narrowly defined situation or group (such as the language on pre-shipment inspection or customs brokers).

Developing countries and least-developed countries (LDCs) are entitled to implement all measures contained in Section I – home to the substantive trade facilitation disciplines – in line with the far-reaching special and differential treatment (S&D) provisions set out in Section II. Unlike in the case of the three GATT articles, which had to be implemented without any specific flexibilities, the TFA allows for the self-determination of time frames and of implementation capacities for the application of its disciplines, on a country-by-country and provision-by-provision basis.

**Table B.1: Overview of disciplines prescribed by the Trade Facilitation Agreement**

Article	Disciplines
<b>Article 1 Publication and Availability of Information</b>	Requires members to: <ul style="list-style-type: none"> <li>publish specific information related to importation, exportation and transit promptly and in an easily accessible way, making it available on the internet, together with the necessary forms and documents, as well as providing the contact information for enquiry points</li> <li>have at least one national enquiry point for dealing with these issues</li> <li>notify the WTO where the information has been published, including on the internet, and provide the contact information of the enquiry points.</li> </ul>
<b>Article 2 Opportunity to Comment, Information Before Entry Into Force and Consultations</b>	Requires members to: <ul style="list-style-type: none"> <li>consult with traders and other interested parties on new or amended laws and regulations related to the movement, release, and clearance of goods</li> <li>give traders and other interested parties time to familiarize themselves with the new laws and regulations by publicising them as early as possible.</li> </ul>
<b>Article 3 Advance Rulings</b>	Requires members to: <ul style="list-style-type: none"> <li>issue an advance ruling, which will be binding, in a reasonable, time-bound manner in response to any written request that contains all necessary information</li> <li>inform an applicant in writing if the application is declined, specifying the reasons; and inform the applicant if the advance ruling is revoked, modified or invalidated</li> <li>provide the applicant, upon receipt of a written request, with a review of the advance ruling, or the decision to revoke, modify or invalidate it</li> <li>ensure the validity of the advance ruling for a reasonable period of time after issuance</li> <li>publish information on the requirements for an advance ruling application, the time period by which an advanced ruling will be issued, and the length of time for which the advance ruling is valid</li> <li>endeavour to make publicly available any information on advance rulings which it considers of significant interest to other interested parties, while protecting commercially confidential information.</li> </ul>
<b>Article 4 Appeal or Review Procedures</b>	Requires members to: <ul style="list-style-type: none"> <li>guarantee the right to an administrative appeal or review by the appropriate administrative authority, and/or to a judicial appeal or review to anybody who receives an administrative decision from customs</li> <li>ensure that the appeal or review procedures are non-discriminatory</li> <li>provide the right to a further appeal or review if there is undue delay in providing the original decision</li> <li>ensure that everybody who receives an administrative decision is provided with the reasons for it, to allow them recourse to an appeal or review.</li> </ul>
<b>Article 5 Other Measures to Enhance Impartiality, Non-Discrimination and Transparency</b>	Requires members who issue notifications or guidance for enhancing border controls regarding foods, beverages, or feedstuffs to: <ul style="list-style-type: none"> <li>base those notifications on risk; apply the measures uniformly, at the appropriate points of entry; lift them promptly when the circumstances no longer apply; and inform the trader or publish the lifting or suspension of the notification</li> <li>promptly inform the importer or carrier of the detention of goods for inspection</li> <li>provide the opportunity for a second test if the results of the first one are negative; provide details of the laboratory where the test can be carried out; and accept the results of the second test, if appropriate.</li> </ul>

<b>Table B.1: Overview of disciplines prescribed by the Trade Facilitation Agreement (continued)</b>	
<b>Article</b>	<b>Disciplines</b>
<b>Article 6 Disciplines on Fees And Charges Imposed on or in Connection With Importation and Exportation</b>	<p>Requires members to:</p> <ul style="list-style-type: none"> <li>▪ publish information on the application of fees and charges, sufficiently in advance of their entry into force; not seek payment before the information has been published; review the fees and charges periodically; limit the amount of fees and charges for customs processing to the cost of services rendered</li> <li>▪ in the case of a penalty, it should be imposed only on the persons responsible for the breach, and should be commensurate with the degree and severity of the breach</li> <li>▪ ensure measures are in place to avoid any conflicts of interest and incentives in the assessment and collection of penalties and duties</li> <li>▪ provide a written explanation for the imposition of a penalty to the persons concerned</li> <li>▪ consider a voluntary disclosure of a breach as a potential mitigating factor when establishing a penalty for that person.</li> </ul>
<b>Article 7 Release and Clearance of Goods</b>	<p>Requires members to establish or maintain the following procedures for the release and clearance of goods for import, export or transit:</p> <ul style="list-style-type: none"> <li>▪ Pre-arrival processing</li> <li>▪ Electronic payment</li> <li>▪ Separation of release from final determination of customs duties, taxes, fees and charges</li> <li>▪ Risk management</li> <li>▪ Post-clearance audit</li> <li>▪ Establishment and publication of average release times</li> <li>▪ Trade facilitation measures for authorized operators</li> <li>▪ Expedited shipments</li> <li>▪ Perishable goods.</li> </ul>
<b>Article 8 Border Agency Cooperation</b>	<p>Requires members to ensure that there is internal cooperation and coordination among its authorities and agencies responsible for border controls and procedures dealing with the importation, exportation and transit of goods; to the extent possible and practicable, ensure that there is external cooperation and coordination with the border control authorities and agencies of other members with whom it shares a common border. Such coordination may include alignment of working days and hours and of procedures and formalities, development and sharing of common facilities, joint controls and the establishment of one stop border post control.</p>
<b>Article 9 Movement of Goods Under Customs Control Intended for Import</b>	<p>Requires members, to the extent possible, to allow goods intended for import to be moved under customs control from one customs office to another within its territory.</p>
<b>Article 10 Formalities Connected With Importation, Exportation and Transit</b>	<p>Aimed at minimizing the incidence and complexity of import, export, and transit formalities and decreasing and simplifying import, export, and transit documentation requirements, this article contains provisions on:</p> <ul style="list-style-type: none"> <li>▪ formalities and documentation requirements</li> <li>▪ acceptance of copies</li> <li>▪ use of international standards</li> <li>▪ single window – a single entry point for traders to submit documentation to the participating authorities or agencies</li> <li>▪ pre-shipment inspection</li> <li>▪ use of customs brokers</li> <li>▪ common border procedures and uniform documentation requirements</li> <li>▪ rejected goods</li> <li>▪ temporary admission of goods and inward and outward processing.</li> </ul>
<b>Article 11 Freedom of Transit</b>	<p>Aimed at improving the existing transit rules, this article details provisions on restricting regulations and formalities on traffic in transit. It sets out provisions covering the following areas:</p> <ul style="list-style-type: none"> <li>▪ fees or charges</li> <li>▪ voluntary restraints on traffic in transit</li> <li>▪ non-discrimination</li> <li>▪ separate infrastructure for traffic in transit</li> <li>▪ minimization of burden of formalities, documentation and customs controls</li> <li>▪ minimization of TBT technical regulations and conformity assessment procedures</li> <li>▪ minimization of transit procedure</li> <li>▪ provision for advance filing and processing of transit documents</li> <li>▪ expedition of termination of transit operations</li> <li>▪ making transaction guarantees publicly available</li> <li>▪ customs convoys/customs escorts</li> <li>▪ cooperation among members to enhance freedom of transit.</li> </ul>

**Table B.1: Overview of disciplines prescribed by the Trade Facilitation Agreement (continued)**

Article	Disciplines
<b>Article 12 Customs cooperation</b>	<p>Obliges members to share information that would enhance coordination of customs controls while also respecting the confidentiality of shared information. The provisions cover the content and process of information sharing, as follows:</p> <ul style="list-style-type: none"> <li>▪ measures promoting compliance and cooperation</li> <li>▪ exchange of information</li> <li>▪ verification prior to a request</li> <li>▪ the format of a request</li> <li>▪ protection and confidentiality</li> <li>▪ provision of information</li> <li>▪ postponement or refusal of a request</li> <li>▪ application of reciprocity</li> <li>▪ administrative burden of responding to request for information</li> <li>▪ limitations on information provided</li> <li>▪ unauthorized use or disclosure of information</li> <li>▪ bilateral and regional agreements.</li> </ul>

(d) How is it meant to be implemented?

The practicability of the new measures was very much on members' minds when they negotiated the TFA. Developing countries and LDCs made it clear from the beginning that they would not commit to rules they found themselves unable to implement – and developed members equally did not want to limit implementation to a mere afterthought.

As part of the “July Package” – the text of the General Council’s decision on the Doha Agenda work programme, agreed on 1 August 2004 – the General Council decided by explicit consensus to commence negotiations on trade facilitation on the basis of the modalities set out in Annex D of the “July Package”. Accordingly:

*“Negotiations shall also aim at enhancing technical assistance and support for capacity building [...] The results of the negotiations shall take fully into account the principle of special and differential treatment for developing and least-developed countries. Members recognize that this principle should extend beyond the granting of traditional transition periods for implementing commitments. In particular, the extent and the timing of entering into commitments shall be related to the implementation capacities of developing and least-developed Members [...]”*<sup>1</sup>

The flexibilities for LDCs were even more far-reaching. Annex D stipulates that they “will only be required to undertake commitments to the extent consistent with their individual development, financial and trade needs or their administrative and institutional capabilities.”

Translating these requirements into concrete provisions took almost a decade to agree on. Key to the finally adopted approach was the introduction of a category system for these provisions, allowing each developing and least-developed member to self-determine when they would implement the TFA’s respective provisions and what they would need in terms of capacity-building support. In exchange, they

accepted that all provisions would ultimately have to be executed by all members.

Article 14 of the TFA defines the categories of provisions as follows:

- “(a) Category A contains provisions that a developing country Member or a least-developed country Member designates for implementation upon entry into force of this Agreement, or in the case of a least developed country Member within one year after entry into force [...].
- (b) Category B contains provisions that a developing country Member or a least-developed country Member designates for implementation on a date after a transitional period of time following the entry into force of this Agreement [...].
- (c) Category C contains provisions that a developing country Member or a least-developed country Member designates for implementation on a date after a transitional period of time following the entry into force of this Agreement and requiring the acquisition of implementation capacity through the provision of assistance and support for capacity building [...]”

In addition to the possibility of scheduling the TFA’s provisions into one of those categories, developing countries and LDCs were given a range of additional flexibilities. The TFA provides them with a temporary exclusion from dispute settlement;<sup>2</sup> the possibility to seek time frame extensions of implementation dates for Category B and C provisions, provided they do so a specific number of days before the expiration of the implementation date (known as an early warning system); and the right to shift provisions between categories B and C through the submission of a notification to the Committee on Trade Facilitation and upon providing information on the assistance and support they need to build capacity.

Arrangements are also made for the provision of assistance and capacity-building support which, according to the TFA, “may take the form of technical, financial, or any other mutually agreed form of assistance provided”.<sup>3</sup> Article 21 sets out a number of principles in this context, such as the consideration of the “overall development framework of recipient countries”, the inclusion of “activities to address regional and sub-regional challenges”, the inclusion of private sector initiatives in assistance activities, and the promotion of coordination between and among members and other relevant institutions, to name just a few.

Taken together, those flexibilities significantly exceed S&D treatment granted to developing and least-developed members in the past. By tailoring them to each recipient’s needs, they also reflect a new approach.

#### (e) The state of play and the road ahead

While the conclusion of the negotiations at the 2013 Bali Ministerial marked the end of a decade-long undertaking, it was not the end of the trade facilitation project overall. Several further steps needed to be taken in order that the TFA enter into force. Ministers had opted for the amendment route, integrating the new treaty into the existing WTO framework. They decided that the TFA should enter into force in accordance with Article X:3 of the Marrakesh Agreement, which requires the acceptance of two-thirds of the WTO membership to take legal effect.

A work programme was set out for this process to commence. It called for the execution of three specific tasks as part of a broad mandate to “ensure the expeditious entry into force of the Agreement and to prepare for the efficient operation of the Agreement upon its entry into force”.<sup>4</sup> A newly formed “Preparatory Committee on Trade Facilitation” was instructed to:

- (i) conduct a legal review of the TFA language adopted in Bali;
- (ii) receive notifications from developing countries and LDCs of the commitments they designated for immediate implementation (their so-called “Category A commitments”); and
- (iii) draw up the legal instrument (the “Protocol of Amendment”) required to insert the new agreement in the existing legal framework of the WTO Agreement.

The first of these tasks was quickly accomplished. Members were able to agree on a legally scrubbed text barely four months after the Preparatory Committee had held its first session. Work on the second assignment,

the receipt of Category A notifications, started soon after the beginning of the post-Bali work programme and ran smoothly. Delegations tabled input in promising numbers, and ahead of time. It was the third item, the adoption of the Protocol of Amendment, which proved to be the most challenging. The deadline put forward in Bali for the accomplishment of this task – 31 July 2014 – was missed. It took until the end of November 2014 to agree on the protocol.

This finally cleared the road for the domestic ratification process to commence. Members were invited to deposit their instruments of acceptance – each acceptance bringing the TFA closer to the threshold of two-thirds of the WTO membership required for it to enter into force. First deposits have been received, and their number is expected to increase steadily over the course of the coming months.

Notifications of Category A commitments continue to be received as well. Fifty had already been presented at the time of adopting the Protocol of Amendment. In addition to creating a road map of when the individual TFA provisions are going to be implemented by developing countries and LDCs, those notifications can also be seen as an indicator for the time of the TFA’s entry into force. If all members who already tabled their Category A commitments – despite the absence of a legal requirement – were to ratify the new treaty at an equally fast pace, the TFA could become operational in the not-too-distant future.

## 2. Trade facilitation in regional trade agreements

### (a) Assessing the trade facilitation content of regional trade agreements (RTAs)

Trade facilitation is on the agenda not only of the WTO but of many RTAs as well. This raises several questions. First, how have regional and multilateral trade facilitation negotiations influenced each other? Has the integration of trade facilitation provisions in RTAs been stimulated by multilateral negotiations? Have the two processes informed each other? Secondly, how does an RTA’s membership affect its trade facilitation content? Do trade facilitation provisions feature equally in RTAs involving only developing countries, only developed countries and both developed and developing countries? Thirdly, are the TFA and the trade facilitation provisions in RTAs complements or substitutes? If they are complements, what are their respective contributions to trade facilitation? Fourthly, how discriminatory are regional trade facilitation provisions and to what extent does the TFA multilateralize RTA provisions?

## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

This subsection attempts to answer these questions by examining trade facilitation provisions in RTAs and comparing them with the disciplines of the WTO TFA. To do this, it draws extensively from Neufeld (2014) who uses information from the WTO's RTA database to provide a comprehensive description of the trade facilitation content of existing RTAs.

The WTO's RTA database contains detailed information on the provisions of the agreements notified to the WTO under GATT Article XXIV (Territorial Application – Frontier Traffic – Customs Unions and Free-trade Areas), the Enabling Clause (Decision on Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries), GATS Article V (Economic Integration) or the Transparency Mechanism for Regional Trade Agreements. As of 8 January 2015, some 604 notifications of RTAs (counting goods, services and accessions separately) had been received

by the GATT/WTO. These WTO figures correspond to 446 physical RTAs (counting goods, services and accessions together), of which 259 are currently in force. Accessions to an existing agreement and agreements exclusively addressing trade in services were not considered to be relevant to the analysis in this report and they were left aside. Overall, 254 agreements were considered in the analysis.

Following the methodology developed by Neufeld (2014), the focus of the examination of the trade facilitation content of RTAs in this report is restricted to the areas covered in the WTO TFA. The scope is thus limited to a total of 28 areas listed in Table B.2, which broadly cover freedom of transit (GATT Article V), fees and formalities connected with importation and exportation (GATT Article VIII), and the publication and administration of trade regulations (GATT Article X).<sup>5</sup> Special and differential treatment

**Table B.2: Trade facilitation measures contained in RTAs by frequency of occurrence (per cent)**

Rank	Measure	Occurrence (in percentage terms)
1	Exchange of customs-related information	72.5
2	Simplification/harmonization of formalities/procedures	63.6
3	Cooperation in customs and other trade facilitation matters	63.1
4	Publication and availability of information	54.2
5	Appeals	46.6
6	Harmonization of regulations/formalities	42.0
7	Advance rulings	40.7
8	Publication prior to implementation	40.3
9	Risk management	40.3
10	Automation/electronic submission	36.9
11	Disciplines on fees and charges connected with importation and exportation	35.6
12	Use of international standards	35.6
13	Opportunity to comment on the proposed regulations	32.6
14	Freedom of transit for goods	30.9
15	Enquiry points	30.1
16	Internet publication	29.7
17	Temporary admission of goods	25.8
18	Release times	17.4
19	Separation of release from clearance	17.0
20	Pre-arrival processing	16.5
21	Expedited shipments	16.5
22	Penalty disciplines	16.5
23	Authorized operators	14.4
24	Obligation to consult traders/business	10.6
25	Customs brokers	6.4
26	Post-clearance audits	5.9
27	Single window	4.7
28	Preshipment inspection/Destination inspection/Post-shipment inspections	4.2

Source: Secretariat computation based on the RTA database.

and technical assistance measures in the trade facilitation area are separately analysed.

A preliminary observation, and one which needs to be kept in mind when proceeding with the analysis of the trade facilitation content of RTAs, is that there are important disparities between RTAs with regard to the substantive coverage of given provisions, as well as with regard to the strength of the level of commitment. Measures in a given area range from general calls to undertake an unspecified work programme to detailed binding disciplines.

The following are the main findings of the analysis:

- (i) Each RTA typically covers only a subset of the trade facilitation areas covered by the WTO TFA. Implementation of the TFA will extend the coverage of trade facilitation to new countries and areas.
- (ii) At the same time, however, RTAs often use a broader conceptual definition of trade facilitation. Complementarity between the regional and the multilateral level will remain strong.
- (iii) There are important disparities between RTAs with regard to the substantive coverage of given provisions as well as with regard to the strength of the level of commitment. The language can be more general or more specific in RTAs or the TFA. Implementation of the TFA should reduce inefficiencies due to the "spaghetti bowl" of criss-crossing trade arrangements.

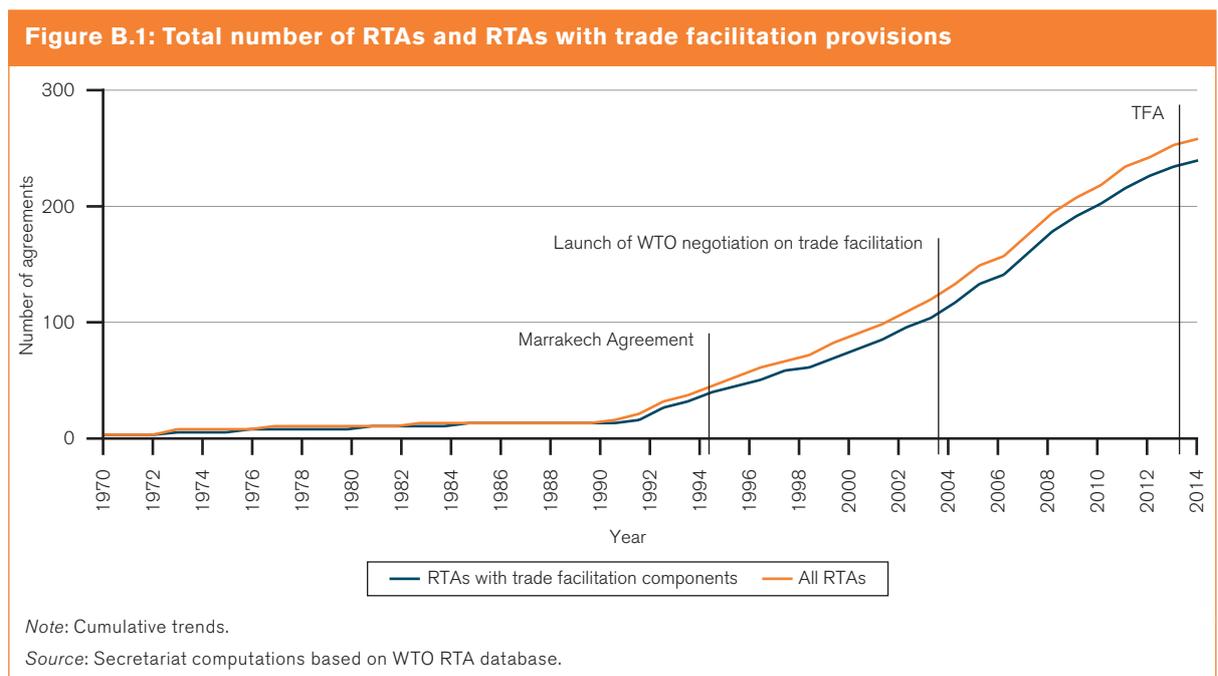
(iv) Some trade facilitation provisions included in RTAs could potentially be used in a discriminatory manner but evidence of the discriminatory effects of those provisions is scarce. The implementation of the TFA will reduce discrimination.

(v) The general absence of special and differential (S&D) and technical assistance provisions in RTAs and their lack of a strong enforcement system suggest that the WTO TFA could make an important contribution to trade facilitation through its emphasis on implementation. Information concerning the implementation of trade facilitation provisions in RTAs tends to confirm this result.

(b) Trends

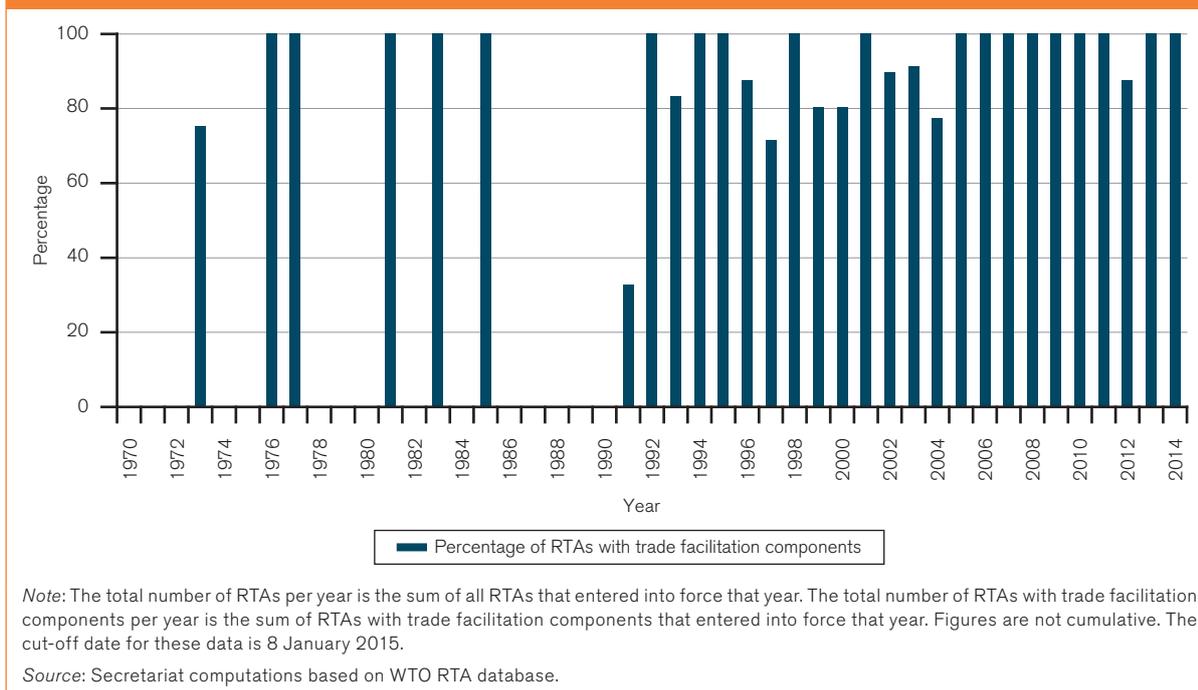
Since the early 1990s, the number of RTAs with trade facilitation provisions has increased very rapidly (see Figure B.1). This trend is a reflection of two more general tendencies of RTAs in the last 25 years (WTO, 2011). One is the proliferation of RTAs and the other is the expansion of their content both in terms of coverage and in terms of depth. Between 1990 and February 2015, 244 RTAs entered into force compared to 11 between 1970 and 1990.<sup>6</sup> At the same time, the share of RTAs including trade facilitation provisions increased to the point where trade facilitation is now included in most agreements (see Figure B.2).

Over the years, the coverage of trade facilitation in RTAs has expanded. Following the approach used by

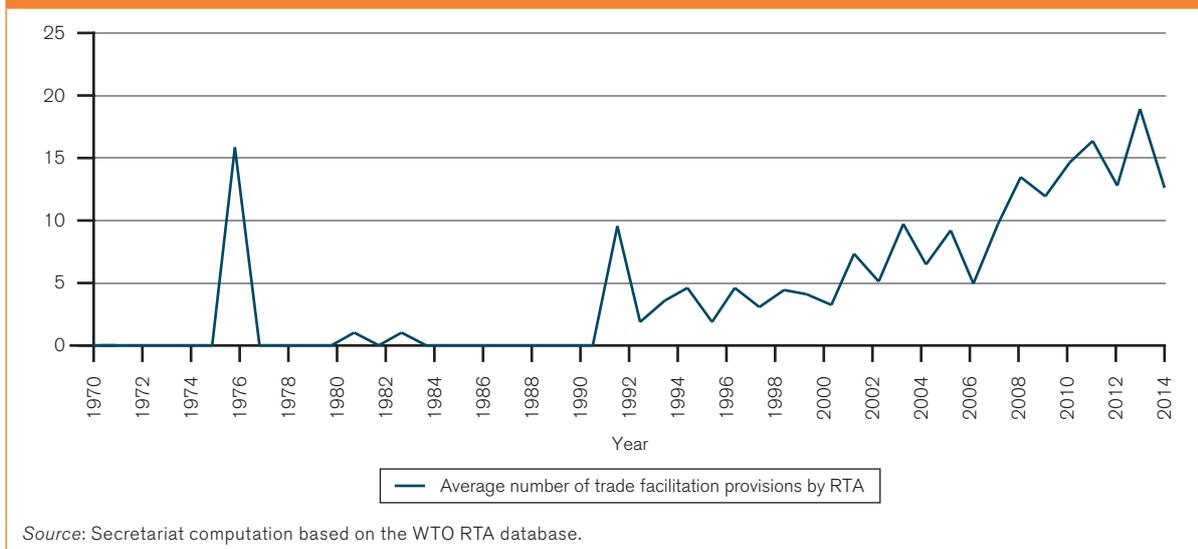


## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

**Figure B.2: Percentage of RTAs with trade facilitation provisions**



**Figure B.3: Evolution of the number of trade facilitation provisions in RTAs**

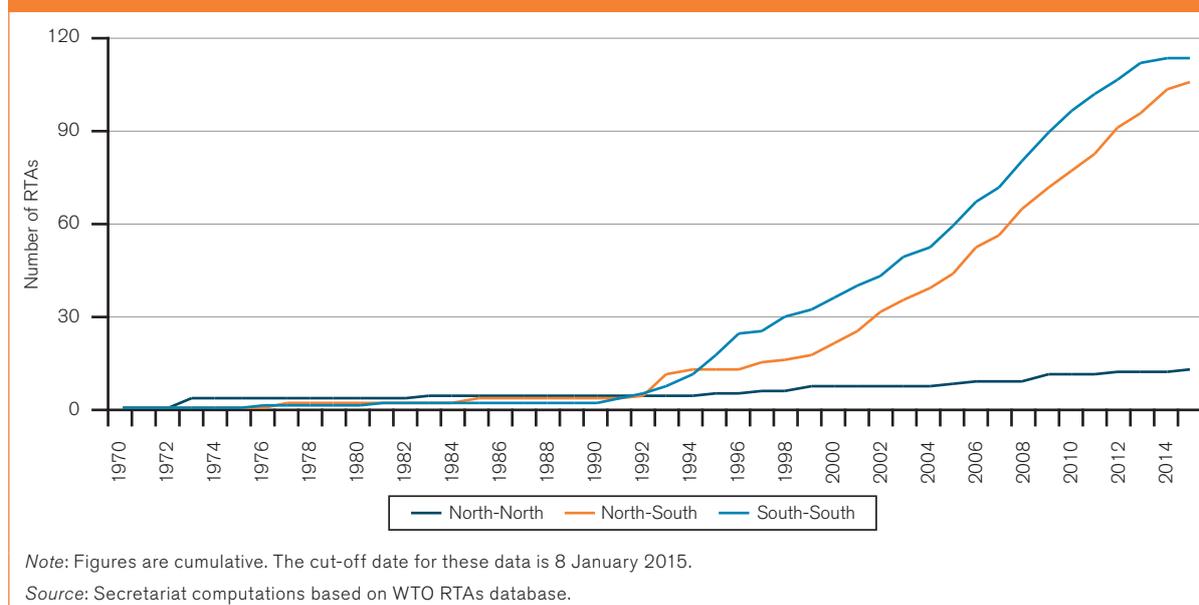


Neufeld (2014), the coverage of trade facilitation in RTAs was compared to the coverage of the WTO TFA. Figure B.3 shows that the average number of TFA areas covered by RTAs increased since 1990.

The increase in the total number of RTAs with trade facilitation coverage was driven by the increase in the number of such RTAs involving developing countries. The marked increase in the total number of RTAs reflects the strong increases in both the number of RTAs between developing countries (South-South) and those between developed and developing

countries (North-South). As shown in Figure B.4, the number of South-South RTAs with trade facilitation and the number of North-South RTAs with trade facilitation have followed similar trends at least in the last 15 years and there are now more than a hundred of each type.

Overall, starting from the 1970s, three broad periods can be distinguished. Prior to 1990, few RTAs were signed and, apart from a few exceptions, these RTAs did not include trade facilitation provisions. Between 1990 and 2004, the number of RTAs steadily increased and

**Figure B.4: Total number of North-North, North-South and South-South agreements with trade facilitation**

trade facilitation became a recurrent feature of regional agreements, but the coverage remained relatively limited. After 2004, the number of RTAs continued to follow its increasing trend but the start of WTO trade facilitation negotiations in 2004 boosted the inclusion of trade facilitation provisions.

From that date, trade facilitation provisions were included in the vast majority of RTAs. Moreover, as noted by Neufeld (2014), many of the regional agreements signed after 2004 included facilitation measures similar – and in some cases virtually identical – to the disciplines debated at the WTO. During this last period, facilitation approaches converged both among RTAs, and between regional- and multilateral-level trade facilitation efforts.

### (c) Key features

This subsection provides an overview of the trade facilitation content of RTAs and compares this content with the disciplines of the TFA. Special attention is given to the potentially discriminatory dimension of measures taken in certain areas.

In terms of coverage, many RTAs cover only a small part of the entire spectrum of the WTO TFA and no RTA covers the whole spectrum. Figure B.5 shows that a large number of RTAs cover less than one fifth of the areas covered by the TFA while only very few come close to covering the full spectrum. At the same time, however, RTAs often extend to trade facilitation areas not covered by the TFA. The RTAs with the highest coverage are typically recent agreements involving

both developed and developing countries, such as those between the EU, Colombia and Peru, the EU and the Republic of Korea, Switzerland and China, and the EU and Georgia.

As shown in Table B.2, the four areas most frequently covered in RTAs are:

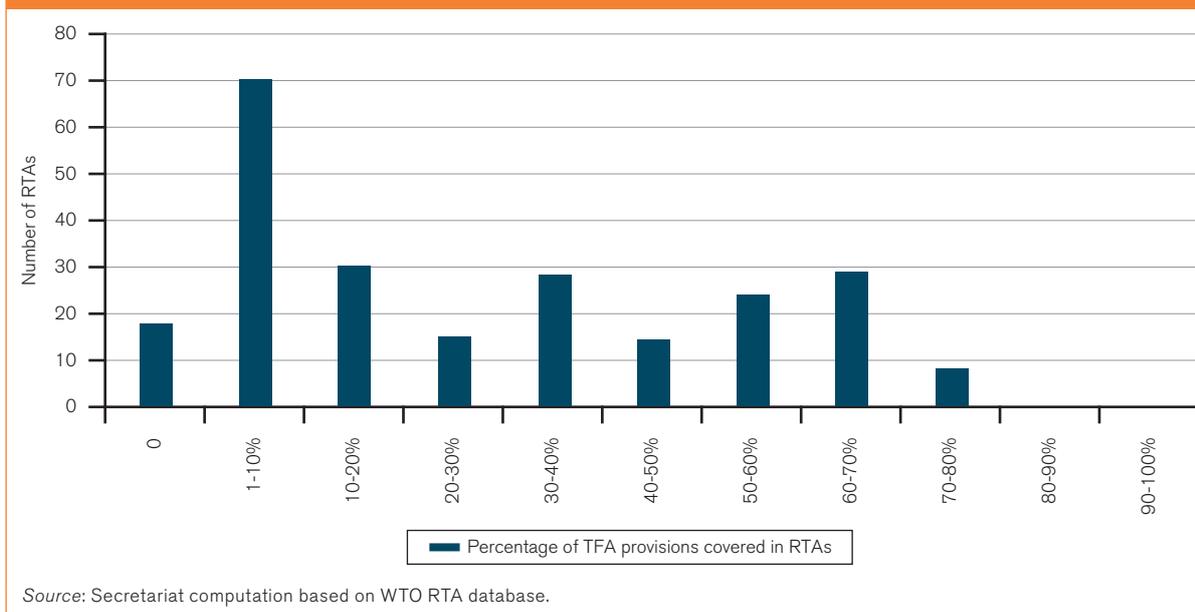
- i) exchange of customs-related information,
- ii) simplification of formalities and procedures,
- iii) cooperation in customs and trade facilitation matters,
- iv) publication and availability of information.

Each of these four areas is covered in more than half of the RTAs under consideration. Exchange of information and customs cooperation are the areas where disparities between RTAs and between RTAs and the WTO TFA with regard to substantive coverage are perhaps most pronounced. Cooperation, for example, reflects different levels of ambitions in different RTAs and its scope can vary significantly between agreements. In at least three of the areas, there is some potential for discriminatory use of the provisions. For instance, a number of RTAs require their signatories to make relevant information available to each other without requiring them to extend it to all their trading partners.

At the other end of the ranking, the four trade facilitation areas among those covered in the Table B.2 list which are the least frequently included in RTAs are:

- i) customs brokers,
- ii) post-clearance audit,

Figure B.5: Histogram of coverage distribution



- iii) single window, and
- iv) pre-shipment inspection.

These areas are covered in less than 10 per cent of the agreements. A few other areas, which are not included in the list used by Neufeld (2014), have never been covered, or have only been covered in very few instances. These include notifications for enhanced controls or inspections, detention, test procedures, perishable goods, domestic transit, acceptance of copies, rejected goods or measures linked to customs unions. Part of the reason why these last measures are generally not covered in RTAs may be that they are not typically considered to be trade facilitation measures. As for pre-shipment inspection, the fact that it is only covered in less than 5 per cent of RTAs is not too surprising given that very few countries still use this instrument.

Another important finding is that very few agreements include S&D provisions and only about one in five agreements include provisions regarding technical assistance and support for capacity building.

Finally, an important related consideration is that RTAs do not have the same enforcement mechanism as the WTO. While most, if not all, RTAs contain provisions that establish procedures for resolving disputes among their signatory members, only very few RTA dispute settlement mechanisms are active (Chase *et al.*, 2013).

According to Neufeld (2014), most RTAs use a broader definition of trade facilitation and thus often extend to trade facilitation areas not covered by the TFA. For

example, consularization – the authentication of a legal document by the consul office – is addressed in one fifth of the RTAs but it is not covered in the WTO TFA. Also, it is not unusual for trade facilitation sections of RTAs to include issues linked to SPS, TBT, rules of origin and sometimes additional domains. Chapter 4 of the RTA between Canada and the Republic of Korea (2015), for example, includes trade facilitation measures within the Rules of Origin provisions. In particular, this agreement refers to confidentiality (Article 4.8), penalties (Article 4.9), advance rulings (Article 4.10), review and appeal (Article 4.11) and cooperation (Article 4.13).

SPS chapters sometimes also contain trade facilitation provisions. For instance, Article 6.5 of the Hong Kong, China-Chile (2014) Agreement refers to transparency and exchange of information, cooperation and contact points in relation to SPS measures.

Similarly, one article of the chapter devoted to TBT in the New Zealand-Chinese Taipei RTA (2013) contains provisions for trade facilitation and cooperation in the form of mechanisms to facilitate the acceptance of conformity assessment results (i.e. technical procedures which confirm that products fulfil regulation requirements) (Article 7.7.1), and to support greater regulatory alignment and eliminate TBT in the region (Article 7.7.2).

The depth and the breadth of trade facilitation provisions also vary significantly from one RTA to another, falling short of the WTO TFA provisions in some cases but imposing stricter disciplines in other cases. There are areas where many RTAs have a broader scope and/or use more specific language than the TFA. Some

agreements, for example, prescribe concrete and sometimes fairly ambitious release times for goods, often setting a maximum deadline of 48 hours, while the TFA does not include similar requirements. Also, RTA provisions on appeal/review rights tend to go further in their specificity and reach than the language of the TFA.

With regard to fees and charges, many RTAs refer to Article VIII of the GATT (on fees and formalities connected with importation and exportation) directly, but some RTAs go beyond GATT Article VIII and the WTO TFA. The EU-Republic of Korea treaty, for example, bans fees and charges from being calculated on an *ad valorem* basis, a provision that is not included in the WTO TFA (Neufeld, 2014). Yet another example of RTAs being more specific than the TFA concerns international standards. RTAs often refer to international standards by the World Customs Organization (WCO) or the United Nations such as the Revised Kyoto Convention, the Arusha Declaration and UN/EDIFACT (United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport), while there are no references to such instruments in the WTO TFA. On the other hand, only few RTAs address the disciplines related to penalties in the WTO TFA (Article 6.3). With regard to the release and clearance of goods, Neufeld (2014) finds that while a few RTAs are more demanding regarding certain requirements, none of them matches the WTO's TFA in terms of comprehensiveness and elaboration of the individual components involved. Finally, technical assistance and support for capacity-building provisions in RTAs tend to be underdeveloped and limited in reach. None of them come close to the language in the WTO TFA. Similarly, S&D treatment provisions are typically weak in RTAs.

While several disciplines of the trade facilitation agenda are non-discriminatory by nature or by necessity, others could potentially have a discriminatory effect. Requirements to publish on the Internet and most other publication requirements cannot be implemented in a discriminatory manner. Similarly, the switch from manual to automated clearance has an *erga omnes* character. Other measures, such as the single window, could in principle be used in a discriminatory manner. In practice, however, it would make little economic sense to limit its access to selected trading partners and to maintain a less efficient, costly, parallel system. The same would apply to the use of international standards, to the simplification of export- and import-related formalities, to the use of electronic submissions or to measures aimed at improving coordination between border agencies.

In contrast, entitlement to advance rulings or appeal rights, or expedited treatment for express consignments and authorized operators may only be granted to RTA signatories. Similarly, different fees and charges can

be applied to members and to non-members of RTAs. Also, exchanges of information and cooperation can be restricted to RTA signatories. Neufeld (2014) identifies a number of instances where RTAs afford preferential treatment to their signatories. For example, as already mentioned, a number of RTAs require their signatories to make relevant information available to each other without extending it to all their trading partners. Some RTAs stipulate consultation requirements, but only with contracting parties, not with a more general audience, and enquiry points are sometimes made available only to contracting parties.<sup>7</sup> Note, however, that even in those instances where there is room for *de jure* discrimination, trade facilitation provisions may be *de facto* non-discriminatory. This means that in the absence of further evidence regarding discriminatory use of RTA trade facilitation provisions and its effects, it is difficult to assess the magnitude of the distortion.

An important dimension in the comparison between regional and multilateral trade facilitation that requires closer attention is their implementation. As discussed in other parts of this report, the TFA puts considerable emphasis on its implementation. Its Section II foresees that the extent and the timing of the implementation of the agreement by developing countries and LDCs shall be related to their implementation capacities. It also stipulates that donor countries should provide assistance and support for capacity building to help them implement the agreement. RTAs, by contrast, rarely include provisions regarding implementation, S&D treatment or technical assistance.

One conclusion that could be drawn from this difference is that RTAs are more directly and immediately applicable than the TFA. On the other hand, however, many RTAs do not seem to have a binding dispute settlement system and may, therefore, lack an effective enforcement mechanism. The question, then, is whether and to what extent the trade facilitation provisions in RTAs are implemented. The very limited anecdotal evidence that is available suggests that trade facilitation measures may only be partially implemented in developing countries.<sup>8</sup>

The analysis of the trade facilitation content of RTAs has shown that the TFA, at the end of its implementation phase, will extend the coverage of basic trade facilitation disciplines to many countries, and within countries to many areas which are not yet covered under RTAs. In countries and areas already covered by RTAs, the TFA will not just substitute the disciplines previously imposed by RTAs with its own trade facilitation disciplines. It may provide for the implementation of measures that had never been implemented. It will reduce inefficiencies by providing common standards for the trade facilitation measures

and by reducing overlapping in cases where countries are part of several RTAs.<sup>9</sup> It will reduce discrimination where it exists. At the same time, however, RTA trade facilitation disciplines which reach beyond the coverage of the TFA and/or are more specific will continue to usefully complement the TFA.

### 3. Trade facilitation in other international organizations

Several international organizations are active in the trade facilitation area. This subsection discusses their activities and shows how they complement the role of the WTO. These organizations are not the only institutions active in this area. For example, while their role is not discussed in detail in this subsection, regional development banks such as the Inter-American Development Bank (IDB), the African Development Bank (AfDB), the Asian Development Bank – Central Asia Regional Economic Cooperation (ADB/CAREC) play an important role in the implementation of trade facilitation measures. A large part of the implementation cost data used in Section E is from projects they finance.

#### (a) World Customs Organization (WCO)

The mission of the WCO consists of providing leadership, guidance and support to customs administrations to secure and facilitate legitimate trade, realize revenues, protect society and build capacity. The WCO has developed a number of instruments related to trade facilitation. The main ones are the original and the revised Kyoto Conventions, the ATA<sup>10</sup> System (ATA and Istanbul Conventions), and the Customs Convention on Containers. The “International Convention on the Simplification and Harmonization of Customs Procedures”, known as the Kyoto Convention, entered into force in 1974 and was revised and updated in 2006; the Revised Kyoto Convention sets forth the following key principles:

- i) transparency and predictability of customs actions,
- ii) standardization and simplification of the goods declaration and supporting documents,
- iii) simplified procedures for authorized persons,
- iv) maximum use of information technology,
- v) minimum necessary customs control to ensure compliance with regulations,
- vi) use of risk management and audit-based controls,
- vii) coordinated interventions with other border agencies, and
- viii) partnership with the trade.<sup>11</sup>

The ATA System aims to facilitate the procedure for the temporary duty-free importation of goods and the adoption of a standardized model for temporary admission papers (a single document known as the ATA carnet that is secured by an international guarantee system). The Customs Convention on Containers (1972) provides for the temporary importation of containers, free of import duties and taxes, subject to re-exportation within three months and without the production of customs documents or security.

Other instruments developed by the WCO include: the Time Release Study, which measures and reports the time taken by customs to release imported cargo – the only instrument mentioned in the TFA (see below); the WCO Data Model, which compiles datasets for different customs procedures; the Risk Management Compendium, which provides customs with a structured and systematic way to manage risks; or the WCO SAFE Package, which is a framework of standards to secure and facilitate global trade.

Besides developing trade facilitation tools and procedures, the WCO is also an important actor in capacity building. It aims to promote the effective implementation of all trade facilitation-related convention and to equip senior customs officials with the detailed information necessary to more fully engage and lead discussions/negotiations with donor agencies and other government officials. The WCO is also present in the field to help with the implementation of their programme. One example of these activities is the Time Release Study in the East African Communities. In the context of this programme, the movement of cargos through an international corridor going from the Mombasa seaport in Kenya to an inland customs office in Kampala, Uganda, was tested. Multiple bottlenecks were found and recommendations to improve these aspects were provided. The WCO also plays a role in coordinating capacity-building efforts with tools such as the WCO Project Map, which provides information on existing support to donors to avoid redundancy in the provision of aid.

The WCO and the WTO strongly complement each other in the trade facilitation area. The two organizations were already cooperating prior to the TFA. The WCO manages the technical committees of two important WTO agreements: the Agreement on Implementation of Article VII (Customs Valuation), and the Agreement on Rules of Origin. The WCO was included in the preliminary talks and the negotiation rounds that led to the completion of the TFA. Its vast technical expertise makes it an ideal partner for ongoing WTO initiatives in trade facilitation. The WCO provides information and support for the capacity building of developing and least-developed country members. In 2013, the WCO

Policy Commission adopted the Dublin Resolution in which it says it will commit

*“to the efficient implementation of the Trade Facilitation Agreement [...] will assist its Members to identify their needs, including availing of donor funding, in order to enhance capacity building to implement the Trade Facilitation Agreement; will, together with other international organizations and the business community, further enhance the provision of technical assistance/capacity building [...]”*.<sup>12</sup>

In June 2014 the Mercator Programme, which aims to support its members in implementing the TFA by using core WCO tools and instruments (e.g. the Revised Kyoto Convention) and providing tailor-made technical assistance, was adopted. At the same time, the WCO benefits from the momentum brought by the TFA to customs reforms, from its effect on compliance, and from the new impetus it gives to capacity-building and cooperation between border agencies.

#### (b) World Bank

The World Bank is also active in the trade facilitation area. In fiscal year 2013, for example, the World Bank spent approximately US\$ 5.8 billion on trade facilitation projects, including customs and border management and streamlining documentary requirements, as well as trade infrastructure investment, port efficiency, transport security, logistics and transport services, regional trade facilitation and trade corridors or transit and multimodal transport.<sup>13</sup> The Bank is also involved in analytical work such as the Trade and Transport Facilitation Assessment which “is a practical tool to identify the obstacles to the fluidity of trade supply chains”.<sup>14</sup>

The World Bank is more than just a lending institution. It is also a crucial actor in the capacity-building process where it provides expertise. The Trade Facilitation Support Program of June 2014, for example, which will supply useful loans to support developing countries with the implementation of trade facilitation measures, aims both to help developing countries reform trade facilitation laws, procedures, processes and systems in a manner consistent with the WTO TFA, and to help develop knowledge, learning and measurement tools.<sup>15</sup> Along the same lines, the WTO and the World Bank announced in October 2014 that they would enhance their cooperation in assisting developing countries and LDCs to better utilize trade facilitation programmes.<sup>16</sup>

Finally, the World Bank is a very important provider of data on trade facilitation. Three of its databases are widely used by researchers, namely: Enterprise Surveys, Doing Business and the Logistics Performance Index.

This wealth of information has enabled more precise estimation of the costs and benefits of trade facilitation.

#### (c) United Nations Regional Commissions

Among the five regional commissions, the United Nations Economic Commission for Europe (UNECE) and the United Nations Economic and Social Commission for Africa and the Pacific (UNESCAP) are the most active on the trade facilitation field.

The UNECE was set up in 1947 to foster development and economic growth in the European region. It provides a forum for discussion and a platform for the negotiation of international legal instruments in many areas including trade. Many of the international norms, standards, and recommendations which UNECE developed in the trade area over more than 60 years of work are recognized as having global relevance and application. The UNECE undertakes work in a number of trade areas including trade facilitation, regulatory cooperation, electronic business standards, supply capacity, transport and transport infrastructure. Its Working Party No. 4 was formed in 1960 to work on the facilitation of trade procedures with a global remit. In 1996, it was replaced by the UN Center for Trade Facilitation and Electronic Business (UN/CEFACT).

The UNECE, through the UN/CEFACT, looks after 35 international recommendations to date such as, for instance, its recommendation concerning the establishment of a legal framework for an international trade single window. UN/CEFACT also oversees various document and electronic messaging standards, including, in particular, the Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT). In the realm of trade facilitation, the UN/EDIFACT is a well-known instrument which comprises a set of internationally agreed standards, directories, and guidelines for the electronic interchange of structured data, between independent computerized information systems.<sup>17</sup> Together with the International Road and Transport Union (IRU), the UNECE also runs the TIR (“*Transports Internationaux Routiers*”) Convention of 1975 (TIR 2005) which provides a simplified customs transit regime to signatory countries.<sup>18</sup>

UNECE also provides technical assistance. However, while participation in the development of its norms and standards, as well as their use, is global, its technical assistance is mainly directed to the low- and middle-income countries in Southeast and Eastern Europe, the Caucasus, and Central Asia. At the same time, UNECE supports other countries outside the region and other international organizations that use its standards, through guidelines, tools and advice. UNECE has designed a trade facilitation implementation guide in

which all sections of the WTO TFA are referenced and mapped to deliverables of UN/CEFACT as well as of other organizations.<sup>19</sup>

UNESCAP provides technical assistance and capacity building on trade facilitation to countries, particularly LDCs and landlocked developing countries. The United Nations Network of Experts for Paperless Trade in Asia and the Pacific (UNNExT) is the main platform through which UNESCAP delivers its activities.<sup>20</sup> Additionally, UNESCAP promotes research on trade facilitation through its Asia-Pacific Research and Training Network on Trade (ArtNet) and provides an open regional platform for dialogue on trade facilitation among regional stakeholders by hosting an annual Asia Pacific Trade Facilitation Forum (APTFF), in partnership with the Asian Development Bank (ADB).<sup>21</sup>

### (d) UNCTAD

UNCTAD's mandate in the area of trade facilitation dates back to the Final Act of its first ministerial-level Conference in 1964. Ever since, it has been an active proponent of trade facilitation and its work in this area has led to the Columbus Ministerial Declaration on Trade Efficiency, which was instrumental for the inclusion of trade facilitation in the agenda of the first WTO Ministerial Conference in Singapore in 1996.<sup>22</sup> UNCTAD assists developing countries in identifying their particular trade and transport facilitation needs and priorities, and helps them programme the implementation of specific trade and transport facilitation measures. UNCTAD also provides technical assistance and disseminates relevant information and training material.<sup>23</sup>

First, it has developed a computerized customs management system that has been adopted by over 90 countries called the Automated SYstem for CUstoms DATA (ASYCUDA). ASYCUDA aims at speeding up customs clearance through the introduction of computerization and simplification of procedures, thereby minimizing administrative costs to the business community and the economies of countries. The system handles manifests and customs declarations, accounting procedures, transit and suspense procedures.<sup>24</sup>

Second, and in application of Article 1 of the TFA, UNCTAD provides an electronic portal, called eRegulations, where national customs officials can publish and maintain trade procedures, forms, documents and contact data. This helps governments make rules and procedures fully transparent. Another instrument, eRegistrations, acts as a single electronic window. In the context of article 10.4, it allows traders to consult online, through a single interface, all data

and documents required by the various bodies involved in foreign trade operations. All of these tools are part of what UNCTAD calls "[its] Technical Assistance Package [on Trade Facilitation] for WTO Members".<sup>25</sup>

### (e) International Trade Centre

The International Trade Centre (ITC) is a joint agency of the World Trade Organization and the United Nations mandated to work with businesses and in particular with small and medium-sized enterprises (SMEs). It works with developing countries and LDCs to help them take full advantage of the recent WTO Trade Facilitation Agreement to improve their private sector competitiveness.<sup>26</sup> More specifically, ITC assists countries to comply with TFA short-term requirements (e.g. categorization and notification of TFA obligations, ratification, preparation of project plans to raise technical and financial assistance); to increase SME involvement in public-private dialogue (PPD) and improve inter-agency coordination (e.g. establishment of National Trade Facilitation Committees); to implement selected TFA provisions (e.g. development of national Trade Facilitation Portals, establishment of enquiry points, establishment of "single window" systems, and the setup of frameworks for risk management); and to build private sector capacity to benefit from new rules (e.g. strengthening SMEs' capacity to meet border regulatory agencies requirements).

In addition, ITC is currently working with the West African Economic and Monetary Union (WAEMU), the Economic Community of West African States (ECOWAS), the *Communauté économique et monétaire de l'Afrique centrale* (CEMAC), the Organization of Eastern Caribbean States (OECS) and the Micronesian Trade and Economic Community (MTEC) to develop regional approaches to TFA implementation so as to maximize the TFA's contribution to regional economic integration.

### (f) OECD

The OECD's trade department contributes to quantitative economic research on the costs and benefits of trade facilitation with the help of its Trade Facilitation Indicators (TFIs).<sup>27</sup> These indicators, which follow the structure of the WTO's TFA, will help identify areas which should receive trade facilitation measures as a priority and mobilize technical assistance by donors in a targeted way. The TFIs also allow monitoring and benchmarking country performance, strengths, weaknesses and evolution.<sup>28</sup> In addition, donor support for trade facilitation programmes is recorded in the OECD Creditor Reporting System (CRS).

All of the organizations mentioned so far are coordinating their efforts.<sup>29</sup> They are working together to ensure that technical assistance and capacity building support is targeted where it is most needed, is better coordinated, and that its delivery is effectively monitored.<sup>30</sup> Beyond those mentioned so far, a number of sectoral international organizations are also important actors in the trade facilitation area. The International Air Cargo Association (TIACA), the International Road Transport Union (IRU), the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO) each seek to improve the efficiency of their respective transportation system. Finally, the International Chamber of Commerce, through its Commission on Customs and Trade Facilitation supports the implementation of the TFA by encouraging increased cooperation between customs and business at the country level.

## 4. Conclusions

This section has provided an overview of the state of trade facilitation reforms in the WTO and in other contexts. It demonstrates that the WTO Trade Facilitation Agreement exists within a wider universe of trade facilitation reforms, but that certain features of the TFA set it apart from RTAs. As a multilateral agreement, the TFA makes it impossible to use trade facilitation in a discriminatory manner. Furthermore, the TFA allows for special and differential treatment of developing countries, allowing them to implement certain provisions of the Agreement only after the capacity to do so has been built, something not seen in other trade facilitation agreement. The benefits of multilateralism and the flexibility of implementation of the TFA are themes to which we will return in subsequent sections.

## Endnotes

- 1 See WTO document WT/L/579 "Doha Work Programme – Decision Adopted by the General Council on 1 August 2004", Annex D.
- 2 Article 18 (Implementation of Category B and Category C) specifies that: "[...] if a developing country Member or a least-developed country Member [...] self-assesses that its capacity to implement a provision under Category C continues to be lacking, that Member shall notify the Committee of its inability to implement the relevant provision. [...] The Member shall not be subject to proceedings under the Dispute Settlement Understanding on this issue from the time the developing country Member notifies the Committee of its inability to implement the relevant provision until the first meeting of the Committee after it receives the recommendation of the Expert Group."
- 3 See footnote 16 to the TFA.
- 4 Ministerial Decision of 7 December 2013, paragraph 2.
- 5 Consularization was taken off the list used by Neufeld (2014).
- 6 Two agreements entered into force before 1970 and one agreement was notified but did not enter into force.
- 7 See Neufeld (2014) footnotes 64 and 65, p.20.
- 8 See for example UNCTAD (2014b) and UNESCAP (2014). Note that these studies do not specifically analyse the implementation of trade facilitation provisions in RTAs but rather assess the level of implementation of the measures included in the TFA.
- 9 UNCTAD (2011) emphasizes this effect.
- 10 The term "ATA" is a combination of the initial letters of the French words "Admission temporaire" and the English words "Temporary Admission" (see [http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf\\_ata\\_system\\_conven.aspx](http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf_ata_system_conven.aspx)).
- 11 See [http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf\\_revised\\_kyoto\\_conv.aspx](http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf_revised_kyoto_conv.aspx)
- 12 See [http://www.wcoomd.org/en/topics/wco-implementing-the-wto-atf/~/\\_media/44542CEBFB76401CB5E3F5794C2F134F.ashx](http://www.wcoomd.org/en/topics/wco-implementing-the-wto-atf/~/_media/44542CEBFB76401CB5E3F5794C2F134F.ashx)
- 13 See <http://www.worldbank.org/en/topic/trade/brief/trade-facilitation-and-logistics>
- 14 World Bank (2010).
- 15 See [www.tradefacilitationsupportprogram.org/](http://www.tradefacilitationsupportprogram.org/)
- 16 See [https://www.wto.org/english/news\\_e/pres14\\_e/pr725\\_e.htm](https://www.wto.org/english/news_e/pres14_e/pr725_e.htm)
- 17 See <http://www.unece.org/trade/untdid/welcome.html>.
- 18 See [https://www.iru.org/en\\_news\\_item?story=3337](https://www.iru.org/en_news_item?story=3337) and linked pages.
- 19 See <http://tfig.unece.org/index.html>
- 20 See <http://www.unescap.org/our-work/trade-investment/trade-facilitation/about> and <http://unnex.unescap.org/>
- 21 See <http://tfig.unece.org/contents/org-unescap.htm>
- 22 See [http://unctad.org/en/PublicationsLibrary/domtcs2014d1\\_en.pdf](http://unctad.org/en/PublicationsLibrary/domtcs2014d1_en.pdf)
- 23 See <http://unctad.org/en/Pages/DTL/TTL/Trade-Facilitation.aspx>
- 24 See <http://www.asycuda.org/>
- 25 See [http://unctad.org/en/PublicationsLibrary/domtcs2014d1\\_en.pdf](http://unctad.org/en/PublicationsLibrary/domtcs2014d1_en.pdf)
- 26 See <http://www.intracen.org/itc/trade-facilitation-programme/>
- 27 See <http://www.oecd.org/tad/facilitation/>
- 28 Two interactive web tools allow country comparisons: <http://www.compareyourcountry.org/trade-facilitation> and policy simulations <http://oe.cd/tfi>.
- 29 These organizations are part of a group called the Annex D+ partners. In July 2014, during the launch of the Trade Facilitation Agreement Facility, they issued a joint statement to reaffirm their commitment and coordinated approach to providing technical assistance, capacity building and other forms of assistance to developing, transition and least-developed countries in their efforts to implement the provisions of the WTO Trade Facilitation Agreement.
- 30 See <http://www.gfptt.org/tfa-coordination/>

# C. The theory and measurement of trade facilitation

This section first provides a conceptual framework for understanding the economic effects of trade facilitation – how improving trade procedures reduces trade costs, and how that in turn affects the pattern and volume of trade, the allocation of resources, and economic welfare. Given that trade facilitation can, in principle, be implemented unilaterally, this section examines the reasons why countries would want to include trade facilitation in a multilateral trade agreement. Finally, it examines the indicators – from narrower customs-related ones to broader regulatory and infrastructural areas – that have been developed to measure trade facilitation, and identifies what indicators can best be employed to estimate the economic benefits of implementing the WTO's Trade Facilitation Agreement.

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### Some key facts and findings

- Existing models of international trade, including recent ones that take into account the ways in which trade costs are compounded and magnified along supply chains, can be used to better understand the trade and economic effects of the Trade Facilitation Agreement (TFA). For example, the “iceberg” model of trade cost draws an analogy between the way trade costs reduce the value of goods to both exporters and importers and the way an iceberg melts as it moves through the ocean.
- If a country improves its trade procedures so that trade costs are reduced, importers benefit from a lower price, while exporters receive a higher price for the traded good. Thus, trade facilitation benefits both exporting and importing countries.
- Incorporating trade facilitation in a multilateral agreement creates additional benefits compared to what can be achieved unilaterally. It provides greater legal certainty, helps reforming governments marshal support from domestic constituents, assists with the adoption of similar trade procedures and coordinates the provision of donor support for capacity-constrained developing countries.
- A wide range of trade facilitation indicators has been developed by international organizations and within academic literature. Among these, the Organisation for Economic Co-operation and Development’s (OECD) Trade Facilitation Indicators (TFIs) are well suited to analysing the trade and economic effects of implementing the TFA, as these indicators are mapped to the provisions of the Agreement.

## 1. Trade facilitation in models of international trade

Trade facilitation aims to reduce trade costs, which in their broadest definition include all costs, apart from the cost of production, incurred in getting a good from a producer to a final consumer (Anderson and van Wincoop, 2004). Among other constituents, they include the costs of transportation, tariffs, non-tariff measures and inefficient trade procedures. This section begins with a graphical analysis of the impact of trade facilitation using a partial equilibrium supply-and-demand model. However, because the effects of trade facilitation on a particular market may spill over to other markets, the analysis is extended to a general equilibrium setting using standard models of international trade, from the classical models to the most recent models of global value chains.

The early or classical trade models explain why trade emerges between dissimilar countries (inter-industry trade) based on differences in productivity (Ricardo, 1817) or endowment in factors of production (Heckscher, 1949; Ohlin, 1934). While these early trade models do not bring trade costs explicitly into the analysis, later trade models do. The new trade theory (Krugman, 1979; 1980) explains why trade between similar countries (intra-industry trade) takes place

because of demand for variety and increasing returns to scale in production. Finally, a branch of more recent models incorporates differences in the productivity of firms which result in only some of them being able to overcome the fixed trade cost of entering export markets (Melitz, 2003). A second branch focuses on fragmented production and value chains and tells us that trade costs are particularly pernicious because they are cumulated and magnified along the supply chain (Yi, 2010).

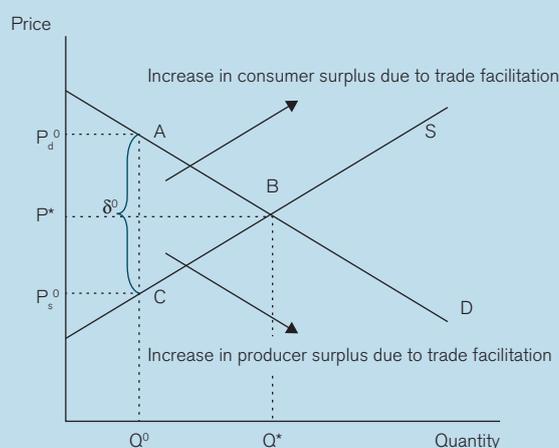
### (a) A simple “iceberg” partial equilibrium model

The “iceberg” model by Samuelson (Samuelson, 1954) is a useful device for analysing the effect of trade costs, although it was originally designed to model transportation costs (see Box C.1). Inefficient trade procedures increase the cost of trade and drive a wedge between the price received by the producer of the good and the price paid by the consumer. This represents a pure loss (“deadweight loss”) akin to the part of the iceberg’s mass that is melted away as it moves through the ocean. In the iceberg model, trade costs are proportional to the value of goods shipped, but the main results will continue to hold even in cases where trade costs are additive instead.<sup>1</sup>

#### Box C.1: The “iceberg” model

Figure C.1 gives a graphical illustration of the iceberg model for an imported good. For simplicity, it is assumed that the good is not produced domestically. Domestic demand is given by the line D while foreign supply is given by the line S. In the initial market equilibrium, trade costs are high, denoted by  $\delta^0$ . Domestic consumers pay a price of  $P_d^0$  and foreign producers receive  $P_s^0$ , which is lower by the trade cost  $\delta^0$  while the total quantity imported is equal to  $Q^0$ .

Figure C.1: Iceberg partial equilibrium model



**Box C.1: The “iceberg” model (continued)**

Assume that the country improves its trade procedures so that trade cost is reduced to zero. The quantity of goods imported in equilibrium rises to  $Q^*$ , domestic prices fall to  $P^*$  and foreign prices rise to  $P^*$  as well. The price wedge caused by trade costs disappears. Both domestic consumer and foreign producer welfare increase by the amounts indicated by the trapezoidal areas  $P_d^0ABP^*$  and  $P_s^0CBP^*$  respectively. Observe that trade facilitation improves the terms of trade of both countries because it simultaneously reduces the price paid by domestic consumers for imports and increases the price received by foreign exporters. This terms-of-trade improvement in both countries (a “win-win” outcome) as a result of trade facilitation is taken up again in subsection C.3, which deals with the economic rationale for a multilateral agreement on trade facilitation. The gains from trade facilitation will be smaller than those shown in Figure C.1 if inefficient trade procedures create rents captured by some economic agents rather than pure deadweight losses (Dee, 2006). The analysis has also not taken the cost of implementing trade facilitation reform into account, which would reduce the gains shown in Figure C.1.

(b) Classical general equilibrium models of trade

The analysis has focused on a single market so far, and is therefore only partial in nature. It will be useful to know whether these results are modified or additional insights are obtained when the analysis is extended to a general equilibrium setting.

In classical models, gains from trade result because countries are assumed to possess either different relative productivities (Ricardo, 1817) or endowments of factors of production such as labour, capital and

land (Heckscher, 1949; Ohlin, 1934). In these models, countries specialize in goods in which they have a comparative technological advantage relative to other countries or in goods that use their abundant factors of production more intensively. They then import the other goods from their trade partners. These models provide a rationale for inter-industry trade (e.g. a country exporting automobiles and importing wheat) but not intra-industry trade (e.g. a country exporting sports cars and importing sports utility vehicles). Box C.2 provides a more detailed discussion on the effects of trade cost in classical models of trade.

**Box C.2: The effects of trade costs in classical trade models**

Classical trade theories explain trade in homogeneous goods under constant returns to scale and perfect competition. Factors of production are assumed mobile across sectors within one country, but immobile across countries. The basic versions of these models assume that two different final goods are produced.

*The Ricardian model*

The assumption motivating trade in the Ricardian model is that countries have different relative labour productivities. This implies that under autarky, i.e. when countries do not trade at all with one another, the relative price of one good expressed in terms of the other good differs between the countries.

In a hypothetical world without trade costs, this difference in relative prices opens up opportunities for welfare-enhancing international trade at a world price lying between the two autarky prices, which is determined by countries' consumption preferences and relative sizes (Markusen *et al.*, 1995). At least one country specializes completely in the production of the good in which it has a comparative advantage.

Inefficient trade procedures result in trade costs that drive a wedge between the relative prices faced by the two countries. They now face international prices closer to their respective autarky price. They may continue to remain specialized but there will be less consumption and trade and hence lower economic welfare. If trade costs become high enough, the international price faced by one country can become less favourable than its autarky price and trade ceases altogether, returning both countries to their autarky equilibria. Relative country sizes play a role in how likely this may happen. If one country is much larger, then the frictionless international price is already close to its autarky price and trade ceases for smaller transaction costs.

**Box C.2: The effects of trade costs in classical trade models (continued)***The Heckscher-Ohlin model*

In contrast to Ricardo, the Heckscher-Ohlin model assumes the same productivity in both countries. There are two factors of production, capital and labour, and endowments of these factors of production vary across countries, making one country labour-abundant and the other country capital-abundant. There are two sectors producing two different goods; one sector, for instance automobiles, uses capital more intensively and the other sector, for example textiles, uses labour more intensively.

In autarky, relative prices in the two countries will differ because of differences in their factor endowments. The price of textiles relative to automobiles is lower in the labour-abundant country and higher in the capital-abundant country. If trade is opened up and in the absence of trade costs, both countries produce more of and export the commodity that uses their abundant factor intensively: i.e. the labour-abundant country exports textiles and the capital-abundant country exports automobiles. But, unlike in the Ricardian model, complete specialization is unlikely. They will trade at a world price lying between the two autarky prices, which means the world price of textiles relative to automobiles is higher than the autarky price in the labour-abundant country and lower than the autarky price in the capital-abundant country. Another important outcome of free trade is a convergence of factor prices in the two countries (factor price equalization).

Trade costs drive a wedge between the relative prices faced by the two countries, creating a situation where they both face international prices closer to their autarky price. Countries will be less specialized, and both trade and consumption will be lower compared to a frictionless world. Again, economic welfare suffers as a consequence. Furthermore, this wedge in the relative prices faced by the two countries also means a divergence in factor prices.

Irrespective of their differences, trade costs work through the same mechanism in these classical trade models. Inefficient trade procedures drive a wedge between the relative prices faced by the two trading countries. These relative prices move closer to the initial autarky price, reducing the scope for specialization and trade. As a result, consumption possibilities are lower, and so is economic welfare.

One interesting result from the Heckscher-Ohlin model concerns how trade facilitation improves the real income of the abundant factor of production. By reducing trade costs, it leads to greater specialization in the sector that uses the abundant factor more intensively. This increases the demand for the abundant factor and increases the real return to the factor. If one of the countries involved is a labour-abundant developing country, trade facilitation can make workers better off.

**(c) The “New Trade Theory” – monopolistic competition**

In contrast to the classical theories, the “New Trade Theory” (Krugman, 1979; 1980) explains why countries engage in intra-industry trade. This is a valuable result because the great bulk of global trade is intra-industry rather than inter-industry in nature. The ability of the theory to explain this feature of global trade is made

possible by a number of assumptions: consumers prefer variety in consumption, the market is populated by firms selling different varieties of a good and there are increasing (internal) returns to scale in production, meaning that a firm's average cost of production falls as its volume of production increases.

The theory predicts that trade costs can have a disproportionately adverse impact on small developing economies. Typically, small developing economies have large agricultural or natural resource sectors typified by constant returns to scale, and only a small manufacturing sector. In contrast, big developed economies have a large manufacturing sector operating under increasing returns to scale. In this setting, trade costs lead both to less trade and to a disproportionate relocation of manufacturing to the big developed countries (the “home market effect”). Meanwhile, small developing countries become concentrated in the agricultural or natural resource sector.

The key to explaining this result lies in the tension created between the consumer's love of variety and increasing returns to scale. With open trade and zero trade costs, consumers in the big developed country will purchase both foreign and domestic manufactured goods because of their preference for variety. All things being equal, love of variety leads to more trade. On the other hand, increasing returns to

scale gives a cost advantage to manufacturing firms in the developed country because of the size of the market and the larger scale of production that could be achieved by firms there. All things being the same, consumers in the developed country will prefer to purchase lower-cost domestic varieties than higher-cost foreign varieties.

Inefficient trade procedures that lead to higher trade costs upset this balance by making purchases (imports) of foreign varieties more costly. As a consequence, consumers in the developed country substitute away from foreign varieties towards domestic varieties. This shift in demand towards domestic manufactured goods gives greater scope for what are already powerful scale forces to operate. The manufacturing sector in the big developed country expands even more while it shrinks in the small developing country. This analysis suggests that small developing countries that want to diversify their economies have a strong interest in lowering trade costs, as this reduces incentives for manufacturing to concentrate in the biggest markets.

### (d) The “New New Trade Theory” – heterogeneous firms

In the classical theories of trade, it is countries that are the objects of interest and analysis. In the last decade, new models of trade have emerged that have shifted this focus to firms – the so-called “heterogeneous firms” literature (Melitz, 2003). These models are motivated by empirical studies that reveal the striking diversity of firms in terms of size, productivity and participation in international trade (Bernard *et al.*, 2007a; 2007b).

The studies find that only a small number of firms export, and that the vast majority are only able to sell in the domestic market. The reason for this disparity is that firms differ in productivity: those with low productivity do not survive competition, more productive firms can compete but only in the domestic market, while only the most productive firms are able to enter and compete in the export market. There are two productivity thresholds: the minimum level needed for a firm to survive, and the level at which a firm starts exporting part of its production.

The main result of the heterogeneous firms literature is that any reduction in trade costs brings the two thresholds closer to each other, increasing the range of firms that are driven out by competition and the range of firms that enter the export market. This is beneficial to the economy, as resources (capital and labour) are released from the least productive firms and reallocated to the most productive firms.

While it might be obvious that a reduction in trade costs will increase a country’s exports, this literature shows the need to distinguish between the two ways in which trade costs can be reduced and the different ways exports can increase as a consequence (Chaney, 2006). Trade costs can be categorized as either variable or fixed. Variable trade costs are costs that have to be paid on every unit of export. Tariffs are a prominent example of variable trade costs, as an importer needs to pay duty on every unit he imports. Fixed trade costs are costs that have to be incurred independently of the volume of exports. A firm deciding on whether to enter a particular market might have to incur a cost to learn about the trade procedures in that country. These are costs incurred even before it ships a single product to the foreign market.

An increase in exports can take place along two dimensions or margins: the intensive and extensive margins. The intensive margin refers to existing exporters increasing the volume of their exports, while the extensive margin refers to an increase in exports achieved by new firms entering the export market.

A reduction in variable trade costs affects both the extensive and intensive margins of trade. It enables existing exporters to capture a larger share of the export market and firms with a lower level of productivity than incumbent exporters to enter the export market. A reduction in fixed trade costs only affects the extensive margin of trade. Trade facilitation will reduce both fixed and variable trade costs, making it possible for incumbent exporters to capture a larger share of the international market, and for firms that have never exported before to begin to do so.

If trade facilitation reduces both fixed and variable trade costs, this analysis implies that one should see trade expansion along both margins. Those enterprises that are currently engaged in international trade as exporters will most likely expand the volume of their exports. In addition, firms that were shut out of foreign markets will now find it possible to enter these markets and begin exporting. These new firms may be smaller and less productive than current incumbents but the reduction in trade cost now gives them an opportunity to participate in international trade.

### (e) Supply chain models

Supply chain models of trade emerge at around the same time as the heterogeneous firms literature.<sup>2</sup> While traditional trade theory assumes that each final good is produced entirely within one country, supply chain models recognize that the parts and components that make up complex final goods such as electronic

products or motor vehicles are made in many different countries.

As a result of this way of organizing global production, trade costs become amplified (Yi, 2010). This occurs through “cumulation” and “magnification” effects. Trade costs are cumulated through the different stages of the value chain, as goods cross national borders multiple times while they are in process. They are magnified because the trade costs at any stage must be paid out of the share of value added in the cost of production.

The existence of the cumulation and magnification effects mean that trade costs have a far greater deterrent effect on global value chain-related trade than on trade involving only final goods. The higher the trade costs, the less scope there is for supply chain trade. In the extreme case where trade costs are very high, it is not worthwhile to divide up production between different countries, and only final goods are traded. This means that trade facilitation is crucial to the viability of global value chains, allowing for more specialization in those production stages in which countries have a comparative advantage. Any reduction in trade costs, such as what would be made possible by the TFA, also becomes amplified in the opposite direction. The cumulation and magnification effects explained above take effect, but in a positive way, thereby lowering barriers and allowing more developing countries to become involved in global value chains (GVCs).

More complicated production arrangements in GVCs have been analysed by Baldwin and Venables (2013). They distinguish between “snakes”, i.e. sequential production processes with each operation adding value in a predetermined order, and “spiders”, which combine different intermediate inputs in an assembly stage. Any GVC can be viewed as a combination of spiders and snakes.

Given these differences in structure, the impact of trade facilitation on GVCs and trade will be more complicated and vary depending on the structure of these chains. Firms face a trade-off between setting up manufacturing sites in different countries to reduce production costs and keeping production in one country to limit trade costs. In the case of snake-type GVCs, a fall in trade costs would lead to greater fragmentation and offshoring of production and expansion of trade, although the results are less straightforward in the case of spider-type GVCs.

## 2. The economic rationale for an international trade facilitation agreement

Given the widespread benefits of trade facilitation, every country should have an incentive to undertake reforms on its own. The questions, therefore, are: why is trade facilitation still on the agenda of many countries; and why have these countries decided to proceed with the reforms by signing the TFA?

Evidence reviewed in this report suggests that trade facilitation can stimulate trade, promote diversification and increase aggregate welfare. It also shows that trade facilitation benefits both the economy that takes facilitating measures and its trading partners. The discussion so far suggests that governments would not need to cooperate to derive the benefits from trade facilitation and that they could benefit from proceeding unilaterally with the reforms. Yet, the signature of the TFA suggests that there are reasons why incorporating trade facilitation in an international agreement creates additional benefits.

Economists have identified several rationales for trade agreements. The first one is that trade agreements may serve as a means to escape from a terms-of-trade-driven prisoners' dilemma.<sup>3</sup> Countries with sufficient market power have an incentive to impose tariffs which raise their terms of trade, i.e. the (untaxed) price of their exports relative to the (untaxed) price of their imports, but lower the terms of trade of their trading partners. In the absence of cooperation, this may give rise to a trade war, that is, a prisoners' dilemma situation where countries set their tariffs too high, and the volume of trade is inefficiently low. A trade agreement, according to the terms of trade theory, allows countries to derive benefits from reciprocally reducing their tariffs, thereby escaping the prisoners' dilemma.

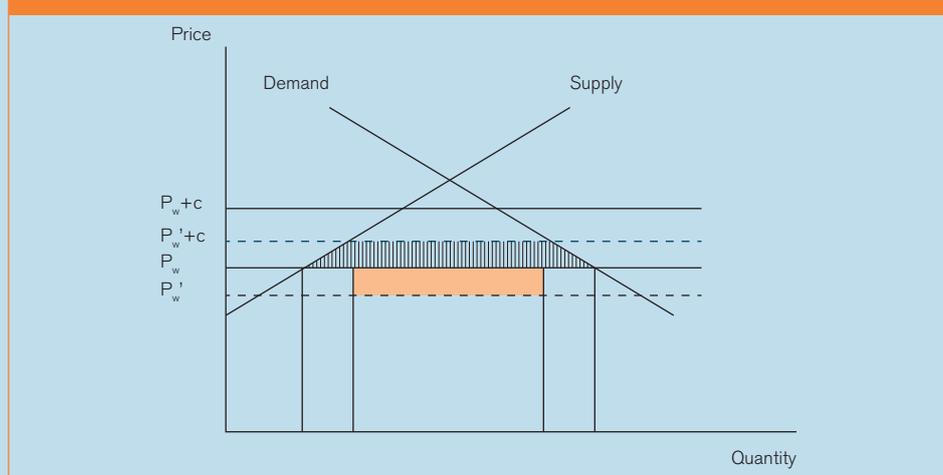
This rationale may also play a role in explaining an agreement on trade facilitation. First, if customs procedures and practices can be manipulated to generate rents and governments can be captured by private interests, countries may end up in a terms-of-trade-driven prisoners' dilemma similar to the one just described. However, more interestingly, even if inefficiencies at the border generate costs rather than rents, a slightly modified version of the terms of trade explanation may shed light on the rationale behind a trade facilitation agreement if the implementation of trade facilitation measures is costly (see Box C.3).

**Box C.3: The effect of inefficient customs procedures on an economy**

Consider first the effect of inefficient customs procedures. As shown in Figure C.2, such procedures raise a large country's trade costs and the price of its imports, lowering its terms of trade while at the same time they cause the partner's terms of trade to deteriorate.<sup>4</sup> Inefficient procedures raise the domestic price in the importing country to  $P_w + c$  and reduce the demand for imports which, if the country is large enough, may push down the world price – i.e. the price received by exporters – from  $P_w$  to  $P_w'$ . While in the case of a tariff, this reduction of the world price generates a terms of trade gain equal to the area of the orange rectangle, it generates a loss equal to the same area in the case of inefficient customs procedures. Overall, for the importing country, the welfare effect of the inefficiency is a large deadweight loss equal to the sum of the areas of the striped trapezoid and the orange rectangle.

Consider now the effect of trade facilitation. Trade facilitation, by eliminating cost-raising inefficiencies, generates a welfare gain for both the importing country and its supplier. At the same time, however, implementing trade facilitation measures is costly. The importing country has an incentive to invest in trade facilitation inasmuch as the gains exceed the implementation cost. However, as explained, eliminating inefficiencies also benefits the exporting country, as this imparts a positive externality on foreign exporters. This externality provides a rationale for international cooperation on trade facilitation. Without a trade facilitation agreement, (i.e., under unilateral decisions about making efficiency-enhancing investments in customs procedures) this positive externality will result in too little investment in improving customs procedures by large importing countries. A prisoners' dilemma type situation may arise where two large importing countries do not invest enough in trade facilitation, thereby imposing costs on each other. A trade facilitation agreement can help countries to internalize these positive (terms of trade) externalities and thereby lead to greater investments in efficient customs procedures.

**Figure C.2: Impact of inefficient custom procedures on welfare**



The second rationale identified by economists is that trade agreements can help governments address a credibility problem. The idea is that governments value trade agreements as a way to tie their hands against, and thus resist pressure from, lobbies.<sup>5</sup> According to Hoekman (2014), this theory does not help much in understanding the rationale behind a trade facilitation agreement because trading partners would not be in a position to enforce an agreement by threatening to withdraw concessions. It would, indeed, be difficult for a government to selectively “unwind” trade facilitation measures to enforce a trade facilitation agreement. If, however, the agreement foresees the possibility of using other enforcement instruments, as is the case

for the WTO TFA, it may allow governments to tie their hands against anti-facilitation lobbies. In other words, commitment may be one of the rationales behind the TFA.

Another possible rationale is proposed by Hoekman (2014), who argues that the TFA reflects international coordination or collective action considerations. As already mentioned, implementing trade facilitation measures unilaterally yields significant economic gains as customs procedures become more transparent, predictable and efficient. However, if countries use different approaches and adopt different standards and procedures, there will be redundancy in documentary

requirement and control procedures at the borders. If procedures differ between countries, exporters and importers need to learn about multiple standards, which can create significant learning costs. The adoption of common procedures can reduce the time and costs required to become familiar with customs procedures in different countries as well as improve the efficiency and timeliness of the movement of goods through customs worldwide. Coordination among WTO members in the context of the TFA and the adoption of common approaches towards customs and related matters could further increase the gains from trade facilitation by harmonizing customs procedures worldwide. This international coordination problem has been conceptualized in a game theory framework by Snidal (1985) (see Box C.4).

A similar line of reasoning can be applied to the coordination problem related to asymmetries in implementation costs and capacity. Indeed, the TFA foresees that richer members will provide assistance and support for capacity-building to developing and least-developed countries to help them implement the agreement.<sup>6</sup> Without the agreement, many countries might not have engaged in trade facilitation because they might have preferred to allocate scarce resources to other priorities, which would have resulted in a suboptimal situation for all members. Coordination benefits may thus explain international cooperation on trade facilitation. However, this explanation may not be sufficient in itself to explain the TFA. This is because if a trade facilitation agreement only serves a coordination purpose, it would not need to be enforced through dispute settlement procedures.

**Box C.4: Coordination problems explained**

Coordination problems are situations in which every individual gains from coordinating their actions with other individuals. We face coordination problems in our everyday life. For example, imagine that Mike and his wife Lucy both want to spend the night out. Mike would like to go to the cinema while Lucy wants to attend a play, but both would rather spend the night together than alone. Their levels of satisfaction, depending on their actions, are shown in Table C.1. In each cell of the table, the first number refers to Lucy's level of satisfaction and the second to Mike's. If they do not coordinate, they will end up with lower levels of satisfaction. For example, if Mike goes to the cinema and Lucy attends the play they will both get 1. This is lower than they would obtain if they went together to either the cinema or the play. If they both go to the cinema Lucy's satisfaction would be 3 and Mike's 4 as he prefers the cinema and vice versa if they both went to the play which is Lucy's preference. Therefore, coordination and negotiation can lead to an outcome in which both Mike and Lucy are better off than if they had not coordinated.

**Table C.1: Coordination problem between Mike and Lucy**

Evening Out		Mike	
		Cinema	Play
Lucy	Cinema	3 ; 4	0 ; 0
	Play	1 ; 1	4 ; 3

Snidal (1985) has conceptualized this coordination game in the context of international regimes. He underlines the difference between a collective action problem and a coordination problem. The terms-of-trade-driven prisoners' dilemma discussed previously in this subsection is a good example of the former. In this case, once a tariff agreement has been implemented, enforcement mechanisms will have to be put in place to prevent countries from raising their tariffs again, as doing so would serve their short-term interests. In contrast, in the case of a coordination problem both countries want to adopt the same behaviour and will have no incentive to deviate once they have selected a given behaviour. In other words, it requires no more than communication and common sense to achieve an outcome that is optimal both individually and collectively.

This coordination problem arises in the context of trade facilitation. Indeed, if Country 1 plans to implement trade facilitation measure X and Country 2 trade facilitation measure Y, they will both experience gains. However, if they manage to coordinate and both implement either X or Y, they will further the harmonization of customs procedures worldwide and increase their gains from trade facilitation. Consequently, the TFA, by providing a forum for negotiation and discussion on the best available approaches and standards, can help countries coordinate and maximize the benefits stemming from trade facilitation. Table C.2 displays such a scenario.

**Box C.4: Coordination problems explained (continued)**

**Table C.2: Coordination problem between Country 1 and Country 2**

Trade Facilitation Measures		Country 1	
		X	Y
Country 2	X	4 ; 4	1 ; 1
	Y	1 ; 1	4 ; 4

The only challenge comes from the fact that country 1 might prefer to standardize customs procedures with method X whereas country 2 might go for method Y. However, this can readily be solved through negotiations as both countries benefit from adopting common standards regardless of the method ultimately chosen.

### 3. Measuring trade facilitation

As discussed in Section A, there are varying definitions of trade facilitation which differ in whether they include soft or hard infrastructure and whether they are confined to border measures or also include behind the border measures. As a result, numerous indicators of trade facilitation exist which reflect this variation in the scope of what is involved in the definition of trade facilitation (see Box C.5 on what makes for a good indicator).

Subsection B.3 described how the activities of a number of international organizations in the trade facilitation area complement the role of the WTO. Subsection C.4(a) will go on to describe the main indicators that have been developed by international organizations to measure trade facilitation, and subsection C.4(b) will identify which indicator best reflects the provisions of the TFA and which has been used as the basis for the estimation and simulations undertaken in the rest of this report.

**Box C.5: What is an indicator and what makes for a good indicator?**

According to Walz (2000) and to Heink and Kowarik (2010), “[a]n indicator is a variable that describes the state of a system”. An indicator allows benchmarks to be established, comparisons to be made across countries, and monitoring of the state of a system by different agents. It can function as an early warning system and alert actors on the need to make improvements to the state of the system (Mainguet and Baye, 2006). A good indicator should be:

- Relevant from a policy point of view;
- Robust, that is, not sensitive to accidental fluctuations and suitable to be used in the long term;
- Connected with priorities and most significant issues;
- Coherent with other indicators on the same topic;
- Feasible, which requires the availability of its data sources;
- Accessible;
- Valid, which means that the indicator should be connected with the research question – this validity is measured by the strength of the association between the indicator and the concept to analyse (Pierce, 2008);
- Reliable, in that the measurement errors are reduced (Kimberlin and Winterstein, 2008);
- Accurately measured, in such a way that the indicator is close to the true value.

Indicators should be periodically updated, in order to incorporate new challenges, adapt to new issues and improvements in the measurement techniques and data availability (Brown, 2009).

(a) Measures of trade facilitation

According to Orliac (2012), there are more than twelve indicators of trade facilitation testifying to the importance of trade facilitation, as well as to its complexity. It will not be possible in this report to review all of these indicators. Instead, the focus will be on those that have been used frequently in the economic literature to determine the economic impact of trade facilitation reform. They include the World Bank Group's "Doing Business" (DB) indicators, particularly those related to trading across borders; the World Bank's Logistics Performance Index (LPI); the Organisation for Economic Co-operation and Development's (OECD) Trade Facilitation Indicators (TFIs); and the World Economic Forum's Enabling Trade Index (ETI).

It may be useful to distinguish between indicators that measure policy inputs and those that track the outcomes of policy. Policy-makers should obviously be interested in both since they are complementary, and should also be interested in understanding the outcomes of trade facilitation, as well as in identifying policies that can achieve the desired outcomes. While this is not a perfect categorization, the DB indicators measure outcomes, the OECD TFIs focus on policy inputs and the LPI and ETI are a mixture of both.

(i) *The World Bank Group's "Doing Business" (DB) indicators*

The "Doing Business" indicators measure the effect of business regulation and the protection of property rights on businesses, especially small and medium-sized domestic firms (World Bank, 2014). They are based on surveys of "local experts", including lawyers, business consultants, accountants, freight forwarders, government officials and other professionals routinely administering or advising on legal and regulatory requirements. The surveys have been conducted annually since 2004 and now cover 189 economies. For most of these, the collected data refer to businesses in the largest business city. The latest DB report contains 11 indicators which measure the complexity of the regulatory process and in particular, through the indicator "trading across borders", the costs related to standardized import and export activities. Table C.3 lists the indicators included in the DB, which are then summarized by two indices:

- (i) "Ease of Doing Business", which ranks countries according to their relative performance (World Bank, 2014);
- (ii) The "Distance to Frontier" score, which refers to how distant, on average, an economy is at a given time from the best practice, i.e. the best performing economy.

**Table C.3: List of indicators and indexes**

	<b>Indicators</b>	<b>Index</b>
Doing Business (DB)	1) Starting a business; 2) Dealing with construction permits; 3) Getting electricity; 4) Registering property; 5) Paying taxes; 6) Trading across borders; 7) Getting credit; 8) Protecting minority investors; 9) Enforcing contracts; 10) Resolving insolvency; 11) Labour market regulation.	Two main indexes: 1) Distance to the Frontier. 2) Ease of Doing Business.
Logistics Performance Index (LPI)	1) Customs; 2) Infrastructure; 3) Ease of arranging shipments; 4) Quality of logistics services; 5) Tracking and tracing; 6) Timeliness.	The LPI is constructed from the six indicators using a Principal Component Analysis (PCA). The scores obtained are a weighted average of the six measures, with the weights being the components loading.

**Table C.3: List of indicators and indexes (continued)**

	Indicators	Index
Trade Facilitation Indicators (TFIs)	<ol style="list-style-type: none"> <li>1) Information availability (a);</li> <li>2) Involvement of the trade community (b);</li> <li>3) Advance rulings (c);</li> <li>4) Appeal procedures (d);</li> <li>5) Fees and charges (e);</li> <li>6) Formalities – Documents (f);</li> <li>7) Formalities – Automation (g);</li> <li>8) Formalities – Procedures (h);</li> <li>9) Cooperation – Internal (i);</li> <li>10) Cooperation – External (j);</li> <li>11) Consularization (k);</li> <li>12) Governance and impartiality (l);</li> <li>13) Transit fees and charges (m);</li> <li>14) Transit formalities (n);</li> <li>15) Transit guarantees (o);</li> <li>16) Transit agreements and cooperation (p).</li> </ol>	There are 16 indicators based on 97 variables. The variables have been normalized using a “multiple binary” scoring system (see Moisé <i>et al.</i> (2011) and Moisé and Sorescu (2013)).
Enabling Trading Index (ETI)	<p>Fifty-six indicators classified into seven pillars:</p> <ol style="list-style-type: none"> <li>1) Domestic market access;</li> <li>2) Foreign market access;</li> <li>3) Efficiency and transparency of border administration;</li> <li>4) Availability and quality of transport infrastructure;</li> <li>5) Availability and quality of transport services;</li> <li>6) Availability and use of ICTs;</li> <li>7) Operating environment.</li> </ol> <p>The seven pillars are then grouped into four areas or subindexes:</p> <ol style="list-style-type: none"> <li>1) Market areas;</li> <li>2) Border administration;</li> <li>3) Infrastructure;</li> <li>4) Operating environment.</li> </ol>	ETI is computed as the unweighted average of the various indicators.

(ii) *The World Bank Logistics Performance Index (LPI)*

The LPI focuses on the logistics friendliness of a country and ranks countries according to six dimensions: customs; infrastructure; ease of arranging shipments; quality of logistics services; tracking and tracing; and timeliness. The LPI indicators can be grouped according to whether they refer to inputs to the supply chain (customs, infrastructure and services quality) or to the outcomes (timeliness, international shipments and tracking and tracing).<sup>7</sup>

Data are collected through an online survey of operators in charge of moving and trading goods (Gogoneata, 2008). The survey has been conducted every two years

since 2007. In 2014, the data covered 160 countries. The survey is divided in two parts, an international one and a domestic one. In the international part, respondents assess the logistics friendliness of a country in eight selected overseas markets. In the domestic part, respondents provide qualitative and quantitative data on the logistics environment of the country in which they operate (Arvis *et al.*, 2014).

The six indicators are summarized into the LPI index by using a Principal Component Analysis (PCA), which is a statistical technique used to reduce the dimensionality of a dataset. The LPI is, then, a weighted average of the scores assigned to each indicator with the weights determined by the PCA. The index goes from 1 (worst score) to 5 (best score).

*(iii) The OECD Trade Facilitation Indicators*

The OECD TFIs correspond to the main policy areas under negotiation at the WTO, enabling the indicators (there are about 97 variables grouped into 16 indicators) to be mapped to relevant provisions of the TFA (see Table C.4). The OECD database, launched in 2012 and updated in 2015, contains information on 152 countries. The information used for the TFIs is collected from questionnaires to governments and the private sector.

The variables seek not only to reflect the regulatory framework in the concerned countries, but to delve, to the extent possible, into the state of implementation of various trade facilitation measures. Each of the variables follows a “multiple binary” scoring system, in which a score of 2 corresponds to the best performance, 0 corresponds to the worst performance and a score of 1 to performance that lies in-between.<sup>8</sup>

*(iv) The World Economic Forum Enabling Trade Index (ETI)*

The ETI assess the extent to which economies have in place institutions, policies, infrastructure and services facilitating the flow of goods over borders

and their destinations (WEF, 2014). It contains data on 79 indicators from 2010 to 2014 annually for 138 countries.<sup>9</sup> Data on 56 of the indicators are collected through information provided by different international organizations, while data for the remaining indicators are collected from the WEF Executive Opinion Survey, which survey CEOs and top business leaders. The seventy-nine variables are scored from 1 to 7, with 7 indicating the best possible outcome. These are grouped into seven pillars which are then further consolidated into four areas: market access; border administration; infrastructure; and operating environment (see Table C.3). The ETI score is computed as the arithmetic mean of the 79 indicators and therefore also ranges from 1 to 7.

*(b) Choice of the trade facilitation indicator*

As the subject of this report is the TFA, and the OECD TFIs were designed on the basis of that agreement, the TFIs will be used as a measure of trade facilitation and country performance. In particular, the OECD indicators will be employed in Section D to estimate and simulate the economic impact of implementing the WTO TFA.<sup>10</sup>

Based on the criteria discussed in Box C.5, the TFIs satisfy many of the requirements for a good indicator.

**Table C.4: TFIs and TFA articles**

Trade Facilitation Indicator	Trade Facilitation Agreement article
(a) Information availability	Article 1: Publication and availability of information
(b) Involvement of the trade community	Article 2: Opportunity to comment, information before the entry into force, and consultations
(c) Advance rulings	Article 3: Advance rulings
(d) Appeal procedures	Article 4: Procedures for appeal and review
(e) Fees and charges	Article 6: Disciplines on fees and charges imposed on or in connection with importation and exportations and penalties
(f) Formalities – documents	Article 10: Formalities connected with importation, exportation and transit
(g) Formalities – automation	Article 7: Release and clearance of goods Article 10: Formalities connected with importation, exportation and transit
(h) Formalities – procedures	Article 7: Release and clearance of goods Article 10: Formalities connected with importation, exportation and transit
(i) Cooperation- Internal	Article 8: Border agency cooperation
(j) Cooperation – external	Article 8: Border agency cooperation
(l) Governance and impartiality	Article 5: Other measures to enhance impartiality, non-discrimination and transparency
(m) Transit fees and charges	Article 11: Freedom of transit
(n) Transit formalities	Article 11: Freedom of transit
(o) Transit guarantees	Article 11: Freedom of transit
(p) Transit agreements and cooperation	Article 11: Freedom of transit

Note: The OECD TFI indicators include an item “(k) Consularization” which has no corresponding provision in the TFA.

## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

The indicators are relevant from a policy point of view precisely because they are based on the TFA, which members have committed to implement. This also makes it a useful indicator to monitor the implementation of the TFA. The statistical robustness of the TFIs has been improved through the study of the underlying links of the dataset and tested with traditional indicators (Moisé *et al.*, 2011). The TFIs are also robust with regard to temporary fluctuations in economic activity as the indicators would only change as result of the implementation efforts of each country. Furthermore, the TFIs are consistent and correlated with the other widely used indicators of trade facilitation (despite some indicators being measures of outcomes rather than policy inputs). Table C.5 shows the correlation between the TFIs, the DB trading across borders components, LPI and ETI for the latest available year. The TFI average score is positively correlated with the LPI and the ETI measures. As expected, the TFI average is negatively correlated with the DB cost of export/import and number of days to export/import indicators. The correlation coefficients are all significant at the 5 per cent level.

**Table C.5: Correlation between Doing Business Indicators, the Logistics Performance Index, the Enabling Trade Index and the Trade Facilitation Indicators**

Indicator	TFI Average
DB: Trading across borders – costs to export	-0.25*
DB: Trading across borders – costs to import	-0.29*
DB: Trading across borders – number of days to export	-0.42*
DB: Trading across borders – number of days to import	-0.47*
DB: Trading across borders – number of documents required to export	-0.47*
DB: Trading across borders – number of documents required to import	-0.45*
LPI Score	0.43*
LPI Customs	0.41*
LPI Timeliness	0.42*
Enabling Trading Index	0.59*
ETI Efficiency and transparency of border administration	0.51*
ETI Customs transparency index	0.43*
ETI Efficiency of the clearance process	0.36*
ETI Irregular payments in import/export	0.47*
ETI Time predictability of import procedures	0.41*

\*Significant at the 5 per cent level.

One can also compare how the different indexes score the trade facilitation performance of countries to see if major discrepancies emerge. Figure C.3 compares three trade facilitation indexes: the TFIs average, LPI and ETI scores.<sup>11</sup> It classifies countries according to the WTO region classification, the level of development and whether they are landlocked developing countries or not. It should be noted that, when accounting for the level of development and distinguishing between landlocked/non-landlocked countries, the three indexes score countries in the same general way. Groups performing best on the TFI average also perform best on the ETI and on the LPI. Among the WTO regions, North America and Europe are the best performers in all the indexes.

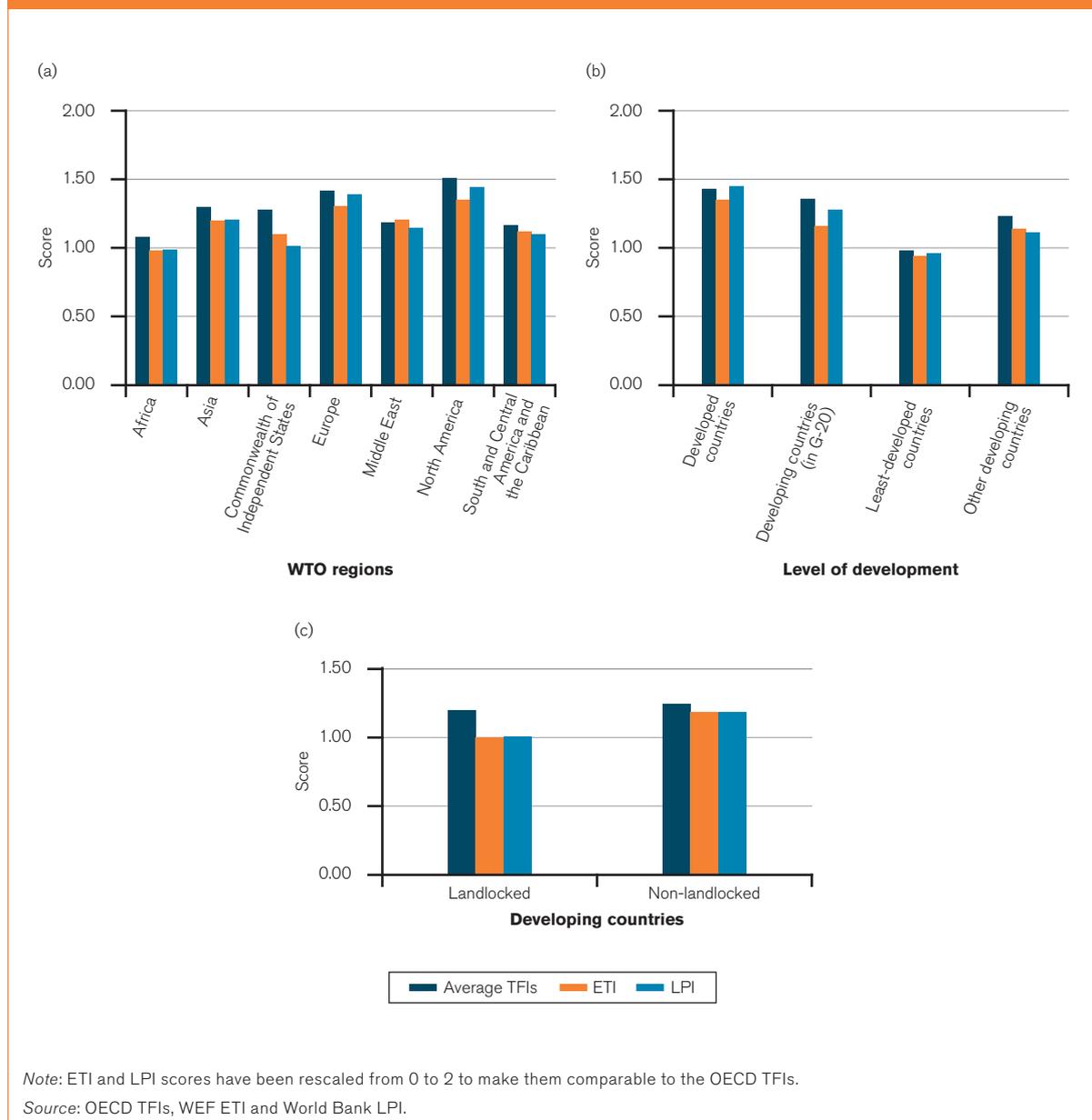
When considering the level of development, developed countries register the highest scores. Among developing countries, those that are not landlocked obtain higher scores compared to landlocked developing countries, although the differences between them are smaller if measured with the TFIs and larger if measured with the other indicators (DB, LPI or ETI). This result suggests a double burden for landlocked developing countries: apart from being isolated from global markets by having no access to the sea, they also have in place inefficient trade procedures that further hinder their trade.

## 4. Conclusions

This section has shown that trade models of all generations can be adapted to draw interesting and complementary conclusions regarding the impact of trade facilitation. Yet, with the increased academic and policy focus on trade facilitation, researchers should be encouraged to develop more specific economic models of trade facilitation that incorporate salient features of how today's international trade is conducted. For instance, none of the models discussed above specifically consider the role of time in trade costs, but recent work suggests lengthy shipping times impose significant costs on firms engaged in trade (Hummels and Schaur, 2013).

Aside from the time question, there is also empirical work on global value chains that indicates traders are concerned with the overall reliability of the supply chain and that hedging against uncertainty of delivery time makes up a significant part of logistics costs in many developing countries (Arvis *et al.*, 2007a; 2007b). Work by the WTO and the OECD on global value chains and trade in value added has made researchers much more aware of the role of trade in services. Might anything be said about the relationship between trade facilitation and trade in services? One hypothesis is that trade facilitation should also increase services trade since

**Figure C.3: Average TFIs, Enabling Trade Index and Logistics Performance Index (latest available year)**



logistics and transport activity are likely to expand along with merchandise goods trade. Alternatively, one can imagine border delays increasing service trade through more costly shipping and other transport costs. If so, trade facilitation will, in part, reduce service trade even as it expands trade in merchandise goods.

Future research could also distinguish between the impacts of different types of trade facilitation measures, consider the role of country circumstances along the lines of Duval (2007), and examine the contribution of complementary policies in achieving success in trade facilitation reform (Borchert *et al.*, 2012; Iwanow and Kirkpatrick, 2007; Francois and Hoekman, 2010).

This section has also examined four major trade facilitation indicators: the World Bank's Doing Business indicators, the World Bank's Logistics Performance Index, World Economic Forum's Enabling Trade Index and the OECD's Trade Facilitation Indicators. The main difference between them is the scope of trade facilitation they take into account. This report will use the OECD TFIs as the indicator for the TFA because they were constructed on the basis of the TFA, satisfy the criteria of a good indicator, are correlated with the other major indicators and, when accounting for the development and geographical characteristics of countries, they are consistent in their ranking with the other indicators.

## Endnotes

- 1 The reader is nevertheless encouraged to read Hummels and Skiba (2004) and Hummels (2007), who examine in great detail how additive or non-proportional trade costs affect the pattern of trade.
- 2 Some recent contributions include Yi (2003; 2010) and Baldwin and Venables (2013).
- 3 See Bagwell and Staiger (1999; 2002) and WTO (2012).
- 4 See also the discussion in subsection C.1.
- 5 See Maggi and Rodriguez-Clare (1998; 2007), Matsuyama (1990), Staiger and Tabellini (1987), and WTO (2012).
- 6 See subsection E.4.
- 7 Arvis *et al.* (2014).
- 8 A scoring system that assigns discrete numerical values according to some metric of performance requires determining thresholds for what is best, worst or in between. Sometimes there are “natural” thresholds, as for example for the variable “Establishment of a national Customs website”. Thus, a country without a customs website will be assigned a score of 0; a country with a customs website will be assigned 1; and a country with a customs website which makes available a minimal set of information related to import or export procedures in one of the official WTO languages will be assigned a 2. In other cases, no natural thresholds can be identified. In these cases, if the variable is numerical in nature, the score could be determined by deviation from the sample mean or by its percentile rank. See Orliac (2012).
- 9 The country coverage has been increased in 2014. Before 2014, it covered 132 countries.
- 10 For the analysis in this subsection and the simulations in Section D, we use the 2009 OECD TFI database, which has information on 133 countries, 26 of which are OECD members, and 107 non-OECD members. Since previous studies on the economic effects of trade facilitation that have used the OECD TFIs have relied on the 2009 data, using the same data makes the analysis in this report comparable to those previous studies. All 26 OECD members are also WTO members. Of the 107 non-OECD countries, 96 are WTO members and 11 are WTO observers.
- 11 The “Ease of Doing Business” and/or the “Trading Across Borders” indicators have not been taken into account because they simply rank countries.

# D. Estimating the benefits of the Trade Facilitation Agreement

This section provides quantification of the various channels through which trade facilitation reform, and in particular implementation of the Trade Facilitation Agreement (TFA), can benefit the global economy. First of all, estimates of how much the implementation of the TFA could reduce trade costs are provided, and the group of countries and regions that may see the biggest reductions is identified. Further, estimates of the effects of the TFA on exports, export diversification and GDP, calculated using standard economic approaches, are presented. In order to provide a range of estimates, various implementation scenarios are considered. The differentiated impact of trade facilitation is analysed in order to provide insights on how the aggregate benefits of TFA implementation are distributed across country groups (developed, developing and least-developed countries), enterprises and product groups. Finally, the induced effects of trade facilitation on foreign direct investment, border revenue collection and reduction in trade-related and other forms of corruption are examined.

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### Some key facts and findings

- Trade costs are high, particularly in developing countries. Full implementation of the Trade Facilitation Agreement (TFA) will reduce global trade costs by an average of 14.3 per cent. African countries and least-developed countries (LDCs) are expected to see the biggest average reduction in trade costs.
- Trade costs are among the fundamental factors shaping the evolution of trade. Any meaningful reduction in these costs will reduce the drag acting on global trade at present and has the potential to raise its future trajectory.
- Computable general equilibrium (CGE) simulations predict export gains from the TFA of between US\$ 750 billion and well over US\$ 1 trillion dollars per annum, depending on the implementation time-frame and coverage. Over the 2015-30 horizon, implementation of the TFA will add around 2.7 per cent per year to world export growth and more than half a per cent per year to world GDP growth.
- Gravity model estimates suggest that the trade gains from the TFA could be even larger, with increases in global exports of between US\$ 1.1 trillion and US\$ 3.6 trillion depending on the extent to which the provisions of the TFA are implemented.
- Developing countries have the most to gain from swift and full implementation of the TFA, as both exports and GDP growth will rise more than in developed countries.
- Implementing the TFA should create significant export diversification gains for developing countries, and particularly for LDCs. It should increase the opportunity for implementing developing countries to participate in global value chains. Furthermore, there is statistical evidence to show that, with trade facilitation reform, micro, small and medium-sized firms are more likely to export and to increase their export shares than large firms. Developing countries and LDCs implementing the TFA should also attract more foreign direct investment while improving their revenue collection and reducing the incidence of corruption.

## 1. Reduction in trade costs

### (a) Measuring trade costs

As discussed in Section C, trade costs include all costs incurred in getting a good to the final user, other than the cost of production itself (Anderson and van Wincoop, 2004). Trade costs include transportation costs, tariffs and non-tariff measures, information costs, customs fees and charges, the cost of time, etc. Some trade costs are easy to measure (e.g. fees and charges for customs processing) but others are more difficult (e.g. the cost of delays in customs clearance).

There are two principal ways of measuring trade costs: directly and indirectly. An example of measuring trade costs directly is the collection of data on customs fees or transportation charges. In contrast, indirect methods infer the magnitude of trade costs from the volume of trade flows or price differences across borders. The direct approach to measuring trade costs

and their components might seem preferable but is plagued by data limitations. For example, information on transportation costs for all possible routes are difficult to obtain from rail, shipping and airline companies. Furthermore, the quality of this type of data can be poor (Hummels, 2001). The advantage of the indirect method is the greater availability of the data – for example trade flows – which are the raw material used to infer trade costs. This allows estimates of trade costs to be made to cover more countries and years. The indirect method requires the use of a well-grounded economic model, which in this case is provided by the gravity model<sup>1</sup> as extended by Anderson and van Wincoop (2003), Novy (2011), and Chen and Novy (2011). The gravity model is the modern workhorse of empirical trade economics (Head and Mayer, 2014) and all the estimates of trade costs in the rest of this section rely on studies using it. The methodology for deducing the magnitude of trade costs using the gravity model is described in greater detail in Box D.1.

#### Box D.1: Deriving trade costs from trade flows

Given the difficulties involved in directly measuring trade costs, researchers have turned to indirect methods to infer trade costs by comparing the levels of trade flows. The basic idea behind the approach is that if trade between two countries is high, trade costs between those two countries must be relatively low, all things being the same.

Novy (2011) builds on this idea and derives a ratio of “domestic” and international trade in a given sector. Domestic trade refers to goods traded across different regions of the same country and is used as a benchmark for borderless trade. In contrast, exports from one country to another are subject to all the possible frictions that could act on international trade. The derivation of this ratio captures anything that might restrict trade between two partners, over and above the effect of intranational barriers.

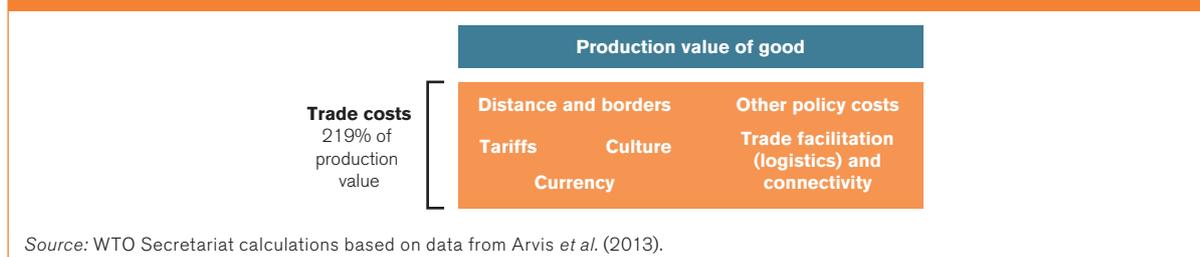
The following equation summarizes the approach and yields trade costs in *ad valorem* tariff equivalents, i.e. as a percentage of the price:

$$\text{Trade costs}_{ij} = \left( \frac{\text{Domestic trade}_{ii} \text{Domestic trade}_{jj}}{\text{Exports}_{ij} \text{Exports}_{ji}} \right)^{\gamma} - 1$$

The subscript  $ij$  indicates a flow from country  $i$  to  $j$ , and  $\gamma$  is a parameter accounting for the heterogeneity of products. For example, in the year 2000, Novy (2011) estimates that trade costs between the United States and Germany were equivalent to a 70 per cent tariff on average, whereas they amounted to a 25 per cent tariff between the United States and Canada. These costs come from distance, quotas, freight costs, cultural differences and anything else that could discourage international trade. In fact, this measure even captures the effect of home bias in consumer preferences. The tariff equivalent is actually the average of trade costs in both directions, meaning that any change is hard to attribute to an action by either one of the partners. There is also no distinction between import and export costs for each country.

The equation is able to provide estimates of international trade costs, essentially all costs incurred in moving a good from the border of  $i$  to the border of  $j$ . However, as noted earlier, it does not include intranational trade costs – the costs involved in moving the good from the site of production in country  $i$  to its border or the cost of moving the good from the border of  $j$  to the final consumption site. These costs reflect a variety of causes, including lack of competition in distribution as well as poor infrastructure. These intranational trade costs may be quite high, even in developed countries. Agnosteva *et al.* (2014) estimate the intranational trade costs of manufactured goods in Canada to be equivalent to applying an *ad valorem* tax of 109 per cent. Atkin and Davidson (2014) estimate that the costs of intranational trade are approximately four to five times higher in some sub-Saharan African countries than in developed countries.

Figure D.1: Composition of trade costs in developing countries



Based on the available evidence, trade costs remain high. Based on the Arvis *et al.* (2013) database, trade costs in developing countries in 2010 were equivalent to applying a 219 per cent *ad valorem* tariff on international trade.<sup>2</sup> This implies that for each dollar it costs to manufacture a product, another US\$ 2.19 will be added in the form of trade costs. Even in high-income countries, trade costs are high, as the same product would face an additional US\$ 1.34 in cost.<sup>3</sup>

Figure D.1 illustrates the magnitude of trade costs in developing countries and highlights their main components. The size of the trade cost rectangle is drawn so that it is proportional to the production cost of the good. Along with the geographical features of the countries (e.g. how distant they are from major markets), policy-related barriers including trade facilitation (logistics) account for most of the variance in trade costs. The importance of these various components of trade cost is indicated by their font size: the bigger the font size the greater the contribution of that component to trade cost.

### (b) Sectoral patterns of trade costs

The aggregate estimates of trade costs discussed above conceal large differences across sectors and regions. This sectoral and regional variation in trade costs means that implementation of the TFA is likely to have a bigger trade effect on some product sectors and regions than on others.

#### (i) Agriculture and manufacturing

In 2012, *ad valorem* trade costs in agriculture were 68 per cent higher than in manufacturing.<sup>4</sup> However, a lack of trade facilitation appears to be more damaging to trade in manufactured goods than to trade in agricultural goods. Part of this may be explained by the fact that agricultural goods are traded in bulk and transported using slower moving carriers, so traders can adjust to delays in customs clearance. The one exception is fresh agricultural products, which have higher sensitivity to time and are increasingly transported by air. By speeding up the clearance of goods across borders, trade facilitation could prove a boon for trade in perishable goods.

Trade costs also differ among manufactured goods, as per Chen and Novy (2011), who calculate *ad valorem* trade costs for different industries using EU member data. Goods with a high weight-to-value ratio, such as bricks (with an *ad valorem* trade cost of 30,000 per cent) or plaster (800 per cent), face extraordinarily high trade costs. Those goods are expensive to transport – transit is often charged by the kilogramme – but have a low market value. Bread and pastry products are perishable and so face high trade costs (43 per cent). Finally, Chen and Novy find that high tech industries such as aircraft and spacecraft face lower trade costs (1.44 per cent).

#### (ii) Goods within value chains and the cost of time

Time is a critical factor in the operation of global value chains (GVCs). In 2013, the Fourth Global Review of Aid for Trade pointed to customs procedures, transportation costs and delays as the biggest factors blocking developing countries from integrating value chains (WTO, 2014). Figure D.2 identifies the different dimensions of time that are critical to the success of disaggregated production structures, where just-in-time production is the order of the day. They include lead time, which refers to the time between when an order is made and when the goods are delivered, and variability in delivery time.

Zaki (2015) confirms that intermediate goods that feature prominently in GVCs are particularly time-sensitive, as these goods are more adversely affected by delays. He derives the *ad valorem* tariff equivalent of time for different product sectors. This is an overall measure of the effect of delays and red tape in each sector. Moreover, for each type of product, the cost of time is described separately for export and import procedures. Figure D.3 shows the 10 industries that suffer the most from delays in delivery time. On average, the cost of time is higher on the import side than on the export side. Import procedures may take longer than export procedures because imports are often a revenue source, and because of the greater heterogeneity of imports, given that countries typically import a broader range of goods than they export. On both the import

Figure D.2: Dimensions of time in value chains

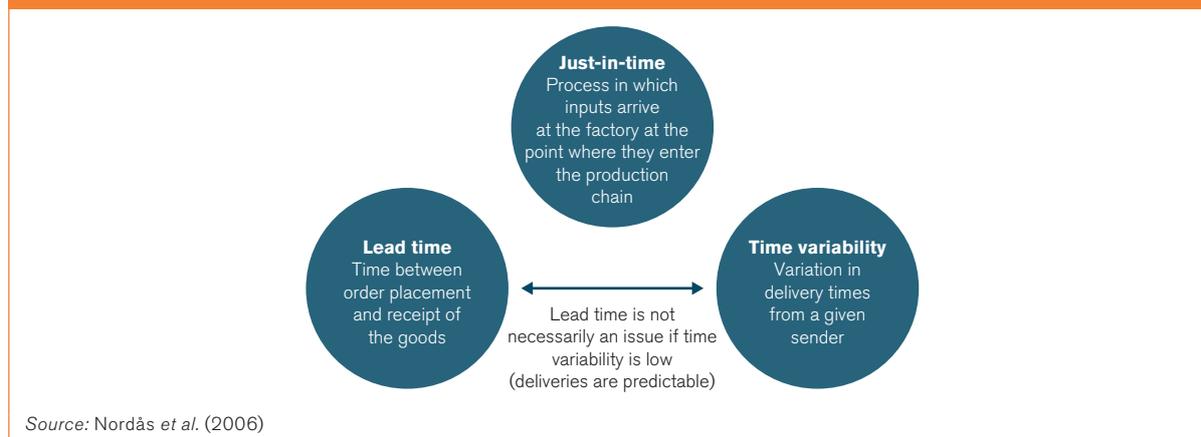
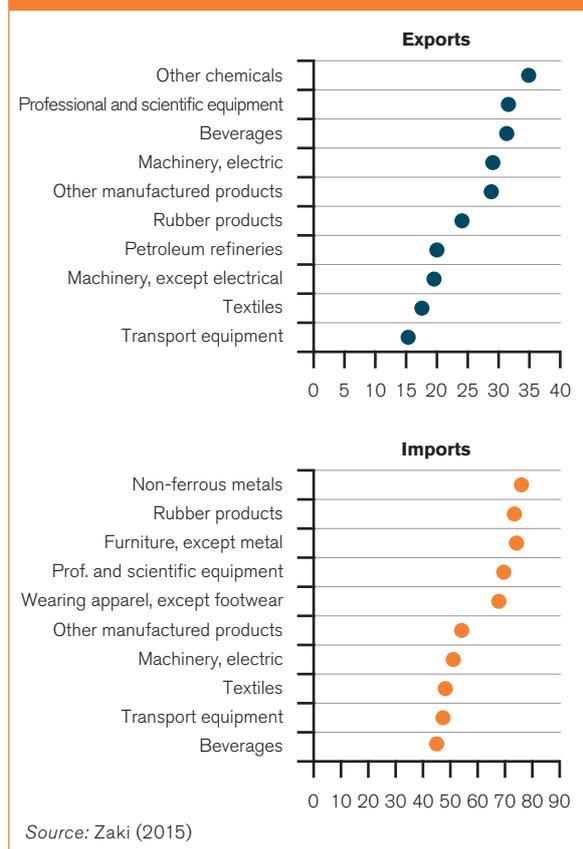


Figure D.3: *Ad valorem* tariff equivalents of export and import times (per cent)



and export sides, goods destined for use in value chains (electrical machinery and equipment, transport equipment, and apparel and textiles) are particularly time-sensitive.

(c) Geographical patterns of trade costs

This subsection presents the geographical pattern of trade costs. These tariff equivalents capture all types of

trade impediments and are bilateral averages of costs in both directions, for each pair of countries. These *ad valorem* equivalents include the costs of both export and import procedures. The data come from Arvis *et al.* (2013) and describe trade costs for 178 economies from 1995 to 2012.

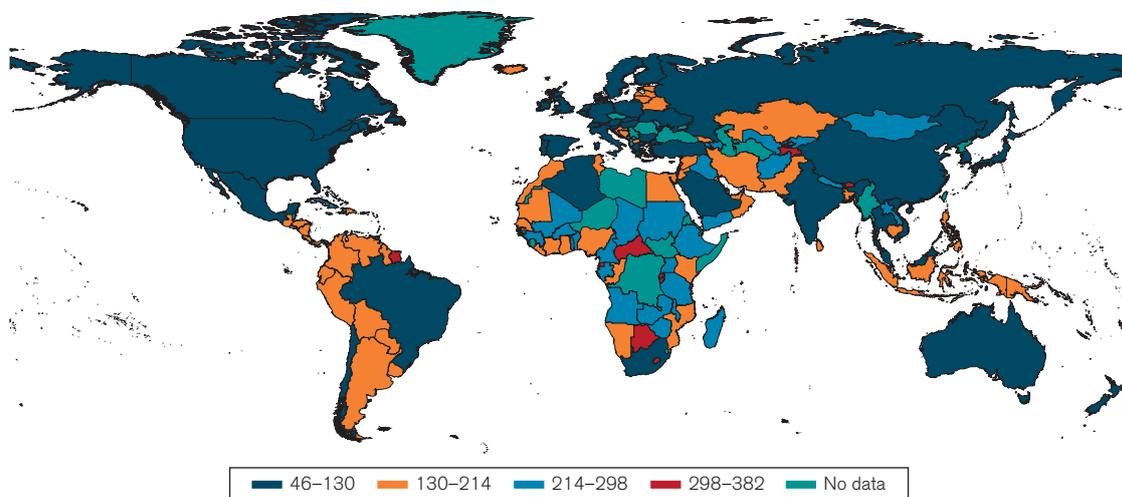
Figure D.4 shows the world map of trade costs. The 10 economies with the lowest trade costs are all located in Western Europe or North America. At the other end of the spectrum, the 10 economies with the highest trade costs are either from Africa or small island developing states, such as Comoros, Kiribati and Vanuatu.

As shown in Figure D.5, trade costs are decreasing in income levels. By region, Africa has the highest trade costs at over 260 *ad valorem* tariff equivalent. The isolation of landlocked countries in the continent is even starker, as they incur an additional trade cost of 40 per cent, not applicable to coastal African countries, although policy factors may also be a contributing factor (Borchert *et al.*, 2012).

(d) Estimates of trade cost reductions from trade facilitation

This subsection reviews estimates of the reduction in trade costs that could be achieved if all countries fully implement the provisions of the TFA. The first study, by Hillberry and Zhang (2015), looks at the impact of full implementation on the time required to import and export in each country, measured in days. The second study, by Moïsé and Sorescu (2013), is more comprehensive in scope and estimates reductions in total trade costs from full implementation of the Agreement. The estimated reduction in trade costs derived by Moïsé and Sorescu (2013) will be used in the latter part of Section D to simulate the trade and income effects of implementing the TFA.

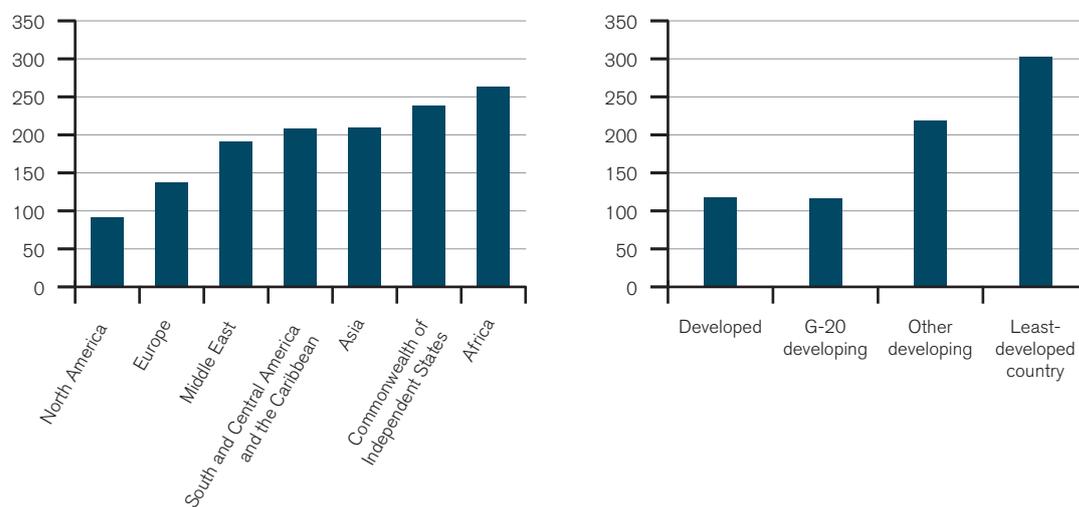
**Figure D.4: Ad valorem tariff equivalents of trade costs with the main world importers, 2010 or latest available year (per cent)**



Note: The "rest of the world", for each economy, is considered to be the 10 largest importers in 2010. These are: the United States, China, Germany, France, Japan, the United Kingdom, Italy, Canada, Republic of Korea and Mexico. Trade costs are expressed as *ad valorem* equivalents. Data are unavailable at the time of writing for those territories coloured in green. Colours and boundaries do not imply any judgement on the part of the WTO as to the legal status of any frontier or territory.

Source: WTO Secretariat calculations based on data from Arvis *et al.* (2013).

**Figure D.5: Ad valorem tariff equivalents of trade costs by region and level of development, 2008 (per cent)**



Note: For each economy, "the rest of the world" is considered to be the 10 largest importers in 2010. Each group indicates trade costs in 2008 by income group.

Source: WTO Secretariat calculations based on data from Arvis *et al.* (2013).

Both studies employ the OECD's Trade Facilitation Indicators (TFIs), which were discussed in Section C, to simulate full implementation of the TFA. This assumes that all economies reach best practice standards of trade facilitation, as measured by twelve different

OECD TFIs. As detailed in Section C, each indicator is scored from zero to two, with two being the highest value. In the full implementation scenario, it is assumed that each economy achieves the maximum score of two in each of the 12 OECD TFIs.

*(i) Reduction in time to import and export*

One of the questions Hillberry and Zhang (2015) examine is the effect of trade facilitation on the time required to import and export. They find that full implementation of the TFA has the potential to reduce time to import by over a day and a half (a 47 per cent reduction) and time to export by almost two days (a 91 per cent reduction), for WTO members. Time to export is found to be more sensitive to trade facilitation. The authors note that export procedures are usually concentrated in a subset of products, and are simpler, whereas import procedures are inherently more complicated because of the heterogeneity of incoming goods. As noted earlier, countries typically export a narrower range of goods than they import, and imports are often a source of customs revenues.

In terms of individual trade facilitation provisions, Hillberry and Zhang (2015) find that governance and automation are the most time-saving reforms. Governance, for example, accounts for 37 per cent of the reduction in the time to import. Automation is responsible for about 30 per cent of the reduction in time to import, which is understandable, since automation covers some of trade facilitation's key areas, such as the electronic exchange of documents and the application of risk management procedures.

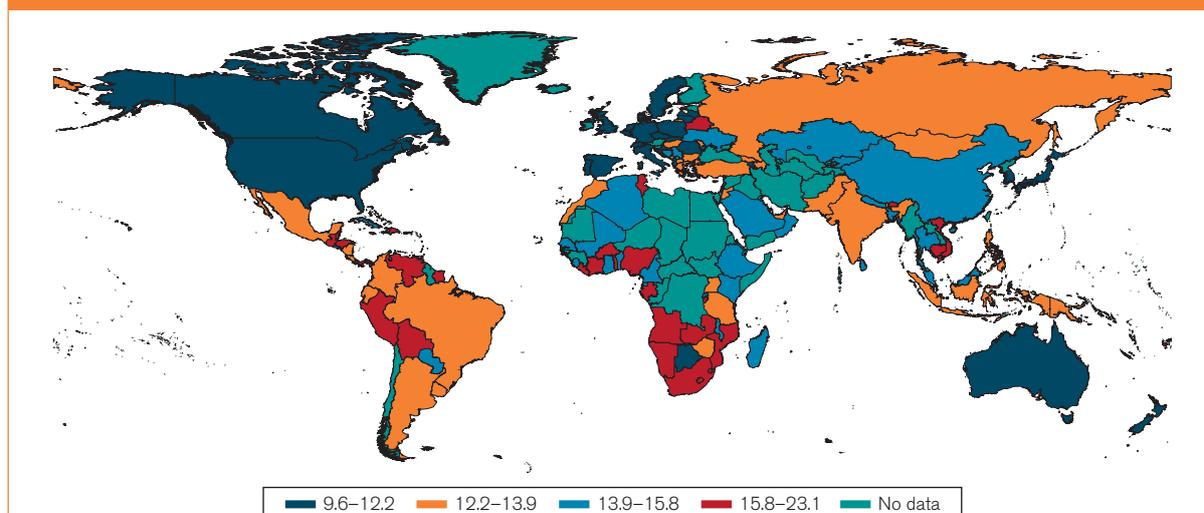
*(ii) Reduction in total trade costs*

Turning now to the study of Moisé and Sorescu, Figure D.6 shows the estimated trade cost reduction

across the globe from full implementation of the TFA. The reduction in trade costs is in the range of 9.6 to 23.1 per cent with the average reduction being equal to 14.5 per cent. Not surprisingly, economies with the biggest pre-implementation deficiencies in trade facilitation standards are set to reap the greatest reductions. Even the smallest estimate of trade cost reduction implies that full implementation of the TFA will have an even bigger impact on trade costs than reducing all most-favoured nation tariffs (currently estimated to average around 9 per cent) to zero – recall that the estimated *ad valorem* estimate of trade costs in developing countries is 219 per cent, and is 134 per cent in high-income countries. Even if one takes the smallest estimate of a 9.6 per cent reduction in trade costs, this is equivalent to reducing the *ad valorem* equivalent of trade costs in developing countries by 21 percentage points (from 219 per cent to 198 per cent) and by 13 percentage points in high-income countries (from 134 per cent to 121 per cent).

Overall, the average trade cost reduction for all merchandise goods is 14.3 per cent, with the average decrease in trade costs for manufactured goods at 18 per cent, against 10.4 per cent for agricultural goods. Figure D.7 shows that all regions are expected to experience reductions in trade costs, with Africa (16.5 per cent) benefitting the most. Comparisons of the anticipated impact of TFA implementation on different income groups suggest that least-developed countries (LDCs) will see the biggest reduction in trade costs (16.73 per cent).

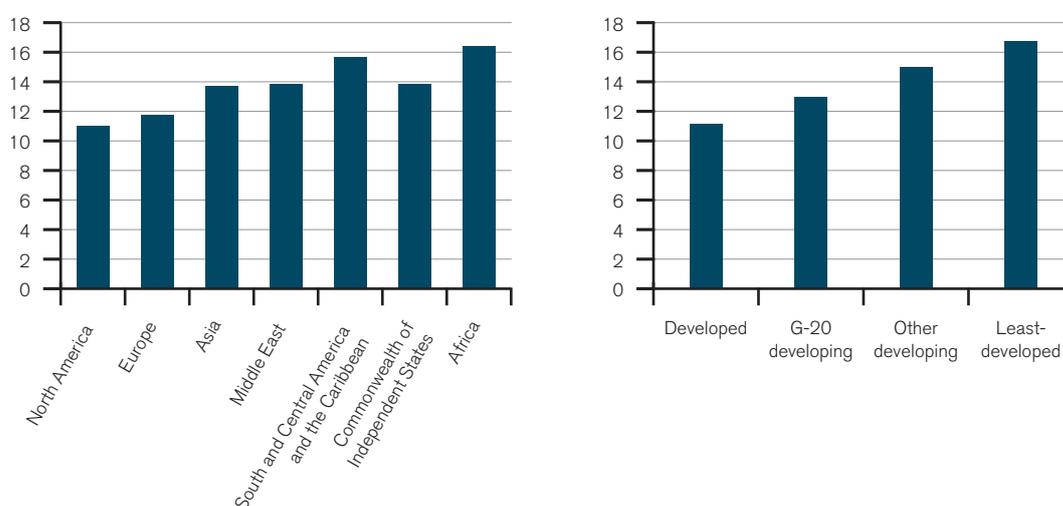
**Figure D.6: Estimated reductions in *ad valorem* tariff equivalent trade costs due to TFA implementation (percentage change)**



Note: Data are unavailable at the time of writing for those territories coloured in green. Colours and boundaries do not imply any judgement on the part of the WTO as to the legal status of any frontier or territory.

Source: WTO Secretariat calculations using disaggregated estimates from Moisé and Sorescu (2013) based on the OECD TFIs.

**Figure D.7: Estimated reductions in *ad valorem* tariff equivalent trade costs due to TFA implementation by region and level of development (per cent)**



Note: The “rest of the world”, for each economy, is considered to be all the other economies. Each group indicates reductions for total goods by income group.

Source: WTO Secretariat calculations using disaggregated estimates by Moisé and Sorescu (2013) based on the OECD TFIs.

## 2. Increased trade flows and GDP

The two most commonly used economic approaches to estimating the trade impact of trade facilitation reform are gravity and computable general equilibrium (CGE) models. This report employs estimates from these two methodologies to ensure that results are consistent and to provide complementary perspectives on the benefits of implementing the TFA. Before considering the results of a range of such studies, this subsection provides a short summary of these two methodologies (Piermartini and Teh (2005) and WTO and UN (2012)).

CGE models are “ex-ante” (i.e., an analysis of prospective results) computer-based simulations of changes in trade policy, designed to answer “what if” types of questions. They allow policy-makers to adjust the value of a variable, for example trade procedures, and obtain numerical values of the expected effects on economic variables, either in a static or dynamic perspective. In contrast to partial equilibrium models, CGE models take into account the interdependence of nations, markets and economic actors, typically households and firms. They make assumptions about the market structure, production technology, consumer preferences and the substitutability between foreign and domestic product varieties. The model is first calibrated to reproduce exactly the observed data for a reference year, which is used as the baseline. To produce the counterfactual scenario, the policy change of interest is introduced to the model and the model is then solved by setting

prices in such a way that, in equilibrium, consumers maximize their welfare, and firms their profits, under the constraints imposed by the available resources and policies. The difference in trade and GDP (or any other economic variables of interest) between the counterfactual and baseline scenarios constitutes the causal effect of the policy change.

Gravity models are econometric models of trade that use historical data to determine the effect of past policy on trade flows. While they are “ex-post” models — based on an analysis of past outcomes — they can be used after estimation to simulate the effect of policies “ex-ante”, provided that these policies are implemented in comparable circumstances. Their name comes from the similarity with the Newtonian theory of gravity, since the main feature of the model is that volume of trade between any two countries is positively related to the size of their economies (usually measured by GDP) and inversely related to the trade costs between them. In addition, for any two countries, the level of trade not only depends on their bilateral trade costs, but also on the barriers that they face as well as impose on the rest of the world – the so-called multilateral resistance terms (Anderson and van Wincoop, 2003).

The high explanatory power of the gravity approach makes it a common choice in the empirical trade literature, although this is not its only virtue. It has been shown to be consistent with many models of international trade including Ricardian comparative

advantage and Krugman's new trade theory (Head and Mayer, 2014). In much of the trade literature, simulations undertaken with the gravity model are interpreted as partial equilibrium analysis since the changes in trade from the simulations do not feed back to GDP and thus only the trade effects can be determined.

A number of recent studies have estimated the trade effects of trade facilitation, using gravity, CGE or a mix of the two models (see Table D.1 for a compact representation of the results). Hufbauer and Schott (2013) perform a "thought experiment" in which countries improve their trade facilitation measures halfway to the region's top performer in each category.<sup>5</sup> They estimate an increase in total merchandise exports

of US\$ 1 trillion per annum, with developing countries' trade rising by US\$ 569 billion (a 9.9 per cent increase) and developed countries' total exports rising by US\$ 475 billion (a 4.5 per cent increase). These estimates are larger than in an earlier study (Hufbauer *et al.*, 2010), which drew on trade facilitation proxies by Wilson *et al.* (2005) and found increases in exports of US\$ 47.3 billion and US\$ 39.5 billion for developing and developed countries, respectively.

Hoekman and Nicita (2011) estimate that the percentage increase in exports (imports) of low-income countries that would result from a combined convergence of the World Bank Group's "Doing Business" cost-of-trading indicator and of the World

**Table D.1: Selected studies on the effect of trade facilitation on trade flows**

Study	Model	Assumption	Variable	Developed	Developing	World
Decreux and Fontagné (2009)	CGE	50 per cent reduction in AVE cost of time at the border, soft and hard infrastructure.	Export	n.a.	n.a.	<b>+bUS\$ 383</b>
Iwanow and Kirkpatrick (2009)	Gravity	10 per cent improvement in trade facilitation index.	Export (manufacturing)	n.a.	Africa: <b>+6%</b>	<b>+2.1%</b>
Hufbauer <i>et al.</i> (2010)	Other	Improve measures of customs and regulatory environment halfway to global average.	Export	<b>+bUS\$ 39.5</b>	<b>+bUS\$ 47.3</b>	<b>+bUS\$ 86.8</b>
Decreux and Fontagné (2011)	CGE	50 per cent reduction in AVE cost of time at the border, soft infrastructure.	Export	n.a.	n.a.	<b>+bUS\$ 359 (1.9%)</b>
Dennis and Shepherd (2011)	Gravity	10 per cent reduction in costs of (1) exporting (2) international transport (3) market entry.	Export variety	n.a.	n.a.	(1) <b>+3%</b> (2) <b>+4%</b> (3) <b>+1%</b>
Hoekman and Nicita (2011)	Gravity	Improve trade facilitation to middle-income countries average.	Export Import	n.a. n.a.	<b>+17%</b> <b>+13.5%</b>	n.a. n.a.
Portugal-Perez and Wilson (2012)	Gravity	Improve border and transport efficiency halfway to top performer in the region.	Export	Positive effect decreasing with income.	Chad: <b>+17%</b> Mongolia: <b>+3%</b> Kazakhstan: <b>+23%</b> Venezuela: <b>+4%</b>	Positive and significant
Ferrantino and Tsigas (2013)	Gravity and CGE	Countries improve trade facilitation halfway to global best practice.	Export	n.a.	n.a.	<b>bUS\$ 1,584 (14.5%)</b>
		Countries improve trade facilitation halfway to regional best practice.				<b>bUS\$ 1,030 (9.4%)</b>
Hufbauer and Schott (2013)	Gravity	Improve trade facilitation halfway to the region's top performer in each category.	Export	<b>+bUS\$ 475 (4.5%)</b>	<b>+bUS\$ 569 (+9.9%)</b>	<b>+bUS\$ 1,043</b>
Persson (2013)	Gravity	1 per cent reduction in number of days needed to export.	Export variety	n.a.	n.a.	HG: <b>+0.3%</b> DG: <b>+0.6%</b>
Feenstra and Ma (2014)	Gravity	10 per cent improvement in bilateral port efficiency.	Export variety	n.a.	n.a.	<b>+1.5% to +3.4%</b>
Zaki (2014)	Gravity and CGE (two steps)	50 per cent reduction in AVE cost of time to import and export.	Export	EU: <b>+10.6%</b> US: <b>+3.9</b> Japan: <b>+2.1%</b>	SSA: <b>+22.3%</b> Asia: <b>+16.2%</b> LAC: <b>+16.2%</b>	n.a.
Mevel <i>et al.</i> (forthcoming)	CGE	25 per cent reduction in AVE cost of time to import and export. Effect of trade facilitation post-CFTA implementation.	Export	EU: <b>+bUS\$ 164.5</b> US: <b>+bUS\$ 121.8</b>	NA: <b>+bUS\$ 11.5</b> MENA: <b>+bUS\$ 36.4</b> RoA: <b>+bUS\$ 38.4</b>	<b>+bUS\$ 1,224</b>

Notes: AVE = *ad valorem* equivalent; CFTA = Continental Free Trade Area in Africa; DG = differentiated good; HG = Homogeneous goods; LAC = Latin America and the Caribbean; NA = North Africa; RoA = Rest of Africa; MENA = Middle East and North African countries; SSA = Sub-Saharan Africa.

## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

Bank's Logistics Performance Index (LPI) score to the average of middle-income countries would be 17 per cent (13.5 per cent).

Decreux and Fontagné (2011) and Zaki (2014) provide two recent CGE estimates of the trade impact of trade facilitation. Decreux and Fontagné represent trade costs as the *ad valorem* equivalent of the time at the frontier (customs procedures and time at the port), using information from the "Doing Business" indicators and estimates by Minor and Tsigas (2008). Trade facilitation reform is represented by a 50 per cent reduction in these costs. Using the MIRAGE (Modelling International Relationships in Applied General Equilibrium) CGE model, they calculate an expansion in global trade of around 2 per cent or US\$ 359 billion. This result should be considered more conservative than Decreux and Fontagné (2009), who include infrastructure variables going beyond the coverage of the TFA. In this previous study, they estimate an increase in export in the same range at US\$ 383 billion and find that gains from trade facilitation would almost only arise for developing countries, in particular in Sub-Saharan Africa.

Zaki adopts a two-step approach, using a gravity model to first calculate the *ad valorem* equivalents of the time to export and import. In a second step he assumes that trade facilitation reform will lead to a 50 per cent reduction in these *ad valorem* trade costs, and also uses the MIRAGE CGE model to simulate the trade impact. He finds that developing countries tend to see the largest increases in both exports and imports. Sub-Saharan African, Asian, Latin American and Middle Eastern exports increase by 22.3 per cent, 16.2 per cent, 16.2 per cent, and 13.8 per cent, respectively, following trade facilitation reform. Imports are increased by almost the same magnitude.

Mervel *et al.* (forthcoming) study the long-run yearly impact of the African Continental Free Trade Area (CFTA) and the TFA using a dynamic version of the MIRAGE CGE model covering 29 manufacturing sectors in all North African countries and the rest of the world by sub-groups. They measure trade facilitation using the same indicator as Decreux and Fontagné, but only consider a 25 per cent reduction in the estimated *ad valorem* cost to export by 2017. The extra increase in exports brought by the TFA is measured at US\$ 11.5 billion, US\$ 36.4 billion, US\$ 38.4 billion, US\$ 164.5 billion and US\$ 121.8 billion for North Africa, the Middle East, the rest of Africa, the European Union and the United States, respectively. Including the rest of the world, this amounts to an increase of US\$ 1,224 billion in global trade.

The rest of this subsection will present new estimates using indicators of trade facilitation that more

closely reflect the TFA, developing more realistic implementation scenarios and using both econometric approaches (subsections D.2(b) and (c)) and CGE simulations (subsection D.2(d)). It begins with a description of the data used and with details on the construction of the implementation scenarios.

### (a) Data and TFA implementation scenarios

In the following scenarios, the OECD TFIs (average TFI(a) – TFI(l)) are used as a proxy for trade facilitation.<sup>6</sup> As discussed in Section C, the OECD TFIs closely reflect the WTO's TFA. The OECD TFIs used in this report cover 133 economies. The trade data used in the gravity estimation cover the years 2003 to 2011, are disaggregated by importing country, exporting country and HS6<sup>7</sup> sub-headings, and come from the CEPIL BACI dataset (i.e. the international trade database of the *Centre d'études et d'informations internationales*).

The following three implementation scenarios of the TFA are used in the simulations:

#### 1. Conservative scenario

This scenario takes into account notifications of TFA Category A<sup>8</sup> commitments received by the WTO from 52 developing countries as of early January 2015.<sup>9</sup>

For the group of 52 notifying developing countries, the commitments, by article of the TFA, are translated into OECD TFIs using the correspondence between these indicators and the TFA. If a country commits to at least 95 per cent of the articles that belong to each indicator, this indicator is set to its maximum value of 2. The new average TFI value is calculated accordingly.

For the group of 35 developed countries, it is assumed that they will fully implement the TFA and hence their TFI scores are set to the maximum value of 2.

Finally, for the group of non-notifying developing countries, the new level of TFI is predicted "out-of-sample". The procedure is as follows: a regression with the TFI as dependent variable, using the level of GDP per capita and WTO regions as explanatory variables, is estimated on the sample of the 52 notifying developing countries and 35 developed countries. The estimated coefficients from the regression are then used to fit predicted TFI values to the non-notifying developing countries.

#### 2. Liberal scenario

This scenario is constructed in a similar way to the conservative scenario – with the only difference being that the threshold in commitments used to assign a

**Table D.2: Estimated trade and GDP impacts of TFA implementation**

		Units	Range of values	
<b>I. Gravity model</b>				
Exports	Billion current US\$		1,133	3,565
	Percentage change		9.1	28.7
<b>II. Dynamic computable general equilibrium model</b>				
Exports	Billion constant (2007) US\$		750	1,045
	Addition to average annual percentage growth, 2015-30		2.06	2.73
GDP	Billion constant (2007) US\$		345	555
	Addition to average annual percentage growth, 2015-30		0.34	0.54

Source: WTO Secretariat and Fontagné *et al.* (2015).

value of 2 to the relevant TFI indicator is lower, and equal to 75 per cent.

### 3. Full implementation scenario

In this scenario, the TFI is set to its maximum value of 2 for all countries.

To assist the reader through the discussion of all the simulation results, Table D.2 provides a summary of the estimated impact on exports and GDP of implementing the TFA using the two methodological approaches used in this report.

#### (b) Increase in export flows

This subsection estimates the impact of trade facilitation on the intensive margins of trade, i.e. on total exports, where, in order to smooth out fluctuations in the series, data on average export flows for the years 2003-11 are used.

The effect of trade facilitation on total exports is positive and significant, as shown in Appendix Table D.1.<sup>10</sup> In the table, Column (1) uses the (natural logarithm of) TFI of the exporting country as a measure of trade facilitation, controlling for importer fixed effects. Column (2) uses a measure of bilateral trade facilitation,  $TFI_{ij}$ , equal to the geometric average of the exporter's (country *i*) and importer's (country *j*) TFI, as in Moïse and Sorescu (2013). These columns, too, include importer fixed effects. Although coefficients cannot be compared directly across different regressions, bilateral trade facilitation is associated with a bigger effect on trade.

Based on the estimation results of Appendix Table D.1, a series of counterfactual analyses were conducted, to estimate the percentage increase in the value of total exports as well as the actual dollar increases under the scenarios outlined above. The results, averaged across income groups, are presented in Table D.3. It shows that

the increase in exports is generally higher in the  $TFI_{ij}$  scenarios, which is not surprising as this corresponds to a multilateral increase in both the exporter's  $TFI_i$  and the importer's  $TFI_j$ . Starting with the first two scenarios, "conservative" and "liberal", the estimated increases in exports range from 7 per cent to 18 per cent. Perhaps not surprisingly, the biggest increase occurs under the "full" implementation scenario with export gains of up to 36 per cent for LDCs. The corresponding changes in export values, measured in billions of US dollars, are also shown in Table D.3. Globally, the estimated increase in exports ranges from US\$ 1,132.6 billion in the "conservative" scenario to US\$ 3,564.87 billion in the "full" implementation scenario.

A possible concern with these simulations is that they are based on the average effect of trade facilitation, estimated to be equal for countries that implement the TFA and countries that do not in the relevant scenario. The effects could be non-linear within the sample. For instance, the effect of trade facilitation could be higher for low values of trade facilitation as opposed to high values of trade facilitation. A number of different approaches were explored to address these issues.<sup>11</sup> The overall conclusion from exploring these different approaches is that the results presented in Appendix Table D.1 and used for the simulations are largely unaffected.

It is important to emphasize that the gravity-based simulations conducted here are of a partial equilibrium nature, since they only include the direct effects of the policy experiment (implementation of the TFA). Conditional general equilibrium analysis would include secondary effects through the multilateral resistance terms. The literature on the trade effects of preferential trade arrangements (PTAs) has found that the partial equilibrium results overstate the conditional general equilibrium outcome. In particular, Anderson *et al.* (2014) have shown that in the case of the North American Free Trade Agreement (NAFTA), the difference is a factor of around two.

**Table D.3: Estimated increases in exports by level of development under various TFA implementation scenarios from regression-based simulations (percentage change and billion current US\$ increase)**

	TFI <sub>i</sub>		TFI <sub>ij</sub>	
	Percentage change	bUS\$	Percentage change	bUS\$
<b>"Conservative" scenario</b>				
Developed	10	697.11	16	1,453.77
G-20 developing	7	264.86	12	601.66
LDCs	13	11.15	10	16.67
Other developing	9	159.44	12	320.59
<b>Total</b>		<b>1,132.6</b>		<b>2,392.7</b>
<b>"Liberal" scenario</b>				
Developed	10	697.11	18	1,514.70
G-20 developing	9	387.86	15	778.05
LDCs	13	12.06	12	19.21
Other developing	11	207.64	15	404.96
<b>Total</b>		<b>1,304.7</b>		<b>2,716.9</b>
<b>"Full" scenario</b>				
Developed	10	697.11	26	1,664.71
G-20 developing	12	629.20	27	1,168.48
LDCs	35	40.06	36	47.44
Other developing	20	421.95	31	684.23
<b>Total</b>		<b>1,788.32</b>		<b>3,564.87</b>

Source: WTO Secretariat.

However, discriminatory trade liberalization, as embodied by the formation of a PTA, is different from trade facilitation. In a PTA, bilateral trade costs are only reduced for the partners. This means that non-members become more "distant" from members. This mutes the partial equilibrium trade expansion effects through the multilateral resistance terms. However, in the case of trade facilitation, bilateral trade costs are reduced for all possible pairs of countries. Therefore, they all maintain the same relative "distance" to one another. This implies that there may not be a big difference between the partial equilibrium and conditional general equilibrium results. The results of CGE simulations, discussed in subsection D.2(d), produce, in fact, comparable results at the lower end of the estimates, yielding estimates of trade expansion between US\$ 750 billion and US\$ 1 trillion.

(c) Export diversification: new markets and new products

Trade facilitation is likely to impact both variable and fixed trade costs of exporting. The formalities and requirements of a country's customs have to be met each time a shipment crosses a border. There are also, however, one-time costs, such as those incurred by a firm to acquire information on border procedures. The number and complexity of the documents required for

clearance can also be seen as a fixed cost. Traders have the one-time cost that involves learning how to fill in the forms. They may also have to purchase specialist IT systems and search for dedicated staff who will deal with customs matters (Grainger, 2008). As the WTO TFA contains provisions requiring countries to publish and make available information on border procedures, as well as to decrease and simplify documentation requirements, it should reduce fixed costs and create new trading opportunities. Firms that did not export before may be able to do so now, since their revenues could cover the lower fixed costs of exporting (Melitz, 2003). Trade facilitation can, therefore, lead to export diversification.

The empirical evidence on the export diversification effects of trade facilitation is quite limited when compared to the literature on its effects on existing trade flows. Nordås *et al.* (2006) were among the first to show the negative effects of time to export on the probability to export. Dennis and Shepherd (2011) estimate the impact of various World Bank Group's "Doing Business" indicators on the number of products that developing countries export to and import from the European Union. They find that poor trade facilitation has a negative impact on developing country export diversification. Another approach is taken by Feenstra and Ma (2014). They associate trade facilitation with port efficiency and estimate its impact

on export variety, showing the positive and significant effects of port efficiency on export variety. Finally, Persson (2013) distinguishes between the effects of trade facilitation (measured using the number of days needed to export, from the World Bank Group's "Doing Business" indicators) on homogeneous and differentiated products. She finds that trade facilitation has a higher impact on differentiated products. Reducing export transaction costs increases the number of differentiated products by 0.7 per cent and by 0.4 per cent for homogeneous products.

This subsection presents evidence of the impact of the TFA on export diversification, based on the methodology outlined in Beverelli *et al.* (2015). Two indicators of export diversification are considered: the number of exported products by destination and the number of export destinations by product. The number of exported products,  $npd_{ij}$ , counts how many Harmonized System (HS) sub-headings (six-digit HS codes) a country  $i$  exports to destination  $j$ . In the HS2002 classification used for this exercise, there are 5,224 sub-headings. For each country pair,  $npd_{ij}$  can therefore theoretically range between 0 (no trade) and 5,224 (country  $i$  exports all products to destination  $j$ ).<sup>12</sup> The number of export destinations,  $ndp_{ik}$ , counts how many destinations are served by country  $i$ 's exports of product  $k$ . The number of export destinations is bound by the number of countries included in the CEPII BACI dataset, which is the source of the trade data.

Descriptive statistics for  $npd_{ij}$  and  $ndp_{ik}$  for groups of countries at different stages of economic development are presented in Table D.4. The table shows that the level of diversification in G-20 developing countries

is comparable to the diversification of developed countries. Other developing countries lag behind. This is especially the case for LDCs, which, on average, export only 23 out of the possible 4,795 products to a given destination and serve one destination market out of the possible 202 for a given product.

Econometric estimates of the impact of exporter's trade facilitation on the number of exported products by destination, and on the number of export destinations by product, are presented in Appendix Table D.2. Trade facilitation has a positive and significant effect on the number of exported products by destination and the number of export destinations by product.

The results shown in Appendix Table D.2 have been used to conduct counterfactual analysis aimed at providing insights into the potential export diversification benefits of TFA implementation. The percentage increases in the number of export destinations and in the number of exported products have been estimated under the three scenarios described in subsection D.2(a).<sup>13</sup> Table D.5 presents the results for the number of products by destination, based on the estimations in columns (1)-(2) of Appendix Table D.2. Table D.6 presents the results for the number of destinations by product, based on the estimations in columns (3)-(4) of Appendix Table D.2. All results are aggregated by development level in these tables.<sup>14</sup>

The effect of trade facilitation reform on export diversification is estimated to be substantial for developing countries, in particular for LDCs. These gains are shown in Table D.5. The first column presents "Baseline" estimations where the dependent variable (the number of HS6 products exported) is constructed

**Table D.4: Descriptive statistics on export diversification by level of development**

Development status	Average	Median	Standard deviation	Maximum
<b>Panel (a): Number of exported products by destination (<math>npd_{ij}</math>)</b>				
Developed	717	233	1,009.4	4,795
G-20 developing	672	250	900.1	4,320
LDC	19	1	60.7	1,109
Other developing	101	6	297.0	4,144
Total	271	13	650.1	4,795
<b>Panel (b): Number of export destinations by product (<math>ndp_{ik}</math>)</b>				
Developed	25	11	32.6	202
G-20 developing	24	10	32.8	193
LDC	1	0	3.0	104
Other developing	4	0	9.9	177
Total	10	1	21.9	202

Notes: Descriptive statistics in Panel (a) obtained from the sample of column (1) of Appendix Table D.2.

Descriptive statistics in Panel (b) obtained from the sample of column (3) of Appendix Table D.2.

Source: WTO Secretariat.

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**Table D.5: Estimated increases in the number of products by destination due to TFA implementation by level of development (percentage change)**

	Baseline	New HS6
<b>"Conservative" scenario</b>		
Developed	9.1	9.8
G-20 developing	6.2	6.7
LDCs	11.8	12.8
Other developing	8.4	9.1
<b>"Liberal" scenario</b>		
Developed	9.1	9.8
G-20 developing	8.4	9.1
LDCs	12.1	13.1
Other developing	10.5	11.3
<b>"Full" scenario</b>		
Developed	9.1	9.8
G-20 developing	10.7	11.6
LDCs	32.9	35.6
Other developing	18.4	20.0

Notes: The numbers indicate percentage change in  $npd_{ij}$  (number of exported products by destination) under the relevant scenario. The first column presents "Baseline" estimations where the dependent variable (the number of HS6 products exported) is constructed using trade data for 2009. The second column uses only the number of HS6 products that were not exported before 2008 ("New HS6") in the construction of the dependent variable. This is intended to address reverse causality concerns, in other words, the possibility that the number of products exported by a country causes changes to trade facilitation. By using only the number of new HS6 products, this possibility of reverse causation is reduced if not entirely eliminated. "Baseline" results are based on column (1) of Appendix Table D.2. "New HS6" results are based on column (2) of Appendix Table D.2.

Source: WTO Secretariat.

using trade data for 2009. The second column uses only the number of HS6 products that were not exported before 2008 ("New HS6") in the construction of the dependent variable. This is intended to address reverse causality concerns, in other words, the possibility that the number of products exported by a country causes changes to trade facilitation. By using only the number of new HS6 products, this possibility of reverse causation is reduced if not entirely eliminated.

As shown in Table D.5, under the "conservative" scenario of partial implementation of the TFA, LDCs stand to increase the number of products exported by destination by 11.8 to 12.8 per cent, on average. The gains become much larger under the full implementation scenario, with gains of 32.9 to 35.6 per cent. Other developing countries also stand to experience big gains, with an estimated increase in the number of products exported by destination ranging from 8.4 to 9.1 per cent ("conservative" partial implementation scenario) to between 18.4 and 20 per cent (full implementation scenario).

A similar pattern emerges for the number of destinations by product (see Table D.6). Other developing countries and (to a larger extent) LDCs stand to gain the most. The first column presents "Baseline" estimations where

the dependent variable (the number of destinations exported to) is constructed using trade data for 2009. The second column uses only the number of destinations that were not served before 2008 ("New destinations") in the construction of the dependent variable. As explained above, this is intended to address reverse causality concerns that the number of destinations that a country exports to causes changes to trade facilitation. By using only the number of new destinations, this possibility of reverse causation is reduced if not entirely eliminated.

Consider again the "conservative" scenario of partial implementation of the TFA. The percentage increase in the number of destinations by product ranges from 10 to 15.1 per cent for other developing countries and from 14.1 to 21.3 per cent for LDCs. Under full implementation, the gains are between 22 and 33.2 per cent for other developing countries and between 39.2 and 59.3 per cent for LDCs.

It is worth noting that the gains for G-20 developing countries are smaller, and comparable in size to the gains for developed countries. This is because, as shown in subsection C.2, they have, on average, levels of trade facilitation very similar to those of developed countries.

**Table D.6: Estimated increases in the number of destinations by product due to TFA implementation by level of development (percentage change)**

	Baseline	New destinations
<b>"Conservative" scenario</b>		
Developed	10.7	16.2
G-20 developing	7.4	11.2
LDCs	14.1	21.3
Other developing	10.0	15.1
<b>"Liberal" scenario</b>		
Developed	10.7	16.2
G-20 developing	10.0	15.1
LDCs	14.5	21.9
Other developing	12.5	18.8
<b>"Full" scenario</b>		
Developed	12.5	19.0
G-20 developing	12.8	19.4
LDCs	39.2	59.3
Other developing	22.0	33.2

Notes: The numbers indicate percentage change in  $ndp_{jk}$  (number of export destinations by product) under the relevant scenario. The first column presents "Baseline" estimations where the dependent variable (the number of destinations exported to) is constructed using trade data for 2009. The second column uses only the number of destinations that were not served before 2008 ("New destinations") in the construction of the dependent variable. This is intended to address reverse causality concerns, in other words, the possibility that the number of destinations to which a country exports causes changes to trade facilitation. By using only the number of new destinations, this possibility of reverse causation is reduced if not entirely eliminated. "Baseline" results are based on column (3) of Appendix Table D.2. "New destinations" results are based on column (4) of Appendix Table D.2.

Source: WTO Secretariat.

#### (d) Computable general equilibrium (CGE) simulations

Besides gravity-based estimations, CGE simulations have been employed in order to assess the economic and trade impact of trade facilitation. While the studies reviewed in the introduction are in line with the estimation results presented below, conducting its own CGE simulations offers this report a number of distinct advantages. First, unlike previous studies using more general measures of trade costs, one is able to isolate the impact of trade cost reductions that are specifically due to the TFA as reflected in disaggregated country and sector level estimates by Moisé and Sorescu (2013) using the OECD TFIs.<sup>15</sup> Second, one can take into account various implementation scenarios in terms of both the coverage of provisions adopted by individual countries and the time frame within which commitments will be implemented. In this way, it is possible to illustrate the sensitivity of outcomes to various levels of "ambition". One is also able to apportion the gains to country groupings commonly used at the WTO. Third, one can employ a dynamic approach combining a macroeconomic baseline scenario (using the MaGE – Macroeconometrics of the Global Economy – model) with trade policy simulations in the context of a CGE framework (MIRAGE), following the set-up described

in Box D.2. This not only results in a fully traceable, internally consistent approach to long-term policy simulations, but also allows one to take into account the relationship between a changing economic environment and the impact of the TFA.

Table D.7 shows the principal results from the combined macroeconomic and trade simulations in terms of projected average annual growth rates of GDP and exports due to the TFA, which allows a comparison of results across scenarios despite their different time horizons. Depending on the implementation scenario (full, liberal, conservative) and time horizon (immediately, in five or in 10 years), the TFA adds between 0.34 and 0.54 per cent on average to global economic growth per year, with the higher figure corresponding to immediate, full implementation of the TFA and the lower bound resulting from a conservative implementation target to be achieved over the next 15 years.

This growth impact from the TFA implies that global GDP would be between 5.4 and 8.7 per cent higher in 2030, which translates into an additional US\$ 5.5 to 8.9 trillion (in constant 2007 dollars) for the world as a whole.<sup>16</sup> The predicted effect of the TFA on annual export growth amounts to at least an additional 2 per cent expansion under any scenario, ranging from 2.06 per cent for the most conservative and slow

**Box D.2: Main elements of MIRAGE**

The latest version of the MIRAGE (Modelling International Relationships in Applied General Equilibrium) model, used here, is documented in Fontagné *et al.* (2013), the original model being fully described in Bchir *et al.* (2002) and Decreux and Valin (2007).

On the supply side, each sector in MIRAGE is modelled as a representative firm, which combines value-added and intermediate consumption in fixed shares. Value-added is a CES (“constant elasticity of substitution”) bundle of imperfectly substitutable primary factors (capital, skilled and unskilled labour, land and natural resources). Firms’ demand for production factors is organized as a CES aggregation of land, natural resources, unskilled labour, and a bundle of the remaining factors. This bundle is a nested CES aggregate of skilled labour and capital (that are considered as relatively more complementary).

MIRAGE assumes full employment of primary factors. Population, participation in the labour market and human capital evolve in each country (or region of the world economy) according to the demographics embedded in the macro projections. This determines the labour force as well as its skill composition (skilled/unskilled). Skilled and unskilled labour is perfectly mobile across sectors, but immobile between countries. Natural resources are sector-specific, while land is mobile between agricultural sectors. Natural resources for the mining sector and total land for agricultural sectors are set at their 2007 levels: prices adjust demand to this fixed supply. Natural resources for primary fossil fuel production sectors are calibrated as being constant. Installed capital is assumed to be immobile (sector-specific), while investments are allocated across sectors according to their rates of return.

The overall stock of capital evolves by combining capital formation and a constant depreciation rate of capital of 6 per cent that is the same as in the long-term growth models. Gross investment is determined by the combination of savings (the savings rate from the growth model, applied to the national income) and the current account. Finally, while total investment is savings-driven, its allocation is determined by the rate of return on investment in the various activities. For simplicity, and because reliable data on foreign direct investment (FDI) are lacking at country of origin, host and sectoral levels, international capital flows only appear through the current account imbalances, and are not explicitly modelled.

On the demand side, a representative consumer from each country/region maximizes instantaneous utility under a budget constraint and saves a part of its income, determined by saving rates projected in the first-step exercise. Expenditure is allocated to commodities and services according to a LES-CES (Linear Expenditure System – Constant Elasticity of Substitution) function. This implies that, above a minimum level of consumption of goods produced by each sector, consumption choices of goods produced by different sectors are made according to a CES function. This representation of preferences is flexible enough to deal with countries at different levels of development. Within each sector, goods are differentiated by their origin. A nested CES function allows for a particular status for domestic products according to the Armington hypothesis (Armington, 1969): consumers’ and firms’ choices are biased towards domestic production, and therefore domestic and foreign goods are imperfectly substitutable, using a CES specification. The Armington elasticities provided by the GTAP (Global Trade Analysis Project) database and estimated by Hertel *et al.* (2007) are used. Total demand is built from final consumption, intermediate consumption and investment in capital goods.

Dynamics in MIRAGE are of two kinds: the total factor productivity (TFP) is calibrated in a baseline exercise, while production factors dynamics are set exogenously. Both are built in MIRAGE using macroeconomic projections from the MaGE model documented in Fouré *et al.* (2013).

TFP is based on the combination of three mechanisms. First, agricultural productivity is projected separately, as detailed in Fontagné *et al.* (2013). Second, a 2 percentage point growth difference between TFP in manufactures and services is assumed (as in van den Mensbrugge (2005)). Third, the aggregate country-level TFP is calibrated in the baseline exercise in order to match both production factors and GDP projections from the aggregate growth model, given the exogenous agricultural productivity and the productivity gap between manufacturing and services. Dynamics in MIRAGE are implemented in a sequentially recursive way: that is, the equilibrium can be solved successively for each period, given the exogenous trajectory for sector-specific TFP, if calibrated as described above, as well as the accumulation of production factors – savings, current accounts, active population and skill level – coming from the growth model. Simulations extend up to 2030. Finally, MIRAGE is calibrated on the GTAP dataset version 8.1, with 2007 as a base year.

**Table D.7: Addition to annual export and GDP growth due to TFA implementation, by scenario (annual percentage change)**

	Exports	GDP
<b>"Conservative" scenario</b>		
Immediate	2.09	0.36
5 years	2.08	0.35
10 years	2.06	0.34
<b>"Liberal" scenario</b>		
Immediate	2.33	0.43
5 years	2.31	0.41
10 years	2.29	0.40
<b>"Full" scenario</b>		
Immediate	2.73	0.54
5 years	2.71	0.52
10 years	2.67	0.50

Source: Fontagné *et al.* (2015).

implementation plan to almost 2.75 per cent in the most ambitious case.

Interesting patterns emerge when these figures are separated out for developed and developing countries respectively. In terms of the TFA's contribution to average annual GDP growth, developing countries' gains exceed those of developed countries, but only under a scenario of full or fairly ambitious ("liberal") implementation. In the case of full and immediate implementation, the TFA would augment average economic growth in developing countries by almost 0.9 per cent annually, while it would add about 0.25 per cent to GDP growth in developed countries. If, on the other hand, implementation is less ambitious ("conservative"), the picture is reversed, with developing countries' growth receiving a boost of barely 0.25 per cent and developed countries' growth increasing by almost 0.5 cent.

For both country groups, quick implementation of the TFA is more beneficial in terms of its economic impact compared to an implementation process stretching over several years, with the difference amounting to up to 0.1 per cent of annual GDP growth. For exports, the picture is similar, albeit more extreme. Developing countries reap much larger export gains from the TFA but only in the case of an ambitious implementation schedule. In such a scenario, developing countries would see their exports rise by over 3.5 per cent per annum, while developed countries' exports would increase by about 1.8 per cent per year owing to implementation of the TFA. For the less ambitious scenarios considered here, developed countries' export increases exceed those of developing countries, with the former achieving an additional boost to exports of between 2.7 and over 3 per cent per annum and exports in the latter increasing by only between about 1 and 2 per cent.

In previous studies the impact of trade facilitation has also been expressed in terms of the absolute amount added to world GDP and exports. Adopting a similar approach, the report finds that the TFA has the potential to add between US\$ 345 billion and US\$ 555 billion (in constant 2007 dollars) to global GDP per year, with faster and fuller implementation of the TFA resulting in GDP gains that are larger by over US\$ 200 billion.<sup>17</sup> Similarly, exports would increase by between US\$ 750 billion and over US\$ 1 trillion.

Again, when looked at separately for different country groups, these numbers underscore the high stakes for developing countries in implementing the TFA: Figure D.8 shows the projected increases in exports over the next 15 years under the baseline macroeconomic scenario for both developed and developing countries (solid lines). Exports of the former are currently larger than those of the latter, but developing countries' exports are expected to exceed those of the developed countries by the year 2026. An ambitious implementation of the TFA could advance this "cross-over" point to the year 2018 (dashed lines), i.e. developing countries' exports would account for more than half of world trade already three years down the road owing to implementation of the TFA alone.

As can be seen from Table D.1 above, the estimates of the impact of the TFA are at the upper bound of existing studies, confirming the oft-quoted "US\$ 1 trillion" figure by Hufbauer and Schott (2013), even when using more precise data on TFA indicators and implementation scenarios and a more elaborate methodology. The results presented here are larger than, for instance, the ones generated in another recent study by the World Economic Forum (WEF) (2013), which finds an overall positive impact of trade facilitation of plus 4.7 per cent

**Figure D.8: Projected exports 2015-30, by country group (billion constant 2007 US\$)**



for GDP in their most ambitious scenario, that is, almost one per cent less than the 2030 GDP expansion that is obtained in the most conservative scenario in this report.<sup>18</sup>

As different studies are often difficult to compare, another possible point of reference for the TFA results is a different policy reform baseline within the same CGE model. This report has therefore simulated a hypothetical situation in which tariffs would be completely eliminated. Up until 2030, this would result in an 11 per cent higher level in exports and a 0.8 per cent higher level of GDP. While the effect of trade facilitation on exports is larger than the one from tariff elimination (in fact, in the “static” WEF exercise, they are of the same order of magnitude), the difference is particularly stark for GDP, where the impact of the TFA exceeds the one of tariffs by a factor of more than 10 (about 6.5 in WEF, 2013). This is, of course, related to the fact that trade facilitation reduces efficiency losses, i.e. saves on economic resources that would otherwise have been wasted. In contrast, tariff reduction or elimination produces smaller efficiency gains because part of it simply redistributes revenues from government to consumers.<sup>19</sup>

Finally, the simulations provide a number of insights at the sectoral and regional level. Sectors where GVCs are prominent, such as electronics and textiles and clothing, would be among those enjoying the biggest impact of the TFA, but only if the TFA were to be implemented promptly and with all its provisions. In such a case, exports in these sectors would increase at an additional average rate of almost 4 per cent per annum. At the regional level, the importance for developing

countries of ambitious TFA implementation is borne out even more forcefully, with Sub-Saharan Africa and parts of Asia realizing significant increases in exports only under a far-reaching implementation scenario. By the same token, some developed countries may realize slightly higher growth in certain export sectors under a more conservative scenario, as they would be less exposed to competition from developing countries when TFA-related trade cost reductions are less substantial.

Overall, the simulations confirm that the trade gains from speedy and comprehensive implementation of the TFA are likely to be in the trillion dollar range, contributing up to almost one per cent to annual GDP growth in some countries. At the same time, more is at stake for certain countries, notably in the developing world, than for others, and the impact of the TFA may be largest in some of the most dynamic sectors if the TFA is implemented soon and in full. As compared to the substantial benefits that the TFA can deliver according to these projections, existing estimates of the costs of implementation reviewed in subsection E.2 appear to be relatively small, but may vary across countries and necessitate different forms of implementation assistance and support, as will be further discussed in Section E.<sup>20</sup>

### 3. Differentiated impact of trade facilitation

While the previous analysis has largely concentrated on the overall trade impact of implementing the TFA, further insights into its effects could be gleaned by looking at specific sectors or players in international

trade. Trade facilitation can boost bilateral trade, export diversification, and economic welfare. Although trade facilitation can be expected to have significant positive effects in aggregate terms, there is a question as to how those gains are distributed across and within nations. Among the questions that will be raised in this subsection are the following: is the beneficial impact of trade facilitation going to be uniform across all goods or are certain products (e.g. fresh produce, intermediate inputs used in GVCs) going to benefit more? Could trade facilitation expand the mix of firms engaged in international trade, allowing small and medium-sized enterprises (SMEs) to enter? Will implementation of the TFA also benefit the poor within countries?

### (a) Sectoral effects

A major dimension of the cost of complex border procedure is time to export. All transactions leaving or entering a country must be processed by their customs agencies and this processing takes time. Customs clearance delays can be substantial and significantly reduce trade. Even when national averages are low, there can be substantial variability of export time at the transaction level. Volpe *et al.* (2015) report export processing times ranging between one and 31 days for Uruguay.

Long export times do not need to be a problem if demand is stable and delivery time is predictable. However, if there is uncertainty about future demand, long lead time (the time between initiation and execution) is costly even when the customer knows exactly when the merchandise will arrive. If future demand has been underestimated, running out of stock has costs in terms of foregone sales and the possibility of losing customers. If future demand has been overestimated, excess supply must be sold at a discount. Similarly, the more variable the delivery time, the larger the buffer stocks needed. Thus, even if the average lead time is low, a high rate of variability can render a supplier uncompetitive and can be more damaging than having long, but predictable lead times.

Long export times or uncertain delivery time can affect trade differently depending on the nature of the traded good. Time costs, for example, represent a significant obstacle to trading intermediate goods. Timeliness matters for trade in intermediate goods because it is essential to the management of the production chain. Delays in delivery increase the costs of holding stocks, impede rapid responses to changes in customers' orders and limit the ability to rapidly detect, fix and replace defective components. In support of this argument, using information on firms' transport modal choice between exporting goods by air or ocean, Hummels and Schaur (2013) estimate a higher value of time for trade

in parts and components than total trade. That is, firms are more willing to pay the premium for air shipping on intermediate goods trade. Saslavsky and Shepherd (2014) show that goods traded within GVCs tend to be more sensitive to improvements in trade facilitation than other types of goods. Using a gravity model with trade in machinery parts and components as a proxy for goods traded within GVCs and using the World Bank's Logistics Performance Indicators, they find that intra-GVC trade is more sensitive to improvements in logistics performance – another important aspect of trade facilitation – than trade in other types of goods. Indeed, the link between logistics performance (trade facilitation) and trade in GVC products is about 50 per cent stronger than for other goods. Trade facilitation is thus particularly important in the case of GVCs.

Long export times or uncertain delivery time can represent a significant obstacle to trade in time-sensitive goods (perishable goods in agriculture and goods with a high propensity to be exported by plane in manufacturing).

Djankov *et al.* (2010) find that delays have a relatively greater impact on exports of time-sensitive agricultural and manufacturing goods. They find that a 10 per cent increase in export time reduces exports of time-sensitive agricultural products by about 3.5 per cent and of time-sensitive manufacturing goods by more than 4 per cent, all else being equal.

Focusing on African agricultural exports, Freund and Rocha (2010) show that trade costs affect exports of time-sensitive goods and time-insensitive goods differently; time is more critical for trade in perishable products than for trade in preserved goods such as tinned food. Most importantly, they find inland transit time (the time it takes for the merchandise to be moved from the principal city to the port of exit) rather than document time (the time it takes for an exporter to complete all documentation activities), custom time (the time necessary to realize the technical controls of the merchandise) and port time (terminal handling times) to have the strongest impact on the composition of trade, preventing countries from exporting time-sensitive agricultural goods. They explain this finding on the basis that transit times are more uncertain.

Focusing on customs delays (that is, the time required for the customs to carry out verifications, excluding time required for document, inland transport and port or airport handling), a recent study by Volpe *et al.* (2015) on Uruguay transactions finds that a 10 per cent increase in customs delay results in a 3.8 per cent decline in exports. But time matters particularly for food and textile and clothing – goods that quickly lose value because they are perishable or are subject to rapid fashion cycles.

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In a broader sense, trade facilitation also includes improvements of transport and communication infrastructures. Some studies show that the provision of these infrastructures also affects the volume and the composition of trade. Yeaple and Golub (2007) show that the increased provision of infrastructure tends to raise total factor productivity (TFP) in most sectors, with road networks having a particularly strong effect on TFP. Specifically, they show that road connection raises the TFP of most industries (food, textiles, wood, paper, chemicals, metals, machinery, electronics, transport), whereas improved telephone lines raise the TFP of transport and scientific instruments industries, and an improved electrical generating capacity raises the TFP of food and chemicals industries. Fink *et al.* (2005) also show that a good quality telecommunications infrastructure boosts trade in differentiated goods. They find that the importers of telecommunications prices have a substantially larger impact on trade in differentiated products than trade in reference priced products and homogenous products.

### (b) Greater participation of SMEs in trade

Even though the definition of SMEs is different among countries and institutions, and it is therefore difficult to measure their incidence across countries, existing estimates suggest that the contribution of SMEs to the world economy is significant. One study estimates that SMEs account for more than 95 per cent of firms in most economies and a significant amount of employment – between 50 and 85 per cent of total employment (Kuwayama *et al.*, 2005).

Yet, SMEs account for a relatively small share of international trade. This is because there are fixed costs to enter a foreign market that impinge particularly on the profits of small firms. Firms decide whether or not to enter a certain export market before they decide how much to export. Due to cross-border trade costs, only a few firms in each country actually export. Exporting firms tend to be larger and more productive than non-exporting firms. This is because only the most productive firms are able to make profit withstanding the additional costs associated with exporting. Less productive ones cannot do so, and only produce for the domestic market.

Burdensome trade procedures, customs and trade regulation are often mentioned as major obstacles to SMEs' export participation. Large firms, especially multinational firms, can be better equipped to deal with a complex environment and therefore, perceive this as less relevant obstacle to trade. Using the World Bank Enterprise Survey database, Table D.8 shows that the highest percentage of firms indicating that customs and trade regulations are major or very severe obstacles to trade are indeed SMEs.

**Table D.8: Evaluation of customs and trade regulations as obstacles to trade, by size of exporter**

Type of firm	Percentage of replies
Large firm (100+)	16.9
Medium-sized firm (20-99)	18.4
Small firm (5-20)	19.4

*Note:* Figures indicate the percentage of firms that replied that customs and trade regulations are a major or very severe obstacle to trade.

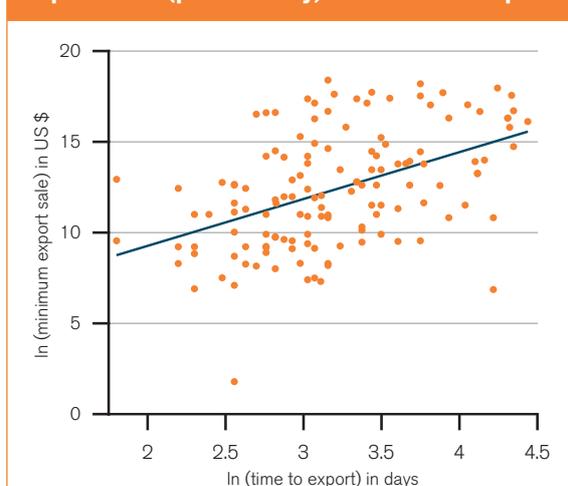
*Source:* World Bank Enterprise Survey.

Implementation of the TFA can boost SMEs' participation in trade. As trade costs fall, more and more less productive firms will start to export. Trade facilitation can, therefore, potentially promote the entry of SMEs into export markets. The simple correlation between the minimum size of exporting firms by country and export time support this possibility. As shown in Figure D.9, the lowest times to export are associated with smaller exporting firms.

An issue discussed in the literature is, however, the risk that small firms may actually not reap the potential benefits of trade facilitation. The concern relates to how gains occurring through trade facilitating reforms are distributed within GVCs. One concern is that these gains are mainly appropriated by the "lead" firms – generally large multinational firms with market power over their suppliers. The issue as to whether small or large firms gain more is therefore an empirical question.

Existing econometric studies on the impact of trade facilitation on exports at the firm level support the view that it is not just large firms that benefit from

**Figure D.9: Relationship between minimum export sale (per country) and time to export**



*Source:* World Bank Enterprise Survey, "World Bank" Doing Business Indicator.

trade facilitation, but also small firms. In addition, some aspects of trade facilitation can benefit small firms more than large firms. One pioneer study on Asian countries finds that SMEs (defined in the study as firms with less than 100 employees) benefit mainly from improvements in the “soft” part of trade facilitation (in their study identified with a more transparent and predictable policy), whereas large firms benefit more from improvements in transport and information technology infrastructures (Li and Wilson, 2009). A more recent study by Hoekman and Shepherd (2013) distinguishes four types of firms: micro (less than 10 employees) small (between 10 and 50 employees), medium (between 50 and 250 employees) and large firms (greater than 250 employees). This study finds that firms of all sizes benefit from a reduction in the average time taken to export a good, as recorded by each firm, and that this effect is independent of a firm’s size.

However, these studies present several drawbacks. First, data quality is clearly an issue. They use the World Bank’s Enterprise Surveys (2013 standardized version), which include data for firms in 119 developing countries and 11 manufacturing sectors over the period 2006-11. Although the database has broad country coverage, data are subject to strong limitations. Since they are collected by private contractors with no enforcement power in the case of misstatement, they may present quality issues. In addition, data coverage is subject to firms’ willingness to reply. This contrasts with the situation when firm-level surveys are conducted by national authorities (such as customs data). Second, the database only covers firms in the formal sector with at least five employees. In the developing country context, it therefore probably over-samples large firms. Third, although the World Bank Enterprise Surveys database collects information at the firm level on a number of firms’ characteristics, such as their size, exports, and their reported time to export, some firm-specific characteristics are missing when the firm does not export. For example, a firm that does not export typically does not report its export time. It follows that an analysis of the impact of export time on trade will typically exclude non-exporting firms. But long time delays may be the very reason why firms do not export. By dropping non-exporting firms from the sample, results on the impact of export time on trade will be biased.

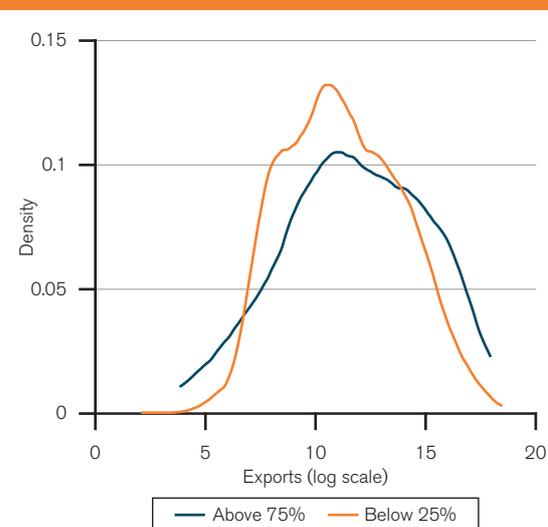
To address these limitations, this report has complemented existing firm-level analysis with three additional studies. Their general finding is that some types of trade facilitation improvements profit small firms more than large firms. One study looks at the impact of time to export on trade margins. Using the World Bank Enterprise Surveys database and the same

specification as Hoekman and Shepherd (2013), the study shows that when all firms in a country are taken into account (at least all those replying to the survey) rather than just the sub-sample of exporting firms, the effect of improved trade facilitation (measured as a lower number of days to export) on trade does depend on a firm’s size.<sup>21</sup> Micro, small and medium-sized firms profit more than large firms from lower time to export. Smaller firms are more likely to export and will increase their export shares more than large firms (Hyoungmin and Piermartini, 2015).

Using customs data for Colombian firms in the agricultural sector and data on transport costs to the port at the regional level, another study shows that lower domestic transport costs to the port particularly benefit small firms. Figure D.10 shows the plot of Colombian firms’ export size in regions with high (above 75<sup>th</sup> percentile) and low (below 25<sup>th</sup> percentile) transport costs, respectively. Low transport costs are associated with a shift to the left of the distribution: that is, exporting firms tend to be smaller when transport costs to the port are low. Given the importance that the agricultural sector has for employment and for poverty reduction, this finding stresses the potential opportunity that improvements in trade facilitation may represent for poverty reduction (Espitia *et al.*, 2015).

The third study explores how the differential effect of trade facilitation reforms on small and large firms change across types of reforms. Using the firm-level customs data of French exports, and looking at the effects on a firm’s export of improving trade facilitation

**Figure D.10: Size distribution of exporting Colombian firms in agriculture, by level of transport costs to port**



Source: Espitia *et al.*, (2015)

## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

in the importing country rather than in the exporting country, Fontagné *et al.* (2015) show that, while in general all exporting firms gain from improved trade facilitation in the importing country, the relative effects on small and large firms vary by type of trade facilitation measure. The study analyses the effect of improving trade facilitation on several aspects of trade: the number of products exported, the volume of exports at the firm level, as well as the number of exporting firms. In particular, following the structure of the OECD TFIs, the study explores the differential effect of eight types of trade facilitation measures. These are:

1. information availability – an indicator of transparency of government rules and regulations;
2. advance ruling – an indicator of certainty of trading condition;
3. appeal procedure – a measure of quality of judicial institutions;
4. fees and charges – an index of transparency and its pecuniary effects on trading;
5. formalities and documents – an index of the complexity of document requirements and time to trade;
6. formalities and automation – an index of the use of information technology by the public administration;
7. formalities procedures – an index of efficiency and user-friendliness of controls at the border;
8. border agency (internal and external) – an index of coordination among different agencies within a country involved with trade and an index of integration with neighbouring countries.

The study finds that small firms profit relatively more when trade facilitation improvements relate to information availability, advance ruling and appeal procedures. Large firms profit relatively more when the importing countries facilitation reforms relate to formalities (documents, automation and procedures).

### (c) The poor also gain from trade facilitation

It has been shown so far that trade facilitation measures can affect countries differently. Developing countries have potentially more to gain from improving trade facilitation because they face higher trade facilitation-related barriers, because they tend to have a comparative advantage in agriculture and perishable goods, which are often more time-sensitive than

manufacturing goods,<sup>22</sup> and because their firms tend to be small.

Trade facilitation can also have redistributive effects within a country. Although research on the effects of trade facilitation on the poor within a country is limited, existing studies suggest that trade facilitation may be particularly beneficial to the poor. Nguyen (2013) finds that countries requiring a large number of documents for imports and more time for imports and exports are more likely to have a higher poverty rate. At a poverty line of US\$ 1.25 PPP (i.e. purchasing power parity) per day, one additional document for imports is associated with a 0.77 percentage point increase in the poverty rate. One additional day in the time needed for exports or imports is associated with an increase of approximately 0.5 percentage points in the poverty rate.<sup>23</sup> Using household data for the Republic of Moldova in 2002, Porto (2005) shows that the removal of informal barriers (including the cost of doing business) in this country would increase the average real income of Moldovan families. In his simulations, he models informal trade barriers as export taxes. The Republic of Moldova mainly exports processed agricultural products, and the majority of the population works in the fields, providing agricultural inputs to manufacturing firms, or in agro and food-processing industries. Thus, a removal of informal barriers increases domestic food prices, to the advantage of those working in the food industry. Poverty declines, lifting between 100,000 and 180,000 Moldovan citizens out of poverty.

In general, one can argue that cumbersome customs procedure – delays and uncertainty of timely delivery – may matter most for the rural poor because of the products they export, which tend to be perishable. Therefore, improvements in trade facilitation can be a powerful tool to raise the living standards of poor households working in export-oriented, time-sensitive agricultural products in developing countries. In addition, trade facilitation also entails regulatory simplification – e.g. consolidating multiple documents required for import/export clearance. These measures can lower the incidence of corruption and significantly enhance the efficiency of controls at the border (e.g., through risk management techniques and enhanced regional border coordination). This, in turn, has significant potential benefits for small/informal/women traders, who often do not have the necessary capacity or resources to deal with complex documentation requirements. Also, they do not have the financial means to pay trade-related fees and charges and may be subject to additional inspections at the border (due to the lack of rich track records with customs authorities).<sup>24</sup>

## 4. Induced effects from implementing trade facilitation

### (a) Attracting more foreign direct investment

The relationship between trade facilitation and FDI is, in principle, ambiguous. Trade facilitation could be seen by foreign investors as a proxy for a country's investment climate, which would thus mean more FDI for the country if it improves trade facilitation (Dollar *et al.*, 2006). According to Engman (2009), inefficient trade procedures result in higher trade costs which are then factored in the cost-benefit analysis used by companies to make foreign investment decisions. Some limited empirical evidence (Olofsdotter and Persson, 2013; Portugal-Perez and Wilson, 2015) suggests that countries with more inefficient trade procedures receive less FDI.

The size of the FDI-receiving economy affects the nature of the FDI it receives (horizontal or vertical) as well as the relationship between trade facilitation and FDI. Horizontal FDI is positively affected by market size and, as shown by Kinda (2014), by the pervasiveness of trade regulations. In this case, trade facilitation by reducing unnecessary trade regulations would decrease the probability of a firm choosing FDI over exports (Persson, 2012; Olofsdotter and Persson, 2013). Vertical FDI and trade are complementary activities, arising (among others) from comparative advantage. As much as it increases trade, trade facilitation would thus increase the probability of vertical FDI (Persson, 2012).

Since the type of FDI flowing into poor countries is mostly vertical, one would expect to find some evidence of a positive relationship between trade facilitation and FDI at lower levels of GDP.<sup>25</sup> The relationship should become progressively weaker and may even turn negative for large economies, where a relevant part of inward FDI is of the horizontal type. There is limited empirical evidence suggesting that countries with more inefficient trade procedures receive less FDI with the effect being smaller in economically large countries (Olofsdotter and Persson, 2013). The explanation is that larger economies attract more market-seeking investments, which in turn are expected to be less sensitive to trade procedures.

To shed new light on the question of whether trade facilitation leads to greater inward FDI, and whether this effect depends on the size of the FDI-receiving economy, a formal or econometric test was conducted. The results shown in Box D.3 confirm that the relationship between trade facilitation and FDI is conditional on the size of the economy. Bigger market size induces multinational firms to jump the additional trade costs due to poor trade facilitation, and invest directly in a country to get market access. In other words, bigger markets may attract more foreign investment if the lack of trade facilitation acts as a barrier to trade. However, insufficient trade facilitation is expected to discourage FDI in smaller economies. This is because their domestic markets are not large enough to mitigate the additional cost due to insufficient trade facilitation.

As FDI corresponds to higher domestic investment in developing countries and is resilient to financial crises

#### Box D.3: Trade facilitation, FDI and market size

To examine whether trade facilitation leads to greater inward FDI and whether this effect depends on the size of the FDI-receiving economy, the following econometric specification was estimated by ordinary least squares (OLS).

$$\ln(\text{inward FDI}_{it}) = \alpha_i + \theta_t + \beta_1 \text{TF}_{it} + \beta_2 (\text{TF}_{it} * \ln \text{GDP}_{it}) + \beta_3 \ln \text{GDP}_{it} + \varepsilon_{it} \quad (1)$$

The data used in the estimation covers 141 countries over a ten year period (2004-13). The dependent variable is the log of inward FDI in country *i* at time *t*. The main explanatory variable of interest is the interaction term between trade facilitation and market size, proxied by GDP. Two different measures of trade facilitation are used: the number of documents to import and the time to import, both from the World Bank's "Doing Business" dataset.<sup>26</sup> The results are reported in Appendix Table D.5.

For a given level of trade facilitation, market size is positively correlated with inward FDI. Conversely, for a given level of market size, trade facilitation is negatively correlated with inward FDI. The interaction between the two variables is positive and statistically significant. The negative effects of trade facilitation on inward FDI only occur for low levels of GDP. In particular, for the estimation with the number of documents to import (Column (1)), the threshold of GDP after which one additional document to import starts having a positive effect on GDP is estimated at US\$ 1.1 billion – which is slightly below the 25<sup>th</sup> percentile of the sample distribution of GDP. For the estimation of the number of days to import, this threshold rises to US\$ 8.9 billion – which is around the 70<sup>th</sup> percentile of the sample distribution of GDP. For market size above these thresholds, trade facilitation is positively correlated with inward FDI.

(Bosworth and Collins, 1999; Loungani and Razin, 2001), there seems to be a particular case for improving trade facilitation in smaller economies. Moreover, the results presented above should allay the fear that improving inefficient customs systems may put additional demands on the limited resources of developing countries (OECD, 2005). The resource-enhancing capacity of trade facilitation, through increased capital inflow, could help in mitigating the cost of investing resources in customs-related infrastructure.

(b) Better collection of government revenues

Revenue collected by customs and other border agencies remains an important source of government income for developing countries and LDCs. According to a World Customs Organization (WCO) survey on 34 LDCs (WCO, 2014), the total of duties and other taxes collected at the border still accounts for 45 per cent of government tax revenue, of which 19 per cent are customs duties.

Given the high reliance of some developing countries on border revenues, good customs administration is a key objective. According to the OECD (Moisé and Sorescu, 2013), inefficient border procedures may be the source of large foregone revenues in African countries of up to 5 per cent of GDP. Trade facilitation-related reforms designed and implemented in conformity with international principles are consistent with the objective of maximizing customs revenues. Engman (2009) mentions cases in which the introduction of modern single-window automation systems (e.g. in Ghana and Singapore) helped substantially increase customs revenue. Actually, revenue enhancement may be one of the main motives for trade facilitation and customs reforms. The principles for “effective customs administration modernization”<sup>27</sup> promoted by the WCO aim to foster voluntary compliance, reduce transaction costs and increase revenue (Yasui, 2010; Zaki, 2014). In this framework, the WCO (2014) assesses that the TFA could improve customs revenue in three different ways: by increasing trade flows, by improving traders’ compliance, and by helping to recover revenue losses from customs fraud.

With respect to increasing trade flows, at any given level of trade taxes and VAT rates, customs revenues are likely to increase as cross-border merchandise trade expands – the main variable being the actual expansion of trade due to TFA reform. Greater trade should therefore increase the tax base for concerned governments (see subsection D.2).

With respect to improving traders’ compliance, for any given level of imports, trade facilitation reforms

would improve tax returns by enabling a more effective collection of duties and taxes through increased compliance. Lesser and Moisé-Leeman (2009) show that by simplifying customs procedures, trade facilitation encourages compliance, reduces informal trade and increases the likelihood of duties being paid. The WCO provides examples of simplifying measures having a positive impact on administrative and tax compliance, such as the system of authorized operators, which trusts registered traders and their representatives to comply on a voluntary, declarative basis, but strengthens penalties against false declaration. The system is described to have fostered tax compliance (WCO, 2014). The New Zealand Customs Service (2014) reported that 97.3 per cent of imports transactions in 2013 were deemed compliant with very limited physical or documentary inspections since it has introduced this system.

With respect to helping to recover revenue losses from customs fraud, trade facilitation should improve trade tax receipts through better detection of customs fraud and corruption. Customs fraud may take many forms, including mis-invoicing, non-filing of declarations, voluntary misclassification, transit and origin fraud. Regardless of its form, customs fraud can have significant economic consequences on developing economies when government revenues are reliant on border taxes. For example, Global Financial Integrity (Kar and Spanjers, 2014) estimated the potential customs annual tax loss due to mis-invoicing at between 7 and 13 per cent of the government revenue in five economies (Ghana, Kenya, Mozambique, Tanzania and Uganda). The Post-Clearance Audit process (PCA), in particular, can contribute to reducing duty and tax evasion. For instance, following the establishment of PCA, Chinese Taipei customs were able to recover more than US\$ 26 million in revenue in the form of evaded duties and fines in the fiscal year 2010-11, that is, 10 times the cost of PCA implementation.<sup>28</sup> In addition, the lack of transparency or even availability of trade rules creates opportunities for the inappropriate exercise of official discretion, for collusion between customs officials and traders where agents extract rent from traders (ADB and UNESCAP, 2013).

Djankov and Sequeira (2009) showed there was a negative correlation between the payment of bribes and the collection of tariff revenue. Revenue leakages through corruption in customs administrations can be expected to decline as procedures and clearance process become more transparent and simplified (Ferreira *et al.*, 2007). In an attempt to penalize corruption and poor practices observed, the “integrity action plan” introduced by Cameroon’s customs is worth mentioning. Building on previous reforms, Cameroon customs implemented in 2010 a system of

performance contracts between customs leaders and frontline officers. Since then revenue collection has increased – revenues per container increased by 12 per cent between 2009 and 2010 – and clearance times have been shortened (Cantens, 2010).

Concerns have been expressed regarding any possible negative effects of trade facilitation measures on developing countries' revenue. According to WCO (2014), any negative impact should be negligible, or outweighed by the increase in revenue resulting from the uniform implementation of the TFA. The potential for revenue losses may come from the introduction of a *de minimis* system in which no duties and taxes will be collected for shipments whose value falls below a certain threshold. Still, the revenue impact would depend on the threshold value and on the implementation of the measure. To alleviate this concern, the TFA actually

allows its signatories to determine their respective threshold amount. To further diminish the potential for revenue loss, the WCO (2014) recommends that governments in developing countries first implement the revenue-enhancing measures of the TFA, under its special and differential treatment provisions, and thus, only when the tax base is firmed up, implement measures that could pose a threat to established revenue collection channels, or cost extra to be implemented properly. In conclusion, customs reforms, trade facilitation and revenue collection should be regarded as complementary objectives. This "possible trinity" is further illustrated in Box D.4, which focuses on the role of the Automated System for Customs Data (ASYCUDA) programme of the United Nations Conference on Trade and Development (UNCTAD) system in trade facilitation and its impact on customs revenue collection.

#### Box D.4: ASYCUDA and the impact of customs performance measurement

Customs authorities are essential for facilitating trade flows, improving compliance and minimizing fraud. However, despite their key role for government tax collection, many customs administrations fall short of being efficient and effective.

Information communication technology (ICT) and the automation of customs management has been, and remains, one of the most important tools to facilitate trade and achieve improvements in timeliness, cost, reliability, compliance, and revenue collection (OECD, 2005). The example of ASYCUDA is illustrative. The latest version, ASYCUDA World, allows traders to handle most documents online, and interact at all stages in the process, including requirements related to pre-shipment, clearance process and checking, up until release. For governments, the automated revenue collection process ensures that customs duties and other taxes are accounted for in a timely manner. Implemented in 94 countries worldwide – including 40 LDCs – it has become the reference for customs computerization in developing countries.

In addition to the evident benefits of computerized systems, the underlying databases record each transaction by customs agents and allow for detailed performance measures in order to enhance effectiveness, compliance and revenue collection. One of the first exploiting this potential was the Cameroon customs, which decided to collaborate and diagnose inefficiencies with the help of ASYCUDA data, in cooperation with the World Bank and WCO. The Cameroon customs reform focused primarily on data mining (a computational process of extracting useful knowledge from large data sets) and addressing performance issues by signing specific contracts between customs headquarters and frontline officials (Cantens, 2010).

Several quantifiable indicators showed a significant impact on performance: one indicator related to processing times showed that inspectors tended to first assess a declaration but then to decide to delay further clearance on grounds of document controls (the so called "yellow channel"). After implementation of the performance measures, delayed entry of customs assessments fell on average by 49 per cent in the observed customs offices (see Table D.9, from Bilangna and Djeuwo (2012)).

Other measures showed similar improvements after implementing the performance measures: the share of declarations registered and assessed on the same day increased to above 90 per cent, and revenues from disputed claims – an area where corruption had been widespread – increased by 17 per cent in the larger customs offices and by 322 per cent in the smaller customs offices (Cantens, 2010). The example of performance measurement at Cameroon's customs shows how collection and benchmarking of indicators can reduce the asymmetry of information between customs head offices and field officers, and help to fight bad practices and corruption.

Box D.4: ASYCUDA and the impact of customs performance measurement (continued)

Table D.9: Delayed entry of customs assessments

Customs office	Number of entries			Decrease from 2009 to 2011	
	2009	2010	2011	Number	Per cent
Douala International airport	2,605	2,469	2,162	-443	-17
Douala Port I	2,854	2,357	487	-2,367	-83
Douala Port V	1,876	1,519	751	-1,125	-60
Douala external warehouse	875	781	787	-88	-10
<b>Total</b>	<b>8,210</b>	<b>7,126</b>	<b>4,187</b>	<b>-4,023</b>	<b>-49</b>

Source: Bilangna and Djeuwo (2012).

Based on experiences in Cameroon and to further promote customs integrity and performance, the ASYCUDA SYstem for Performance Management (ASYPM) module was developed in 2013 by UNCTAD and the WCO. The module measures and tracks the performance of individual officers and facilitates data mining for customs managers by providing up to 29 indicators by empirical evidence and objective measurement (UNCTAD, 2014). The system has recently been implemented by Liberia's customs; although it is too early to show significant results, the performance indicators already managed to identify some inefficient practices (Bolognesi *et al.*, 2014).

(c) Reduction in trade-related corruption

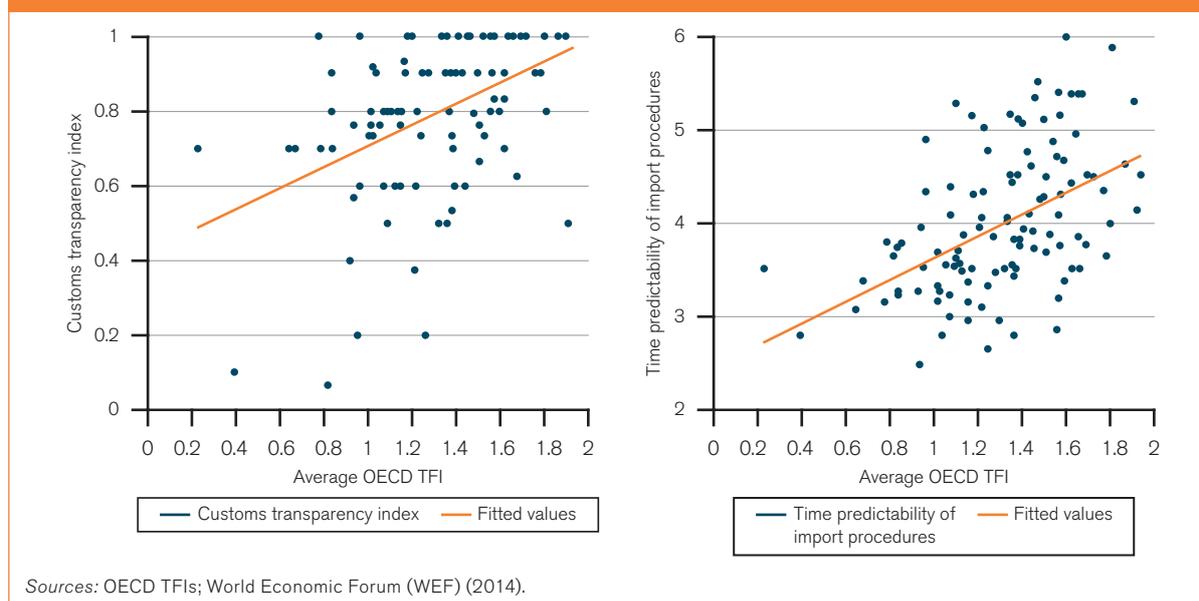
This subsection will consider the impact of trade facilitation on various forms of rent-seeking, in particular trade-related corruption. Economic theory purports two mechanisms through which corruption affects the economy at large. The "corruption as grease" theory argues that if bribes are set according to the time preferences of private agents, corruption can be efficiency-enhancing, reducing delays for public services (Leff, 1964; Lui, 1985). An alternative view suggests that bribes are set according to the strategic preference of the bureaucrats, representing a "distortionary transfer tax" (Krueger, 1974; Shleifer and Vishny, 1997; Rose-Ackerman, 1978).

The literature on corruption and trade has argued that corruption in trading networks increases the cost of trade (Yang, 2008; Clarke and Xu, 2004; Abe and Wilson, 2008; Djankov and Sequeira, 2009). The effect of corruption, however, is likely to depend on the institutional setting of a country. For example, Dutt and Traca (2010) show that while corruption impedes trade in a low-tariff environment, it could have trade-enhancing effects when tariffs are high.

Corruption and other illegal activities are intrinsically difficult to measure in a reliable way. An approach commonly used in the trade literature (Fisman and Wei, 2004; Javorcik and Narciso, 2008; Rotunno and Vézina, 2012) is to look at differences between the merchandise declared by exporting countries (called FOB or free-on-board) and the same merchandise declared by the importing country (called CIF or cost-insurance-freight). Carrère and Grigoriou (2014)

investigate whether this "mirror data" method can indeed help to measure "informal" international trade. In particular, their empirical strategy considers orphan imports, i.e. incoming flows recorded by importing countries that have no corresponding export flows. Using the World Bank's Country Policy and Institutional Assessment "transparency, accountability, and corruption in the public sector" rating to measure corruption, and controlling for a number of country characteristics, they find that corruption indeed increases the probability of observing orphan imports. They also find that more corruption is correlated with a higher ratio of reported imports over reported exports (CIF/FOB ratio), suggesting that corruption may indeed be used by importers to fraudulently under-report incoming flows of merchandise.

Trade-related corruption is positively affected by the time spent to clear customs procedures. Shepherd (2010) shows that a 10 per cent increase in trade time leads to a 14.5 per cent fall in bilateral trade in a low-corruption country, and to a 15.3 per cent fall in a country with high levels of corruption. By reducing the time required to move goods across borders, trade facilitation is therefore a useful instrument for anti-corruption efforts at the border. Evidence of a positive correlation between trade facilitation (measured by the OECD TFIs) and two measures of transparency (customs transparency and time predictability of import procedures) is provided in Figure D.11.<sup>29</sup> This positive correlation is significant after conditioning for GDP per capita, as shown in Appendix Table D.6. Econometric evidence of a causal effect of trade facilitation on corruption has, however, remained quite elusive.

**Figure D.11: Correlation between TFIs, customs transparency and time predictability of import procedures**

Some evidence that custom agencies that control corruption are better able to avoid import fraud is provided by Jean and Mitaritonna (2010). Using the gap between the declarations of trading partners as a proxy for tariff evasion, they evaluate the effect of three specific trade facilitation measures: pre-shipment inspections, the 1979 Agreement on Implementation of Article VII of the GATT (also known as the Customs Valuation Agreement) and the ASYCUDA system. All these transparency-enhancing measures decrease the discretion of customs officials when reporting trade flows. The authors find no statistically significant effect of pre-shipment inspections on corruption in the overall sample. Pre-shipment inspections, however, tend to be more effective for countries with relatively better institutions.

This ambiguous net effect of pre-shipment inspections on fraud is consistent with the findings of Anson *et al.* (2006), who show greatly different effects depending on the country considered. In the case of the Customs Valuation Agreement, the harmonization of valuation practices is found to have lowered the tariff evasion elasticity in the ratifying countries under analysis (12 countries between 2001 and 2004), although the result is not very robust. There is more encouraging news in the case of ASYCUDA. The improvement in accuracy and efficiency of custom clearance generated a substantial reduction in the tariff evasion elasticity with the estimation results appearing to be quite robust.

World-wide import revenue losses due to custom-related corruption are estimated to amount to US\$ 2 billion (Michael *et al.*, 2012). A thorough discussion of

how trade facilitation can lead to better collection of government revenues is presented in subsection D.4(b).

Summing up, the literature has shown that custom agencies that control corruption are better able to avoid import fraud. Moreover, the incentives to engage in fraudulent practices at the border are larger, the longer the trading times. Trade facilitation has the potential to reduce trade-related corruption both directly (reducing the scope for import fraud) and indirectly (shortening trading times).

## 5. Conclusions

This section has documented how developing countries have a lot to gain from implementation of the TFA.

First, improving trade facilitation can give a more powerful boost to developing countries exports because they have high trade costs, a large part of which are due to lack of trade facilitation. Delays at customs and cumbersome procedures are far more frequently encountered in developing countries and LDCs. The gravity- and CGE-based simulations in this section accordingly indicate large potential gains from trade facilitation reform for developing countries and LDCs in terms of increased export flows, export diversification and higher GDP growth.

The impact of trade facilitation may depend on the sectoral composition of traded goods. The trade-hindering effect of lengthy procedures for exporting and importing is particularly acute for time-sensitive products. A number of studies show that fresh produce

and perishable goods tend to be more time-sensitive. This implies that developing countries (especially sub-Saharan countries) that have a comparative advantage in food exports are likely to gain the most from implementing trade facilitation. Other studies show that sectors characterized by rapid changes in taste (fashion), constant innovation (electronic products) and just-in-time production (intermediate goods in supply chains) are also time-sensitive. In this case, too, developing countries stand to reap large benefits.

Another dimension of importance for traders is the certainty of delivery. Uncertainty in delivery times, particularly in value chains, increases trade costs. Since uncertainty in delivery time tends to be higher in lower-income countries, especially transit countries, improvements in trade facilitation which result in increased certainty of delivery time are likely to have the largest impact in low-income countries. Importantly, through this channel, many low-income countries are likely to see greater participation in global value chains.

Another channel through which trade facilitation may affect countries differently is the size distribution of their enterprises. As discussed in this section, empirical evidence suggests that small firms' exports tend to be more responsive to trade facilitation. Therefore, to the extent that some countries have a larger SME sector they may gain relatively more from trade facilitation.

Two more channels, highlighted in this section, also point to relatively large gains for developing countries from implementing trade facilitation reform. First, trade facilitation increases FDI in small economies – which are relatively more dependent than large ones on this channel for investment. Second, trade facilitation reforms help to increase government revenues and to reduce customs fraud and corruption. This is important in those developing countries where customs revenues represent a relatively large fraction of government revenues and that are relatively more vulnerable to rent-seeking at the border.

## Endnotes

- 1 Although the gravity model long predated the paper by Anderson and van Wincoop (2003), their seminal paper transformed it into the modern workhorse of empirical trade economics. Starting from a theoretical model of intra-industry trade, they were able to derive the gravity model for the bilateral trade between any two countries, where the trade between them depends on their gross domestic products (GDPs) and their relative trade costs. In particular, they showed that for any two countries A and B, A's imports from B depend not only on their bilateral trade costs, but also on the overall level of barriers that exports of country B face in the rest of the world, and the overall level of restriction to imports that country A imposes on the rest of the world (the so-called multilateral resistance terms).
- 2 The database on trade costs prepared by Arvis *et al.* (2013) is made up of bilateral trade costs for each pair of countries in the sample: one reporter and one partner country. The figures, computed according to the methodology outlined in Box D.1, are the mean costs in both directions. To compute the average trade costs for developing countries in 2010, only a subset of the dataset with developing country reporters was used. This way, the estimate accounts for the cost each developing country faces, with all countries in the sample. The year 2010 was chosen instead of a more recent year because it had a far larger number of observations.
- 3 For this figure, trade costs are calculated according to the method described in Box D.1. For each country, the rest of the world is considered to be all other countries for which bilateral cost estimates are available. Developing countries include G-20 developing, other developing and least-developed countries.
- 4 The Arvis *et al.* (2013) database on trade costs supplies figures for overall trade, manufacturing and agriculture. However, there are many missing observations. To compare costs in agriculture and manufacturing, only those observations where there were data for both sectors were included. For this analysis, the year 2012 was chosen both because it was recent and because it had a relatively large number of observations.
- 5 The calculations by Hufbauer and Schott (2013) use the estimates from the work by Portugal-Perez and Wilson (2012). Using a gravity model, Portugal-Perez and Wilson conclude that trade facilitation reforms improve the export performance of developing countries. However, they do not provide estimates of the increase in trade arising from these reforms. Instead, they calculate the *ad valorem* tariff liberalization that would generate the same increase in trade as trade facilitation.
- 6 For a description of OECD TFIs and the sub-components, see subsection C.4 and Table C.4 in particular.
- 7 HS6 is a Harmonized System code. The World Customs Organization's Harmonized System (HS) uses code numbers to define products. A code with a low number of digits defines broad categories of products; additional digits indicate sub-divisions into more detailed definitions. Six-digit codes are the most detailed definitions that are used as standard.
- 8 Per the TFA, Articles 14, "Category A contains provisions that a developing country Member or a least-developed country Member designates for implementation upon entry into force of this Agreement, or in the case of a least-developed country Member within one year after entry into force".
- 9 The list of 52 developing economies consists of: Albania; Botswana; Brazil; Brunei Darussalam; Chile; China; Chinese Taipei; Colombia; Congo; Costa Rica; Côte d'Ivoire; Dominican Republic; Ecuador; Egypt; El Salvador; Gabon; Guatemala; Honduras; Hong Kong, China; Indonesia; Israel; Jordan; Republic of Korea; State of Kuwait; Kyrgyz Republic; Macao, China; Malaysia; Mauritius; Mexico; Republic of Moldova; Mongolia; Montenegro; Morocco; Nicaragua; Nigeria; Oman; Panama; Paraguay; Peru; Philippines; Qatar;

- Kingdom of Saudi Arabia; Senegal; Singapore; Sri Lanka; Tajikistan; Thailand; Tunisia; Turkey; Ukraine; Uruguay; and Viet Nam.
- 10 Appendix Table D.1 shows the results of pseudo-Poisson maximum likelihood estimation.
  - 11 First, regressions with splines and, in an alternative specification, with fractional polynomials were estimated. Second, the coefficient on trade facilitation was estimated separately for those countries above the regional/global median. This coefficient was then applied to the “reforming” countries that move to the regional/global median. In the first case, no significant results were obtained. In the second case, the results were similar to the ones presented in Appendix Table D.1, with slightly larger coefficients.
  - 12 In the CEPII BACI (the international trade database of the *Centre d'études et d'informations internationales*) dataset used, however, the maximum number of HS6 sub-headings is lower, and equal to 4,795.
  - 13 It is important to note that results of counterfactual analysis have to be taken cautiously, because they are only as good as the underlying econometric model. Although the report has taken care to address omitted variable and reverse causality biases, it cannot control for every possible country-specific variable correlated with trade facilitation and one cannot completely exclude the endogenous co-determination of trade outcomes and trade facilitation infrastructure.
  - 14 Results aggregated by region are available in Appendix Tables D.3 and D.4.
  - 15 Trade cost estimates by the OECD follow the methodology set out in Chen and Novy (2009) and the trade cost reductions due to the TFA are then bilateralized as further explained in Fontagné *et al.* (2015).
  - 16 Besides increases in GDP, which may be considered a reasonably telling indicator of economic gains, CGE models also allow for the calculation of welfare impacts. In the present exercise, these are in the same ballpark, ranging from 4.6 to 6.6 per cent higher levels of welfare for the world as a whole by 2030. Of course, it must be noted that the type of welfare measure commonly used in these models, namely the so-called “equivalent variation” in real income – i.e. the increase in agents’ income that would have been necessary to obtain the new level of agents’ utility, with prices remaining unchanged – is insufficient in itself in that it does not take into account a range of other factors affecting welfare, such as environmental externalities or income disparities.
  - 17 The absolute, annualized increases for GDP and export volumes were calculated by subtracting the actual 2014 figure from the simulated figure for the year 2030 (simulation time horizon), distributing the difference across 16 equal instalments per year and further reducing this annualized number by the average annual increase in GDP (respectively, exports) in the baseline scenario, i.e. the increases that are projected to occur even in the absence of a TFA.
  - 18 The reasons for these disparities are related to different modelling approaches, scenarios and data used. The WEF study employs the much broader sub-indices of the Enabling Trade Index (ETI) (see subsection C.4), including transport and communications infrastructure, and fairly rough trade facilitation scenarios (halfway to global/regional best practice). But in terms of methodology, only the static GTAP model is used, which for instance does not take into account the dynamic gains that result from an increased efficiency of factor allocation owing to trade facilitation. Other methodological differences also make a comparison difficult. Notably, the WEF study does not shock actual transaction costs contained in the model, but imposes exogenous trade flows coming from a gravity estimation on the CGE framework, which constitutes a drastically different modelling choice from that followed in this report.
  - 19 See subsections C.2 and C.3, where it was explained that the gains from trade facilitation are in the form of “rectangles” and “trapezoids” while the gains from tariff reductions correspond to Harberger “triangles”.
  - 20 A fuller discussion of results, also at a more disaggregated level, as well as of further methodological refinements, notably in relation to certain cost aspects, will be provided in the forthcoming paper by Fontagné *et al.* (2015).
  - 21 In order to consider the full sample of firms, assumptions had to be made as to the expected export time facing the non-exporting firm. This study assumes that domestic firms that decide not to export take this decision, using as expected time to export the average export time of firms producing in the same sector and in the same country.
  - 22 Freund and Rocha (2010); Djankov *et al.* (2010).
  - 23 By admission of the same author, these results have to be taken with caution. They indicate a conditional correlation rather than a causal effect of trade facilitation.
  - 24 For an extensive discussion of these effects see World Bank Group and WTO (2015).
  - 25 Along similar lines, Ndonga (2013) argues that inefficient border procedures have a negative impact on vertical FDI flows in Africa. The implementation of single window systems would therefore constitute an investment facilitation tool.
  - 26 In this subsection, FDI data is from UNCTAD and GDP data is from the IMF’s World Economic Outlook. The OECD TFI indicators are not used in this context because they do not vary over time. Therefore, they would not allow the estimation of panel regressions that control for country fixed effects. As discussed in subsection D.1, time to import and time to export from the World Bank “Doing Business” indicators are negatively correlated with the OECD TFI indicators. This justifies their use in this analysis. Results for cost to import are not reported because they are not statistically significant.
  - 27 The Revised Kyoto Convention’s governing principles are regarded as the international blueprint for effective and modern customs clearance procedures, chief among these are: the application of customs procedures in a predictable and transparent environment, the adoption of modern customs techniques (e.g. risk management, audit-based controls and the optimal use of information technology), an effective partnership with the private sector and other stakeholders, and a readily accessible system of appeals (*Preamble of the Text of the Revised Kyoto Convention*, available at [www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf\\_revised\\_kyoto\\_conv/kyoto\\_new.aspx](http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf_revised_kyoto_conv/kyoto_new.aspx)).
  - 28 “Post-Clearance Audit”, a paper submitted by the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu for the July 2012 WTO Symposium on Trade Facilitation. Available at [https://www.wto.org/english/tratop\\_e/tradfa\\_e/case\\_studies\\_e/pca\\_tpkm\\_e.doc](https://www.wto.org/english/tratop_e/tradfa_e/case_studies_e/pca_tpkm_e.doc)
  - 29 Both the customs transparency index and the time predictability of import procedures are sourced from WEF (2014). The data are for the year 2013.

# Appendix tables

**Appendix Table D.1: Intensive margin: regression results**

	(1)	(2) Total-trade <sub>ij</sub>
Log (TFI <sub>i</sub> )	0.254* [0.138]	
TFI <sub>ij</sub>		0.399* [0.211]
Log (GDP <sub>j</sub> )	0.858*** [0.023]	0.857*** [0.023]
Log (market access)	-0.310*** [0.102]	-0.311*** [0.101]
Number of PTAs <sub>i</sub>	-0.006** [0.002]	-0.006** [0.002]
Log(area)	-0.069*** [0.016]	-0.068*** [0.016]
Landlocked <sub>i</sub>	-0.377*** [0.125]	-0.379*** [0.125]
PTA <sub>ij</sub>	0.336*** [0.083]	0.334*** [0.084]
Log (distance <sub>ij</sub> )	-0.715*** [0.054]	-0.715*** [0.055]
Common border <sub>ij</sub>	0.434*** [0.130]	0.434*** [0.130]
Common language <sub>ij</sub>	0.017 [0.083]	0.016 [0.083]
Colony <sub>ij</sub>	0.413** [0.184]	0.412** [0.184]
Observations	16,238	16,238
Log pseudolikelihood	-2.760e+09	-2.760e+09
Partner (j) FE	Yes	Yes
Number of id (j countries)	129	129

Notes: Robust (clustered on id variable) standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1, where the p's indicate levels of statistical significance: \*\*\*p is less than 1%, \*\*p is less than 5% and \*p is less than 10%.

Partner j fixed effects and multilateral resistance controls included in both regressions.

Source: WTO Secretariat.

Appendix Table D.2: Extensive margin: regression results				
	(1)	(2)	(3)	(4)
	Number of exported products by destination ( $npd_{ij}$ )		Number of export destinations by product ( $ndp_{ik}$ )	
	Baseline	New HS6	Baseline	New destinations
TFI	0.236*** [0.026]	0.255*** [0.025]	0.281*** [0.006]	0.425*** [0.006]
Log (GDP per capita)	0.171*** [0.014]	0.038*** [0.014]	0.372*** [0.002]	0.248*** [0.002]
Log (market access)	0.311*** [0.008]	0.236*** [0.008]	0.471*** [0.003]	0.306*** [0.002]
Number of PTAs	0.002*** [0.000]	0.001*** [0.000]	0.005*** [0.000]	0.005*** [0.000]
Log (area)	0.016** [0.007]	0.013** [0.006]	0.310*** [0.001]	0.211*** [0.001]
Landlocked	-0.032* [0.018]	-0.152*** [0.014]	-0.371*** [0.004]	-0.353*** [0.004]
Weighted partners' TFI	-0.718*** [0.183]	-0.160 [0.151]		
Log (bilateral GDP)	0.393*** [0.018]	0.376*** [0.013]		
PTA dummy	0.069** [0.033]	0.035 [0.030]		
Log (distance)	-0.497*** [0.030]	-0.316*** [0.030]		
Contiguity	-0.220*** [0.074]	-0.511*** [0.146]		
Common language	0.368*** [0.040]	0.326*** [0.036]		
Colony	0.527*** [0.109]	0.333** [0.165]		
Log (remoteness)			-1.271*** [0.007]	-0.712*** [0.006]
Observations	22,910	22,910	667,776	667,904
Number of id (partners)	180	180		
Number of id (HS6)			5,217	5,218

Notes: Bootstrap standard errors (100 replications) in parentheses. Bootstrapping is a statistical procedure which involves using data from the drawn sample at hand as a "surrogate" for the true population. By taking repeated samples with replacement from this surrogate population, one can approximate the sampling distribution of the statistic of interest, in this case the coefficient estimates. See Efron (1979) and Efron and Tibshirani (1993).

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ , where the p's indicate levels of statistical significance: \*\*\*p is less than 1%, \*\*p is less than 5% and \*p is less than 10%.

Partner  $j$  fixed effects, region dummies and multilateral resistance controls included in columns (1)-(2).

Product (HS6) fixed effects, region dummies and a measure for remoteness included in columns (3)-(4).

Variable "Weighted partners' TFI" uses inverse bilateral distance as weights.

Appendix Table D.2 uses negative binomial regressions, as detailed in Beverelli *et al.* (2015). Columns (1) and (3) present "Baseline" estimations, with the dependent variable constructed using trade data for 2009. Columns (2) and (4) respectively use "New HS6" products and "New destinations" in the construction of the dependent variable, to address reverse causality concerns. To compute "New HS6" products, the procedure is as follows: when computing how many products country  $i$  exported to country  $j$  in 2009, the report only includes the subset of products for which: (i) there were no exports from  $i$  to  $j$  (zero or missing) recorded in any of the years between 2003 and 2007; and (ii) there were positive exports from  $i$  to  $j$  recorded in at least one year between 2008 and 2010. In this case,  $npd_{ij}$  is the count of new HS6 products that were not traded before 2008. The procedure for "New destinations" is very similar. When computing how many destination countries were served by country  $i$  in exporting product  $k$  in 2009, the report only includes the subset of destinations for which: (i) there were no exports of product  $k$  (zero or missing) recorded in any of the years between 2003 and 2007; (ii) there were positive exports of product  $k$  recorded in at least one year between 2008 and 2010. In this case, therefore,  $ndp_{ik}$  becomes the count of new destinations that were not served before 2008. The use of "new products" and "new destinations" has the additional advantage that one does not necessarily exclude products (respectively, destinations) where country  $i$  ceased to export to country  $j$  (respectively, in product  $k$ ) during the big trade collapse of 2009.

Source: WTO Secretariat.

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**Appendix Table D.3: Estimated increases in the number of products by destination due to TFA implementation by geographic region (percentage change)**

	Baseline	New HS6
<b>"Conservative" scenario</b>		
Africa	8.9	9.6
Asia	5.6	6.0
Commonwealth of Independent States	11.2	12.1
Europe	8.6	9.3
Middle East	6.5	7.0
North America	6.9	7.5
South and Central America and the Caribbean	12.6	13.6
<b>"Liberal" scenario</b>		
Africa	8.7	9.4
Asia	7.3	7.9
Commonwealth of Independent States	11.3	12.2
Europe	9.0	9.7
Middle East	10.0	10.9
North America	6.9	7.5
South and Central America and the Caribbean	15.4	16.7
<b>"Full" scenario</b>		
Africa	30.3	32.8
Asia	12.8	13.9
Commonwealth of Independent States	15.4	16.7
Europe	9.5	10.3
Middle East	19.6	21.2
North America	6.9	7.5
South and Central America and the Caribbean	20.8	22.6

Notes: The numbers indicate percentage change in  $npd_{ij}$  (number of exported products by destination) under the relevant scenario.

"Baseline" results are based on column (1) of Appendix Table D.2.

"New HS6" results are based on column (2) of Appendix Table D.2.

Source: WTO Secretariat.

**Appendix Table D.4: Estimated increases in the number of destinations by product due to TFA implementation by geographic region (percentage change)**

	<b>Baseline</b>	<b>New destinations</b>
<b>"Conservative" scenario</b>		
Africa	10.5	15.9
Asia	6.6	10.0
Commonwealth of Independent States	13.3	20.1
Europe	10.2	15.5
Middle East	7.7	11.7
North America	8.3	12.5
South and Central America and the Caribbean	15.0	22.6
<b>"Liberal" scenario</b>		
Africa	10.3	15.6
Asia	8.7	13.1
Commonwealth of Independent States	13.5	20.4
Europe	10.7	16.1
Middle East	12.0	18.1
North America	8.3	12.5
South and Central America and the Caribbean	18.4	27.7
<b>"Full" scenario</b>		
Africa	34.9	52.7
Asia	15.3	23.1
Commonwealth of Independent States	18.4	27.8
Europe	11.3	17.1
Middle East	23.4	35.4
North America	8.3	12.5
South and Central America and the Caribbean	24.9	37.6

Notes: The numbers indicate percentage change in  $ndp_{ijk}$  (number of export destinations by product) under the relevant scenario.

"Baseline" results are based on column (3) of Appendix Table D.2.

"New destinations" results are based on column (4) of Appendix Table D.2.

Source: WTO Secretariat.

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**Appendix Table D.5: Foreign direct investment and trade facilitation regression results**

	(1)	(2)
Documents to import	-0.272*** (0.084)	
Documents to import # log (gdp)	0.043*** (0.012)	
Time to import		-0.085*** (0.031)
Time to import # log(gdp)		0.012** (0.005)
log(gdp)	1.545*** (0.314)	1.455*** (0.329)
Observations	1,048	1,048
R-squared	0.160	0.160
Number of countries	141	141

Notes: Dependent variable: log(inward FDI).

Robust standard errors in parentheses.

\*\*\*p<0.01, \*\* p<0.05, \* p<0.1, where the p's indicate levels of statistical significance: \*\*\*p is less than 1%, \*\*p is less than 5% and \*p is less than 10%.

Country fixed effects and time dummies included.

Source: WTO Secretariat.

**Appendix Table D.6: TFI, customs transparency and time predictability of import procedures regression results**

	(1)	(2)	(3)	(4)
	Customs transparency Index		Time predictability of import procedures	
	OLS	GLM	OLS	Poisson
TFI	0.163** (0.066)	0.938** (0.419)	0.524** (0.231)	0.139** (0.056)
Log(pc gdp)	0.055*** (0.013)	0.340*** (0.082)	0.288*** (0.047)	0.073*** (0.011)
Observations	103	103	114	114
R-squared	0.284		0.419	

Notes: Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1, where the p's indicate levels of statistical significance: \*\*\*p is less than 1%, \*\*p is less than 5% and \*p is less than 10%.

OLS = ordinary least squares; GLM = general linear model; Poisson = Poisson regression model.

Source: WTO Secretariat.

# E. The challenges of implementing the Trade Facilitation Agreement

This section of the report looks at the various challenges involved in ratifying and implementing the Trade Facilitation Agreement (TFA), particularly for developing and least-developed countries (LDCs). It first assesses the implementation needs of developing countries, then goes on to evaluate the costs associated with implementing the measures covered by the TFA. It proceeds to explain the role of the Trade Facilitation Agreement Facility in meeting the challenges of implementation and to review the key success factors identified in previous trade facilitation reforms. Finally, it underlines the importance of monitoring implementation of the TFA and its economic impacts.

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### Some key facts and findings

- Trade facilitation is a high priority for developing economies and least-developed countries (LDCs), according to surveys of WTO members. However, the cost of implementing trade facilitation is difficult to quantify due to a lack of systematic data collection. Available data suggests that costs vary considerably depending on the type of trade facilitation measures considered and country specific circumstances. Trade facilitation reforms are, on average, less costly than broader initiatives, such as customs modernization, and upgrades of transport infrastructure.
- Strong political will at the highest levels and commitment to the process of trade facilitation are the most important success factors of any trade facilitation reform. Other key success factors include cooperation and coordination between ministries and border management agencies, private sector stakeholder participation, and adequate financial, human and material resources.
- The Trade Facilitation Agreement Facility will play a vital role in matching demands for capacity-building from developing countries and LDCs with the supply of capacity-building and assistance from donors.
- Efforts to monitor the progress of the TFA after it comes into force should include evaluations of both implementation costs and economic impacts.

## 1. Overview of implementation challenges

As the first multilateral trade agreement adopted since the conclusion of Uruguay Round in 1994, the WTO Trade Facilitation Agreement (FTA) represents a landmark achievement for the organization. However, in order to realize the gains promised by the agreement, members must now turn to the dual tasks of ratification and implementation. In the first place, the TFA will only enter into force once two-thirds of the WTO membership have formally accepted the Agreement. Once this initial challenge is met, and in order to ensure successful implementation, it is important to identify the main issues and challenges that members may encounter when putting the Agreement into practice.

A high degree of political commitment on the part of developed, developing and least-developed countries is crucial for both rapid ratification and successful implementation of the TFA, but this support cannot be taken for granted. According to the results of a monitoring exercise undertaken in the context of the Fifth Global Review of Aid for Trade, although developing countries and LDCs give a high priority to implementing trade facilitation, they still express a great deal of uncertainty about its benefits. They also assign different priorities when it comes to requesting technical assistance to implement specific provisions of the TFA. Donor countries also continue to give high priority to trade facilitation, as reflected by their rising aid commitments and disbursements, but many are concerned about a potential lack of political will in partner countries, that could hinder the full implementation of the measures covered by the TFA. Credible estimates of the likely benefits of the TFA such as those found in Section D of this report should bolster support for the agreement.

Costs associated with implementing specific trade facilitation projects and measures could also be seen as impediments to swift ratification of the TFA and its implementation. Empirical evidence suggests that the magnitude of the inception costs associated with a given trade facilitation measure can vary significantly from one country to another, reflecting each country's unique circumstances in terms of its initial state, needs, priorities and level of ambition with regard to trade facilitation. Overall, measures related to transparency and to the release and clearance of goods tend to entail implementation costs lower than those attached to measures relating to formalities requirements, customs automation, and customs and border agency cooperation. However, the implementation costs of trade facilitation reform remain smaller than those associated with broader initiatives, such as customs modernization and transport facilitation.

Important lessons have already been learned from existing trade facilitation reforms that should make TFA implementation easier. Empirical evidence suggests that different, often interrelated, factors play a critical role in the successful implementation of trade facilitation reforms. While financial resources availability and sustainability are essential, they do not constitute a sufficient condition for automatic success in implementing trade facilitation initiatives. Other factors play a major role in successful trade facilitation reforms, such as strong commitment at the highest level, cooperation and coordination between ministries and government agencies, private sector stakeholders' participation, adequate human and material resources, and the adoption of a sequencing approach.

The presence of strong special and differential treatment provisions in the TFA should eliminate many potential obstacles to implementation. Under the TFA, each developing country and LDC member will have the opportunity to establish its own unique implementation schedule based on its capacity and needs. In this context, the WTO, through the newly created Trade Facilitation Agreement Facility (TFAF), could play a unique role in supporting the implementation effort by matching and coordinating countries requesting technical assistance with countries supplying capacity-building and technical assistance.

The fact that challenges may emerge at any time during the process of TFA implementation highlights the need for ongoing efforts to monitor the operation of the agreement. An effective monitoring and evaluation of the TFA's economic impact requires reliable data, indicators and analytical tools, such as impact evaluation studies.

## 2. Assessing the implementation needs of developing countries

Section D of this report identified a wide range of potential benefits from the TFA once it is implemented. In addition to reducing trade costs and increasing the volume of trade between WTO members, the Agreement should raise members' rates of GDP growth, promote job creation, diversify exports, increase customs revenue, and expand trade opportunities for small and medium-sized enterprises (SMEs). Developing economies, and LDCs in particular, are expected to benefit disproportionately from the TFA, especially under rapid and full implementation scenarios.

However, if the benefits of trade facilitation are so large and obvious, this raises the question of why some countries were reluctant to engage in negotiations

## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

on trade facilitation in the first place, and why some might be slow to ratify and implement the TFA. Some of this hesitancy can be explained by uncertainty on the part of members, not only about the magnitude of the gains from the Agreement but also about the costs and timing of implementation. By increasing awareness of the estimated costs and benefits of the TFA, this report should help members more accurately gauge their implementation needs, thereby advancing the ratification process.

Existing studies of trade facilitation reforms in developing countries, including Moisé (2013) have found that implementation costs tend to be very small compared to the benefits that these programmes deliver. However, even modest implementation costs may exceed the ability of least-developed and other low-income countries to pay. In order to address the particular challenges faced by developing economies, the TFA contains special and differential treatment provisions that allow these countries to determine when they will implement certain provisions of the Agreement, and to identify provisions that will only be implemented once the necessary capacity has been built. As already noted in Section B, these commitments fall into three categories:

- Category A: “provisions that a developing country Member or a least-developed country Member designates for implementation upon entry into force of this Agreement, or in the case of a least-developed country Member within one year after entry into force”;
- Category B: “provisions that a developing country Member or a least-developed country Member designates for implementation on a date after a transitional period of time following the entry into force of this Agreement”; and
- Category C: “provisions that a developing country Member or least-developed country Member designates for implementation on a date after a transitional period of time following the entry into force of this Agreement and requiring the acquisition of implementation capacity through the provision of assistance and support for capacity building”.

Category C commitments provide a specific rationale for assessing the technical assistance needs of developing and LDC members in implementing the TFA. On two occasions, the WTO Secretariat conducted a technical assistance needs assessment exercise to help developing and least-developed WTO members identify their needs and priorities with regard to implementing the TFA. While the results of these self-assessments remain confidential and cannot be used,

other existing and available, albeit limited, sources of information provide insights on developing countries' aid priorities, expectation and needs.

### (a) Review of the literature on trade facilitation implementation

A limited number of studies have attempted to assess the status of trade facilitation reforms in developing countries and LDCs, including their needs for technical assistance. A recent report by the United Nations Conference on Trade and Development (UNCTAD, 2014b) reviewed 26 national trade facilitation implementation plans conducted to assess, among other things, the implementation status of 39 specific trade facilitation measures associated with different versions of the consolidated negotiating text of the TFA. In a majority of the 26 participating countries, comprising LDCs, landlocked developing countries and small island economies, many trade facilitation measures were at or near the midway point of implementation.

Other available studies focusing on a smaller number of countries confirm that most developing countries surveyed have already implemented a number of trade facilitation measures and that none would be starting the implementation of the TFA from zero (UNESCAP, 2014). In particular, the authors of a 2013 report by the United Nations Economic Commission for Africa (UNECA, 2013) observed that African countries and Regional Economic Communities were already active in putting in place measures aligned with the TFA. For instance, the Chirundu One-Stop Border Post between Zambia and Zimbabwe has resulted in yearly savings of US\$ 486 million (UNECA, 2013). However, despite the fact that many countries have already undertaken some trade facilitation reforms, there are still important gaps in the levels of trade facilitation implementation, with a substantial majority of the LDCs surveyed (73 per cent) having implemented only a small number of TFA-related measures (UNCTAD, 2014b).

### (b) Trade facilitation in the context of Aid for Trade

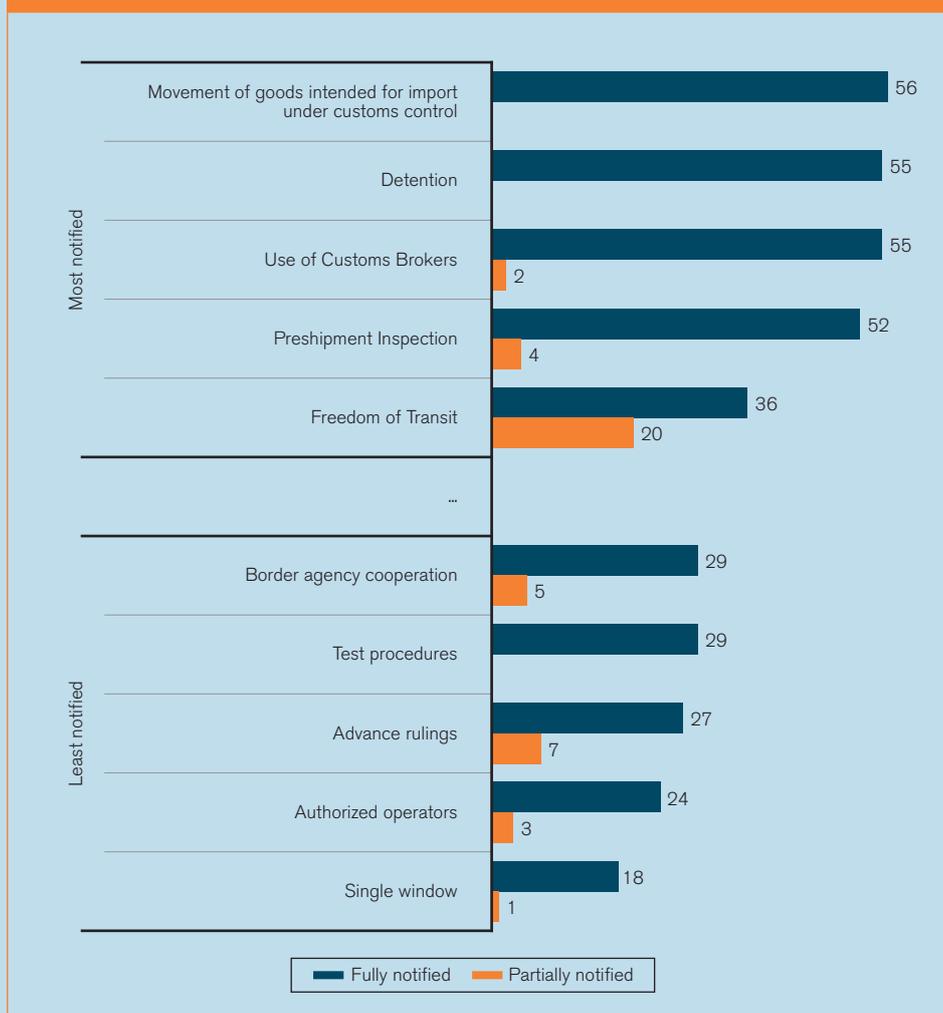
While it is extremely difficult to determine accurately which measures of the TFA will be most challenging to implement and will therefore require assistance until developing countries and LDCs actually submit their category B and C commitments, useful insights can still be inferred from information shared by WTO members. Besides Category A notifications under the TFA (see Box E.1), another recent source of information on the priorities and challenges related to the TFA implementation can be found in the replies to various WTO-OECD questionnaires undertaken as part of

**Box E.1: Category A commitments under the TFA**

According to Section II of the TFA, each developing country and LDC member is required to self-designate, on an individual basis, Category A provisions of the TFA for implementation upon entry into force of the TFA, or within one year after entry into force for LDCs. As of June 2015, a total of 60 developing and five least-developed country members have submitted notifications of Category A commitments.

While the most notified TFA provisions cover, on average, measures that are less likely to be considered as challenging and requiring technical assistance, the TFA provisions that are least notified could be viewed as measures that are likely to be more complex and costly to implement. Under this assumption, Category A commitment notifications indirectly provide insights on developing countries' foreseen priorities and technical assistance needs in terms of specific TFA measures. In particular, provisions related to single windows (a single entry point for the submission of trade documentation and notification of the release of goods from border control), authorized operators, advance rulings, test procedures and border agency cooperation are, on average, less frequently notified as Category A commitments than provisions related to movements of goods, detention, use of customs brokers, pre-shipment inspection and freedom of transit (see Figure E.1). Other less-notified TFA measures include those involving setting up enquiry points, establishing and publishing average release times, and implementing various specific features of customs cooperation, such as information exchange, protection and confidentiality. Many of these less-notified TFA measures are considered as relatively complex and are frequently identified as areas of priority for technical assistance.

**Figure E.1: Top five most and least notified TFA provisions under Category A commitments**

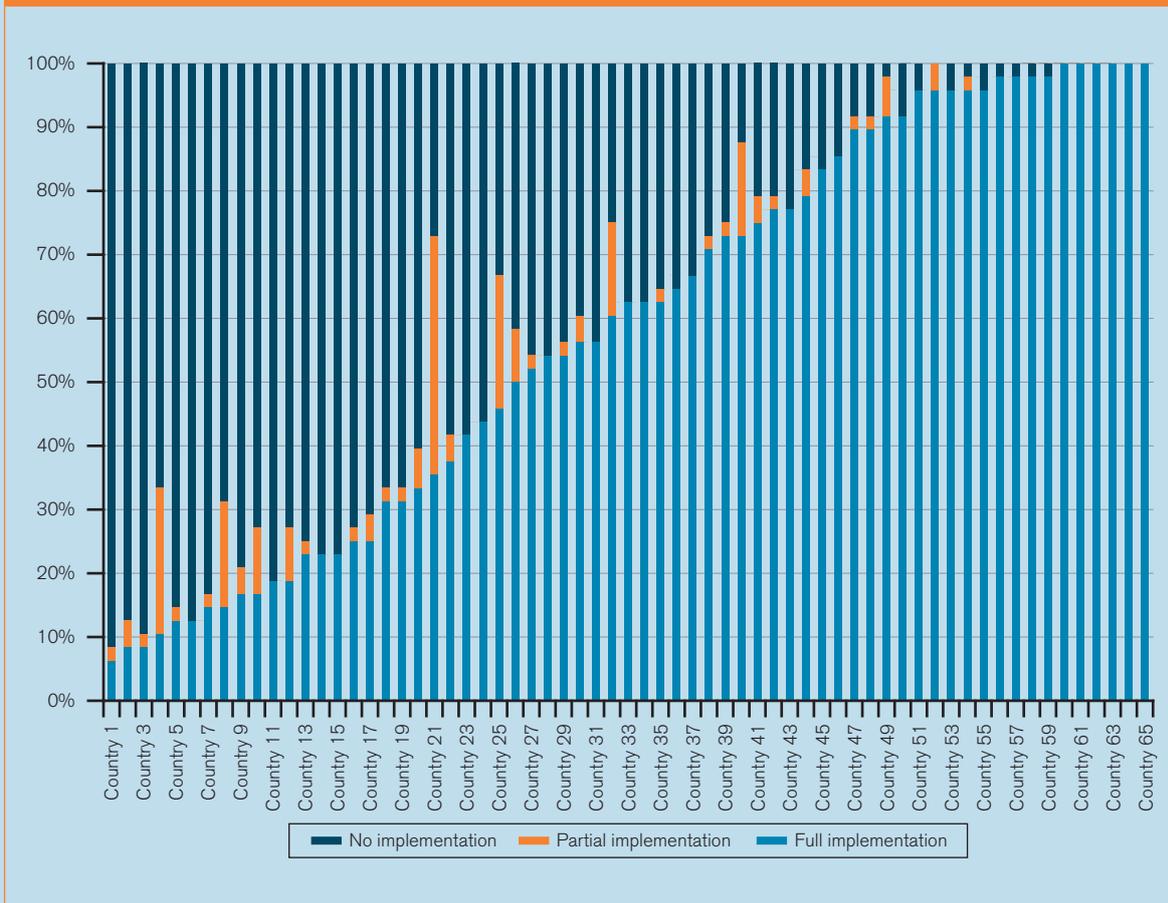


Source: WTO Secretariat.

**Box E.1: Category A commitments under the TFA (continued)**

Figure E.2 illustrates the average level of implementation over all TFA measures for countries that have submitted Category A commitments. Ranking countries according to the percentage of measures that are fully implemented, from lowest to highest, provides an indication of how much of the TFA is already in place and how much remains to be done.

**Figure E.2: Levels of TFA implementation implied by Category A commitments**



Source: WTO Secretariat.

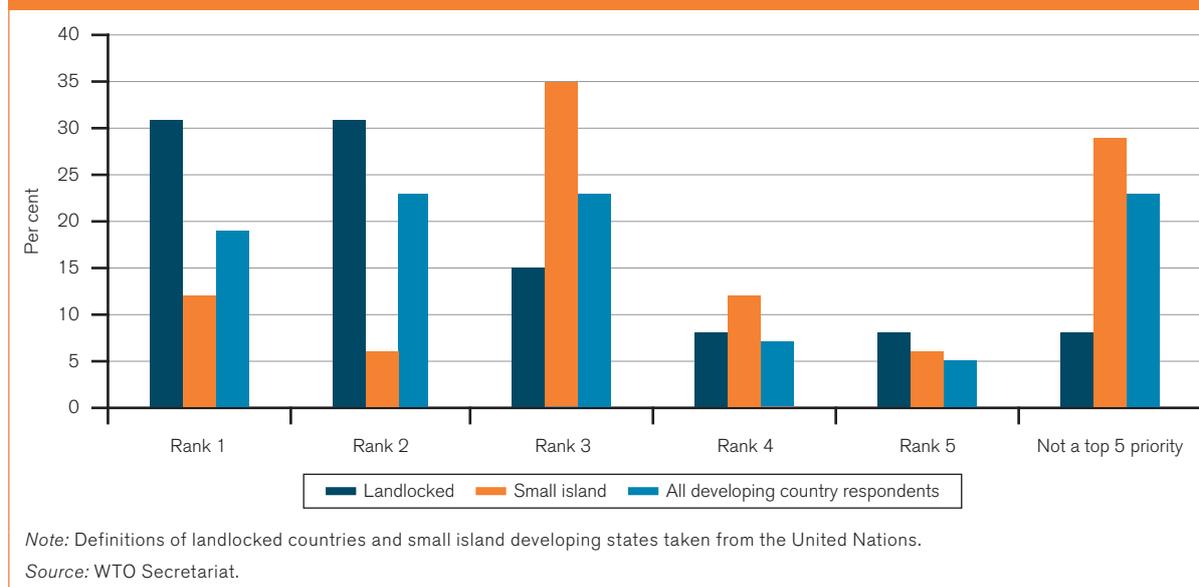
the Fifth Global Review of Aid for Trade monitoring and evaluation exercise. In particular, the analysis of the responses received from 62 developing and LDC members in various geographical regions, from 27 bilateral donors, and from 23 development agencies sheds light on the importance that developing countries place on the TFA, how they expect it to influence their trade costs, and what challenges they expect to encounter during its implementation.<sup>1</sup>

*(i) Trade facilitation is a priority for developing countries...*

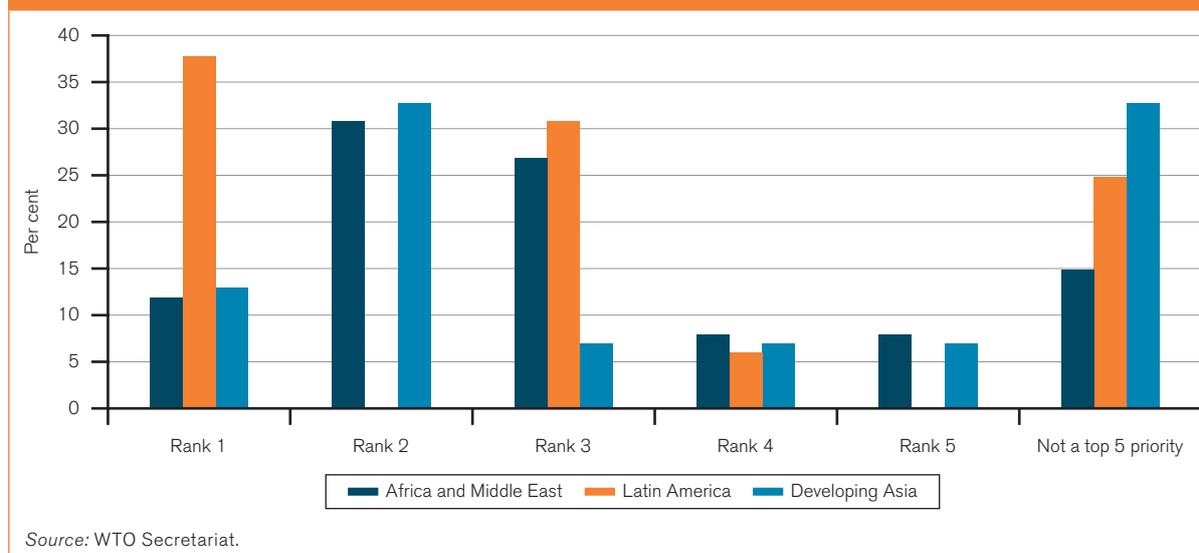
Developing countries seem to assign a high priority to trade facilitation, with 65 per cent of partner countries surveyed ranking trade facilitation in their top three

Aid for Trade priorities, higher than any other areas, such as trade negotiations, WTO accession, network infrastructure, transport infrastructure, cross-border infrastructure, competitiveness, export diversification, connecting to value chains, adjustment costs and regional integration. As shown in Figure E.3, landlocked countries tend to give an even higher priority to trade facilitation, while small island developing states appear to prioritize other Aid for Trade areas. In particular, nearly 85 per cent of African and Middle Eastern developing countries and LDCs ranked trade facilitation among their top five priorities, compared to 75 per cent for Latin American countries and 67 per cent for Asian developing economies, as depicted in Figure E.4.

**Figure E.3: Ranking of trade facilitation in Aid for Trade priorities of landlocked countries and small island developing states, 2015**



**Figure E.4: Ranking of trade facilitation in Aid for Trade priorities of partner countries by geographic region, 2015**



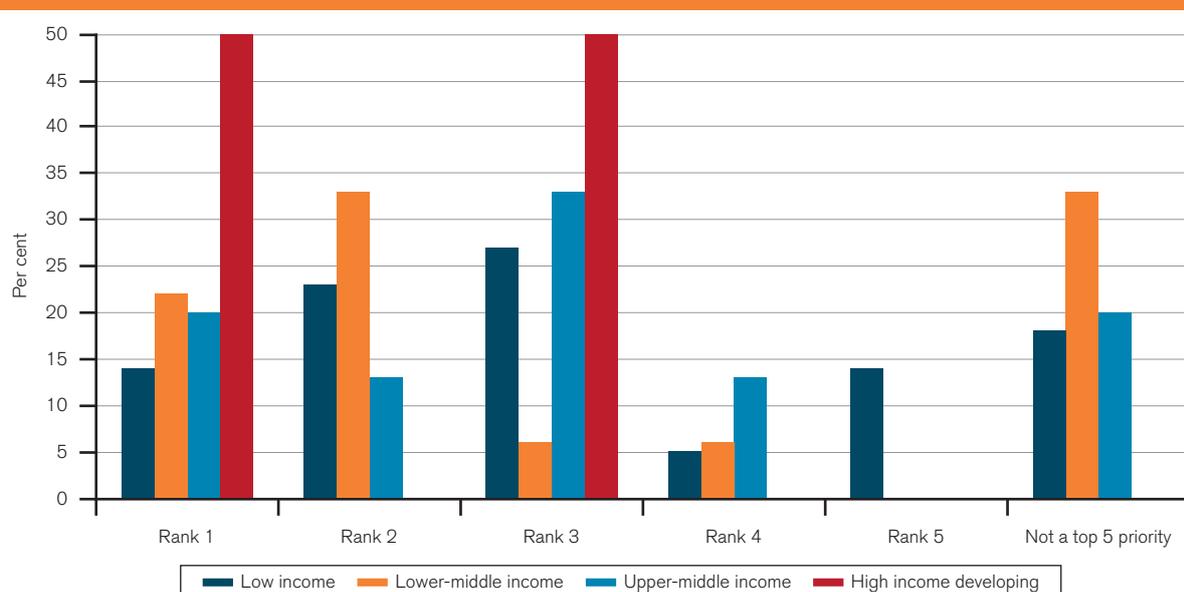
There were no stark differences in the priority level assigned to trade facilitation by countries of different income levels. Figure E.5 suggests that high-income developing countries do appear to rank trade facilitation very highly, with 50 per cent putting it in first place and 50 per cent in third place. However, since only two high-income developing countries responded to the questionnaire, these results are not very informative.

In contrast to the WTO-OECD questionnaires from the Fifth Global Review of Aid for Trade, a survey carried out by UNCTAD (2014) distinguished between 39 different trade facilitation measures and asked respondents to

assign priority levels to them. These results confirm that trade facilitation is among developing countries' highest priorities.

Despite differences between countries, these results confirm the overarching consensus that has emerged in previous studies according to which government officials and private sector agents in developing countries recognize the potential of trade facilitation (UNESCAP, 2014). In particular, both developing countries and LDCs tend to give the highest importance to the most comprehensive and ambitious reforms, such as single window or border agency cooperation,

**Figure E.5: Ranking of trade facilitation in Aid for Trade priorities of partner countries by income group, 2015**



Note: Definitions of country income groups taken from the World Bank.

Source: WTO Secretariat.

but also to more traditional trade facilitation measures, such as risk management and documents publication and availability (UNCTAD, 2014b).

Trade facilitation also continues to be on the agenda of donors. More than half (53 per cent) of aid donors report increased spending on Aid for Trade for trade facilitation since 2012, while only a relatively small fraction (8 per cent) confirm a reduction in spending. The remaining participating countries indicate either no change (24 per cent) or uncertainty. The rising

trend in aid flows is further confirmed by Figure E.6, which reports trade facilitation-related commitments and disbursements per the OECD Creditor Reporting System. Donor countries and multilateral agencies have committed US\$ 2.9 billion to trade facilitation and disbursed US\$ 2.0 billion in constant 2012 US dollars since 2005. Only 3 per cent of donors expect to see their Aid for Trade spending fall over the next five years, and none anticipates a drop in spending on trade facilitation, which bodes well for implementation of the TFA. Shares of commitments and disbursements

**Figure E.6: Trade facilitation commitments and disbursements of aid donors by partner country group, 2005-13 (million constant 2012 US\$)**



Source: OECD Creditor Reporting System.

targeting LDC partners have been rising. The LDC share of commitments rose from around 9 per cent in 2005 to 39 per cent in 2014, while the equivalent share in disbursements rose from 20 per cent to 33 per cent.

*(ii) ... but developing countries are uncertain about the benefits of the TFA*

While most countries participating in the monitoring exercise seem to consider trade facilitation to be an important Aid for Trade priority, half of these same countries reported a high degree of uncertainty or inability to determine to what extent the TFA would influence their trade costs. As shown in Figure E.7, a small number, made up mostly of LDCs, even anticipates higher trade costs following the implementation of the TFA, possibly indicating confusion about the distinction between trade costs and implementation costs. It is conceivable that a small country that was already investing efficiently in customs procedures before the TFA might see its trade costs rise if it undertook new commitments as a result of the Agreement. However, the flexible special and differential treatment afforded to developing countries should minimize this possibility since it allows developing countries and LDCs to tailor the scope and timing of implementation to their particular circumstances.

The remaining countries surveyed expect the TFA to reduce their trade costs either moderately (47 per cent) or greatly (39 per cent). As illustrated in Figure E.8, landlocked countries tend to be relatively more optimistic, with 67 per cent expecting a drop in trade costs of more than 10 per cent, while only 20 per cent of small island developing countries expect such a large decline. Similarly, the majority of lower- and upper-

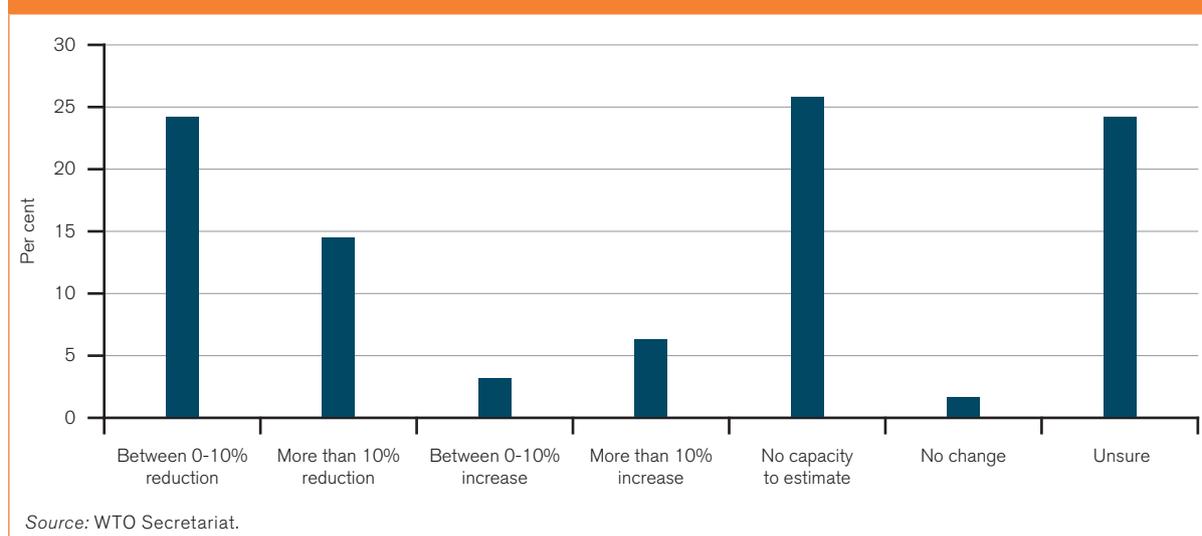
middle income countries foresee a moderate decline in trade costs of between 0 and 10 per cent (58 per cent and 67 per cent, respectively), while 38 per cent of low-income countries expect trade costs to remain unchanged or even rise.

*(iii) Obstacles to implementation and needs for technical assistance*

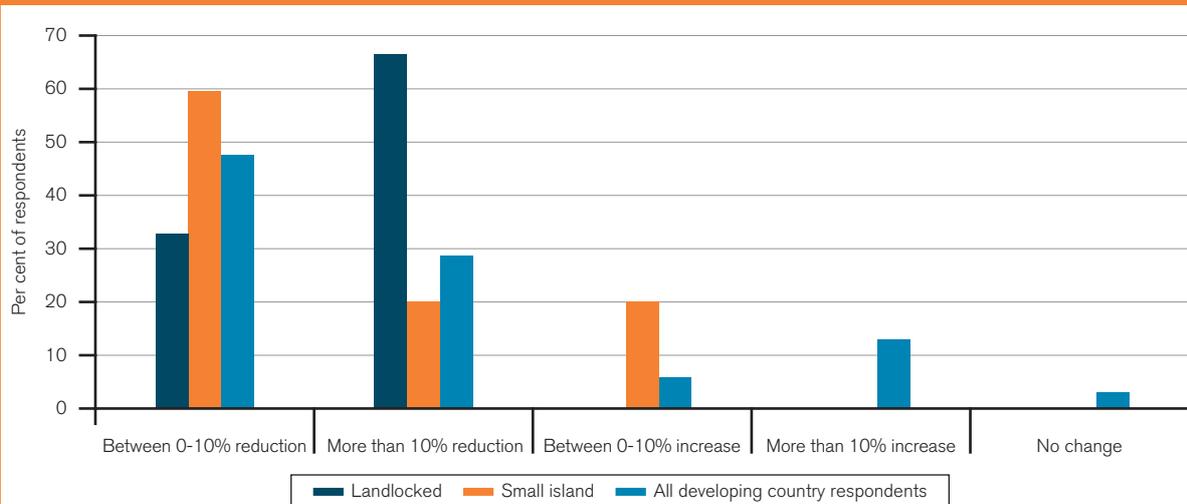
As discussed in the next subsections, while some of the measures covered by the TFA might be relatively easy and straightforward to implement, others may be more complex and/or costly to carry out. In particular, and as reported in Figure E.9, border agency cooperation, followed by formalities connected with importation, exportation and transit, as well as information publication and availability have been identified by the developing countries and LDCs surveyed as the hardest of the TFA's disciplines to implement, and as those for which support would be most needed. Customs cooperation and advance rulings are among the other trade facilitation measures considered as being particularly hard to undertake.

The ranking of the TFA provisions by difficulty of implementation is partially in line with the least-notified TFA measures under Category A commitments, namely single windows, authorized operators, enhanced controls, test procedures, average release times, enquiry points, border agency cooperation and advance rulings (see Box E.1). Other measures, such as disciplines on fees and the opportunity to comment before the entry into force of relevant laws and regulations, appear to present lesser challenges to developing countries and LDCs. However, low-income countries and African countries seem to be more concerned and anticipate

**Figure E.7: Anticipated impact of TFA implementation on trade costs, all developing country respondents**



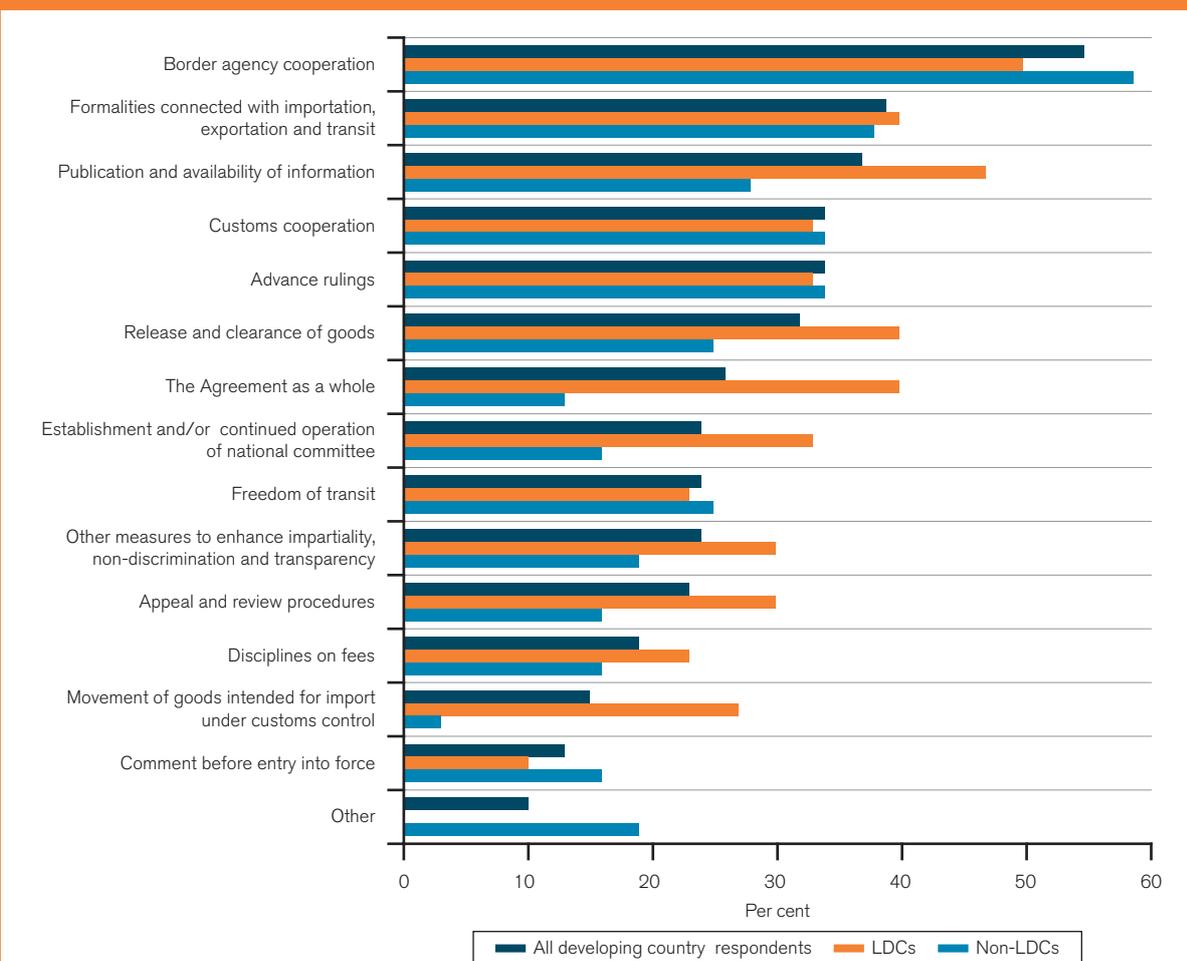
**Figure E.8: Impact of TFA on trade costs anticipated by landlocked and small island states, survey responses**



Note: Definitions of landlocked countries and small island developing states taken from the United Nations.

Source: WTO Secretariat.

**Figure E.9: Which disciplines of the Trade Facilitation Agreement will prove hardest to implement?**



Source: WTO Secretariat.

greater difficulty with the implementation of the TFA as a whole and with most of the specific trade facilitation measures.

Overall, these rankings of the TFA's disciplines confirm that challenges may arise when implementing certain trade facilitation measures. According to individual donor countries and multilateral agencies, the lack of national coordination and political will (70 per cent) followed by the absence of trade facilitation priority within national development planning (68 per cent) are among the most important difficulties that will be encountered in implementing the TFA. These findings are in line with previous countries' and experts' qualitative assessments of the obstacles to trade facilitation implementation (World Bank, 2006a).

While measures requiring the largest share of technical assistance are often those with lowest implementation levels, several trade facilitation measures have been identified by countries and experts as measures calling only for additional political will in order to be undertaken, without any additional technical assistance. These measures include prior consultation, elimination of consular fees, freedom of transit routes and abolishment of the mandatory use of escorts for goods in transit (World Bank, 2006a).

The lack of an existing legal framework has also been recognized as one of the biggest hindrances to trade facilitation implementation (UNCTAD, 2014b). Without a proper legal framework, many specific trade facilitation measures, including those which are already applied informally, fail to deliver their full potential. Other important obstacles identified in the qualitative studies include a lack of resources or organizational framework, non-existent or limited understanding and knowledge of different trade facilitation measures, a lack of cooperation and mistrust between government agencies and an absence of communication between private and public stakeholders (UNCTAD, 2014b; World Bank, 2006a). Many of these different obstacles can be considered as the other side of the coin to the success factors, which are discussed in greater detail below.

### 3. Implementation costs of trade facilitation reform

In contrast to the literature assessing the benefits of trade facilitation reform, only a limited number of studies have analysed the costs that may need to be incurred in order to implement trade facilitation measures. Yet the costs of introducing and implementing trade facilitation measures remain of concern to many developing countries and LDCs, which often have to decide whether and to what extent part of their limited financial resources should be allocated to trade

facilitation reform. This type of concern often prevails when governments fear that the costs associated with trade facilitation reform might outweigh the anticipated benefits resulting from the adoption and implementation of trade facilitation measures.

Such perceptions tend to appear when the benefits associated with trade facilitation reform are difficult to quantify and are viewed from a short-term perspective. While benefits in terms of increased revenue and trade will sometimes materialize completely only in the medium- and long-term, implementation costs have to be incurred immediately. Such situations can make decision-makers in developing countries and LDCs reluctant to embark on trade facilitation reform, even though the benefits associated with trade facilitation ultimately outweigh their implementation costs and can then be used to pursue further reform. Understanding the nature, features and scope of the implementation costs of trade facilitation reforms are therefore of particular relevance not only to governments, but also to development partners and to private sector partners involved in funding trade facilitation initiatives.

#### (a) Difficulties in estimating trade facilitation implementation costs

The literature on trade facilitation provides limited information on the costs associated with the implementation of trade facilitation reform because the implementation costs are often not easy to quantify for two main reasons. First, trade facilitation reform is cross-cutting by nature and, for that reason, is rarely carried out independently of other broader policy objectives aimed at enhancing revenue collection, reducing trade costs and creating a more transparent, efficient and predictable trading environment. As illustrated in Figure E.10, trade facilitation measures are often implemented in the context of broader policy initiatives, such as institutional reform, customs modernization, electronic governance, regional integration, export promotion, and infrastructure and transport development. As a consequence, there is often no specific funding allocation dedicated to the adoption and implementation of specific trade facilitation measures, making it particularly difficult to identify the corresponding costs.

Second, the implementation costs of trade facilitation can take various forms, depending on the type of trade facilitation measures considered. A distinction is usually made between the initial upfront costs associated with the introduction of trade facilitation measures, the upgrade and expansion costs, and the ongoing operational costs. Eight different types of interrelated implementation costs have further been identified in the literature: (1) diagnostic, (2) regulatory,

Figure E.10: Trade facilitation and broader policy initiatives



Source: WTO Secretariat.

(3) institutional, (4) training, (5) equipment and infrastructure, (6) awareness-raising, (7) political and (8) operational. Some of these costs may be particularly difficult to express in monetary terms and identify separately (OECD, 2005; Duval, 2006; Moisé, 2013).<sup>2</sup>

**Diagnostic and needs assessment costs** arise prior to the actual implementation of trade facilitation reform to identify the trade facilitation needs, set realistic reform priorities and prepare a practical implementation strategy. Diagnostic costs usually involve time and national and/or external experts to consult with relevant stakeholders and formulate concrete action plans based on the information collected.

**Regulatory and legislative costs** may occur when existing pieces of national legislation have to be amended or a new legislation has to be adopted in order to implement specific trade facilitation measures. For instance, in the absence of laws recognising the legal status of electronic documentation, any electronic documents must continue to be accompanied by its paper equivalent. A change in the legislation is therefore often required to authorize and recognize the validity of electronic data submission between agencies and digital signatures. Such costs usually involve time (depending on the country's legal framework), staff specialized in legislative and regulatory issues, and sometimes external experts.

**Institutional and organisational costs** may arise when new units have to be established or existing units have to be re-structured in order to perform specific trade facilitation functions more efficiently, either by redeploying existing staff or recruiting additional staff. For instance, the introduction of post-clearance audit, the application of risk management procedures or the establishment of a central enquiry point might require a dedicated team of administrative, operational and support staff.

**Human resources and training costs** arise when users in border management agencies and the trading

community have to learn new ways of complying with the trade facilitation formalities and operations. Training is often viewed as the most important element in implementing trade facilitation measures, since trade facilitation reform is mainly about changing border agencies' practices and behaviours. The level of training costs depends on whether new expert staff are hired, or whether internal or transferred staff are trained on the job or in a training centre. Recruiting new expert staff is usually considered to be the most costly option, because it not only often requires a budgetary increase but also the direct availability of skilled experts in the domestic labour market. Available empirical evidence suggests that countries tend to choose to train existing staff on the job to accommodate and implement the new trade facilitation requirements (Moisé, 2013).

**Equipment and infrastructure costs** may occur following the decision to construct or acquire facilities and accommodation, and install and upgrade new or additional implementation tools, including information and communication technologies (ICTs) such as virtual networks, automated solutions, and scanners. As discussed below, ICTs have been identified in a number of case stories on trade facilitation reforms as one of the key factors in enhancing the effectiveness and efficiency of a number of specific trade facilitation measures, such as x-ray scanners to complement risk management procedures and computerized system to submit electronically and process pre-arrival documents. Although equipment and infrastructure do not always constitute a prerequisite to implement most trade facilitation measures, they are usually considered to be the most expensive components of trade facilitation reform. The availability and provision of reliable power supply, telecommunication networks, computer hardware suppliers and local maintenance services, all of which are necessary in order to use information and communication equipment, are usually not considered as specific implementation costs of trade facilitation reform, because they are also necessary to other non-trade facilitation-related activities (OECD, 2009).

**Awareness-raising and change management costs** may arise when transparency and communication strategies are implemented to promote a greater involvement of all relevant stakeholders in the public and private sectors, including through a better understanding of the trade facilitation reform's elaboration and progress achieved. The support, participation and ownership of relevant stakeholders tend to facilitate not only the introduction, but also the sustainability of a number of trade facilitation measures.

The literature sometimes identifies **political and resistance costs** as an additional component of implementation costs which may arise as a result of active or passive resistance and opposition from relevant stakeholders, including policy-makers, staff and the private sector, to the development and implementation of specific trade facilitation measures (Duval, 2006). Such costs are not readily quantifiable because they tend to impact other components of trade facilitation implementation costs, including operational costs. As discussed in greater detail next, political will, national ownership and stakeholders' participation are among the key elements in addressing resistance in implementing successfully trade facilitation reform.

**Operational and maintenance costs** consist mainly of the remuneration of staff or experts and the maintenance and replacement of equipment, such as software or computers, once trade facilitation measures have been introduced. These operational and maintenance costs are often absorbed in the administrative budget, making it all the more difficult to isolate and assess them specifically. Empirical evidence suggests that ongoing operational costs tend to entail lower costs than initial upfront and upgrade costs for most trade facilitation measures, except measures such as providing online publications and operating national trade facilitation committees. The scant information available suggests that yearly operational costs of trade facilitation measures are, on average, up to 52 per cent less than their respective inception costs (Moisé, 2013). In some cases, the operational costs of specific trade facilitation measures are wholly or partially passed onto customers through the payment of user fees in exchange of the services provided. Similarly, part of the inception costs of some specific trade facilitation measures may be transferred to traders through the payment of charges. In some cases, countries have also decided to grant private firms the responsibility to actually implement specific trade facilitation measures.

#### (b) Overview of trade facilitation implementation costs

In light of the limited available information found in the literature, data on the implementation costs of

trade facilitation projects and measures have been assembled in order to gain insights into the potential nature and magnitude of the costs of implementing the TFA. Relevant figures have been collected from various sources, including from case stories submitted to the WTO, the Third and Fifth Global Reviews of Aid for Trade, the United Nations Economic Commission for Europe (UNECE), the United Nations Conference on Trade and Development (UNCTAD), the United Nations Economic Commission for Africa (UNECA) and the Economic and Social Commission for Asia and the Pacific (UNESCAP). Other important sources of information on implementation costs include trade facilitation-related lending projects undertaken by individual donors; multilateral and regional banks such as the World Bank, the Asian Development Bank and the Inter-American Development Bank; and non-profit organizations such as TradeMark East Africa.

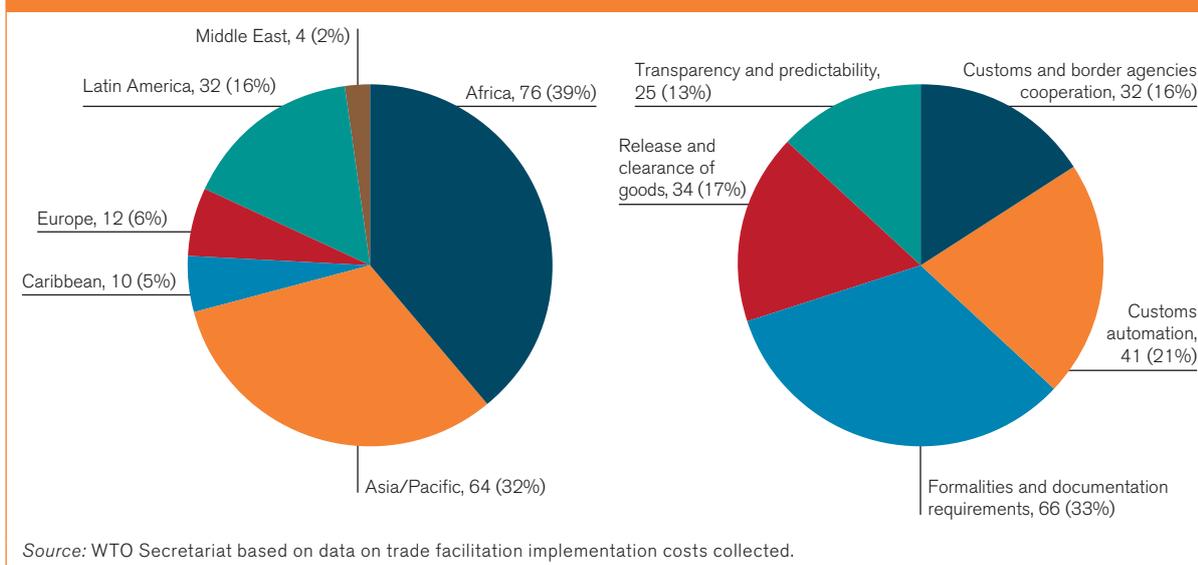
In total, the implementation costs of 198 trade facilitation measures and projects undertaken in four (2 per cent of the study) developed countries, 122 (60 per cent of the study) developing countries and 77 (38 per cent of the study) LDCs were compiled.<sup>3</sup> Of this total, 76 (39 per cent) trade facilitation measures were adopted in Africa, 64 (32 per cent) in Asia/Pacific, 32 (16 per cent) in Latin America, 12 (6 per cent) in Europe, 10 (5 per cent) in the Caribbean, and 4 (2 per cent) in the Middle East.

As illustrated in Figure E.11, the available information on implementation costs also covers a comprehensive range of trade facilitation areas, with 66 measures (33 per cent) focusing on formalities and documentation requirements such as single windows, 41 (21 per cent) on customs automated systems, 34 (17 per cent) on release and clearance of goods such as risk management and authorized economic operators, 32 (16 per cent) on customs and border agency cooperation such as one-stop border post procedures, and 25 (13 per cent) on transparency and predictability such as advance rulings and enquiry points. In order to put the different implementation costs of these trade facilitation measures into perspective, data on the costs of customs modernization and reforms (57 projects) and transport facilitation initiatives (197 projects) were also drawn from multilateral and regional lending projects.

Before reviewing the data it is important to note that any cost figure should be interpreted and compared carefully for several reasons.

First, implementation costs vary according to each country's unique circumstances, including its trade facilitation reform's initial state, needs, priorities, and desired level of ambition. For instance, some countries might already have introduced certain trade facilitation measures but want to improve or expand these measures with additional investments.

**Figure E.11: Distribution of the data on trade facilitation implementation costs by region and area (trade facilitation measures)**



Second, the magnitude of the implementation costs might depend on the speed and pace of the implementation and the use of national or international expertise. Empirical evidence suggests that the implementation costs of certain trade facilitation measures hinge on their appropriate sequencing (Moïse, 2013), i.e. scheduling them within an ordered and appropriate implementation plan (De Wulf and Sokol, 2005). In addition, quickly implementing while relying fully on international experts may be more costly than following a gradual implementation pace with increasing participation of national experts (UNCTAD, 2014b).

Third, the data on implementation costs collected might not be entirely representative of the actual range of the implementation costs of specific trade facilitation measures for which information is only available for a couple of countries.

Fourth, information on implementation costs is usually not detailed enough to enable a proper cross-country comparison by implementation costs' components (i.e. diagnostic, regulatory, institutional, training, equipment and awareness-raising costs).

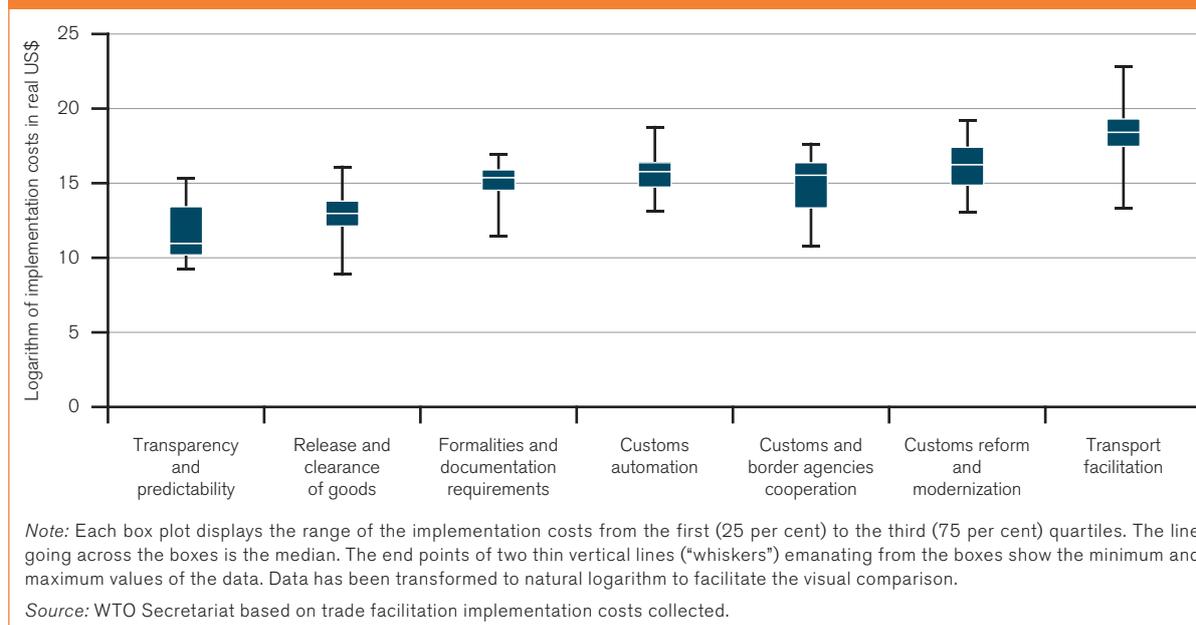
An analysis of the available information on trade facilitation implementation costs highlights four important features. First, trade facilitation measures differ in their implementation costs, as shown in Figure E.12. Second, implementation costs of trade facilitation measures are characterized by significant variability across countries. Third, trade facilitation measures related to transparency and the release and clearance of goods tend to involve smaller

implementation costs than measures related to formalities requirements, customs automation, and customs and border agency cooperation, which often entail a wider range of costs components, as defined above. This ranking is in line with the results of the Fifth Global Review of Aid for Trade questionnaires discussed in subsection E.1, as well as with the few studies reviewing the qualitative assessment formulated by a number of countries and experts regarding the inception costs of selected facilitation measures (Duval, 2006; UNCTAD, 2014b; OECD and WTO, 2015). Fourth, trade facilitation measures appear on average to be less costly than broader initiatives, such as customs modernization, including construction and upgrading of border facilities, and transport infrastructure upgrading, such as road, rail, and port modernization and infrastructure.

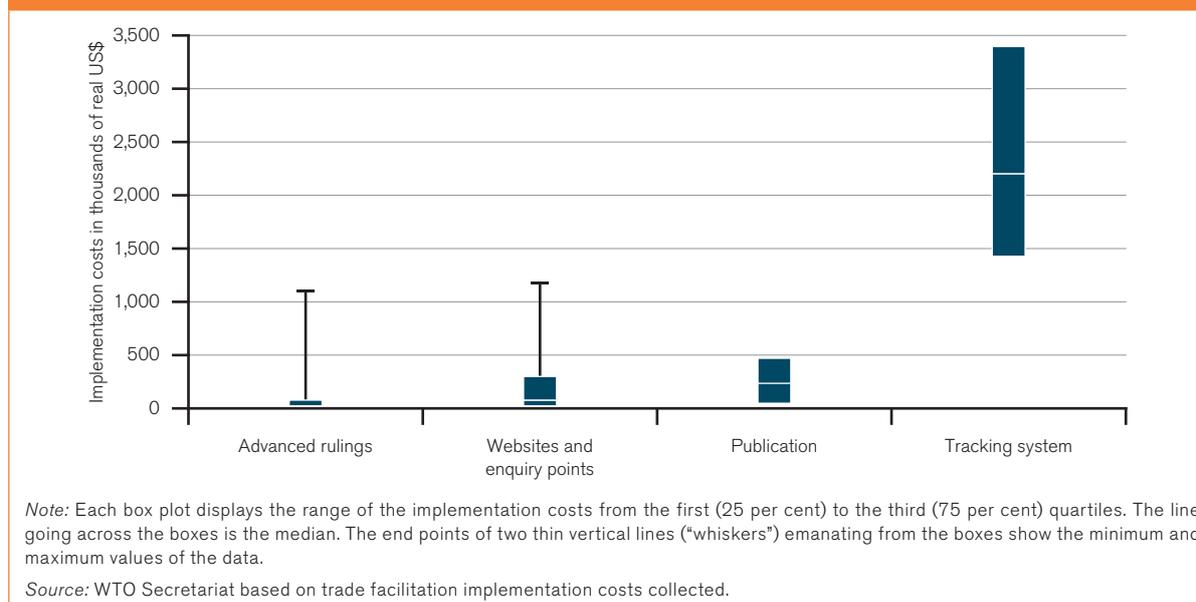
*(i) Transparency and predictability*

Costs of implementing trade facilitation measures related to transparency and predictability seem to be relatively low compared to other measures, ranging from US\$ 12,000 to US\$ 3.6 million, as highlighted in Figure E.13. Many of these transparency-related measures, such as the publication of relevant laws and regulations and implementation of advance rulings on origin, are already part of longstanding practices in many developing countries. Their modification or extension, such as the publication of international procedures and guidelines, introduction of a time period between publication and entry into force of new legislation, and prior consultation, are not expected to create significant additional costs for countries with existing publication mechanisms.

**Figure E.12: Implementation costs of trade facilitation, customs and transport facilitation reforms**



**Figure E.13: Implementation costs of trade facilitation reform related to transparency and predictability**



Advance rulings on valuation also do not seem to require significant additional resources aside from the recruitment of new staff and/or on-the-job training of concerned staff. Transparency-related measures relying on ICT tend to entail relatively larger implementation costs. For instance, the creation of customs website and enquiry points usually requires facilities, specific equipment and infrastructure, and support staff and technicians to be fully operational. In a number of countries, the cost of providing information electronically is passed onto the users through a

specific fee. Other measures that often require new or updated IT equipment include executive information systems and electronic cargo tracking systems aimed, respectively, at monitoring customs operations in real time and observing the movement of goods under customs control.

*(ii) Release and clearance of goods*

Among the different trade facilitation measures related to the release and clearance of goods, post-clearance

## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

audit control and risk assessment procedures appear to be the measures with the relatively highest expected inception costs, ranging from US\$ 20,000 to US\$ 11.9 million and from US\$ 54,000 to US\$ 8.9 million, respectively. Some of the likely high set-up costs of both types of measures are due to their complex and technical nature. While post-clearance audit control procedures consist in verifying the accuracy and authenticity of declarations through the examination of the relevant books, records, business systems and commercial data, risk management systems involve targeting high risk consignments and expediting release of low risk consignments based on an appropriate selection criteria (e.g. HS codes, country of origin, and type of means of transport).

As a result, both measures usually require the recruitment and training of specialized staff, and in some cases acquiring or upgrading equipment and IT systems, such as scanners. Although equipment and IT might play an important role, past experiences reveal that their effective use ultimately hinges on the performance of well-trained and skilled staff.

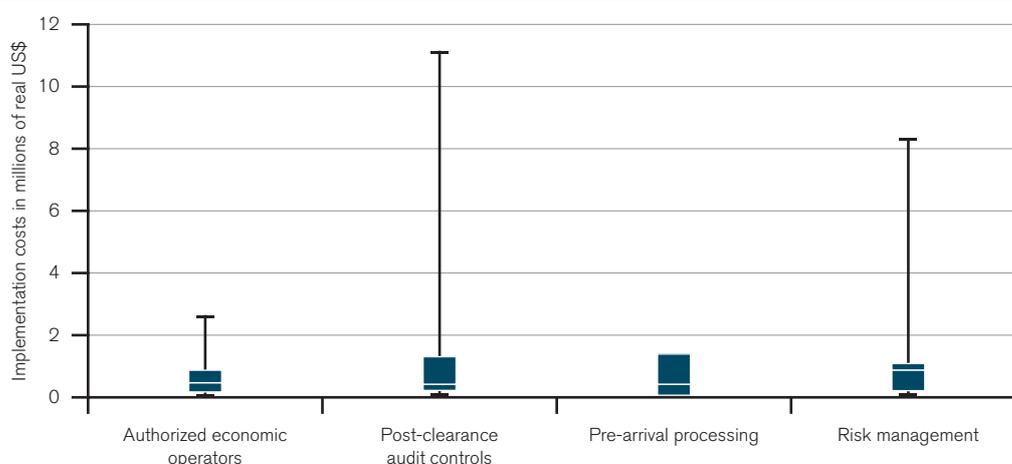
Implementation costs of authorized economic operator schemes and of pre-arrival data processing procedures, which allow for the submission of required import documentation to begin processing prior to the arrival of the goods (De Wulf and Sokol, 2005), seem to be relatively low, as indicated in Figure E.14. In both cases, costs are primarily related to training activities and equipment. Advance data submission and pre-arrival processing may also require prior availability of ICT, such as some degree of customs automation.

As will be discussed next, ICT is often only a tool to implement trade facilitation measures more efficiently, the costs of which are, or would be eventually, assumed even in the absence of trade facilitation reform. There are other measures, such as the implementation of the principle of separation of release of goods from customs clearance prior to the final determination and payment of customs duties or taxes, which might not present additional complexities besides increasing or reallocating resources towards training activities. However, such measures can still be challenging to implement in some developing countries and LDCs where the confidence between border authorities and traders is being built (Moisé, 2006).

### (iii) Formalities and documentation requirements and customs automation

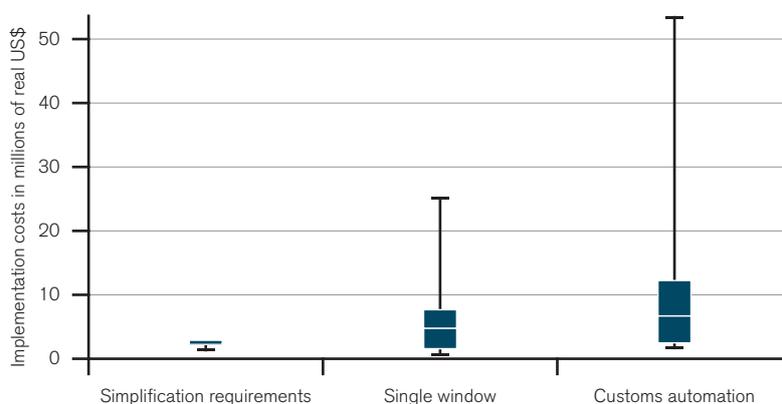
As reported in Figure E.15, the establishment of single window and customs automation systems seem to be among the most costly trade facilitation measures, with inception costs ranging from US\$ 100,000 to US\$ 27 million, and US\$ 550,000 to US\$ 57 million, respectively.<sup>4</sup> The high set-up costs of both measures arise from the relatively high necessity of ICT incurring hardware costs to acquire network equipment and software costs to integrate the participating agencies' IT systems. In addition, both measures potentially require regulatory, institutional, infrastructural and/or human resources changes. In particular, administrative capacity may need to be enhanced or changed, with the recruitment of new staff and/or training activities for the existing staff in order for the system to be fully operational. A marketing and promotion plan may

**Figure E.14: Implementation costs of trade facilitation reform related to release and clearance of goods**



Note: Each box plot displays the range of the implementation costs from the first (25 per cent) to the third (75 per cent) quartiles. The line going across the boxes is the median. The end points of two thin vertical lines ("whiskers") emanating from the boxes show the minimum and maximum values of the data.

Source: WTO Secretariat based on trade facilitation implementation costs collected.

**Figure E.15: Implementation costs of trade facilitation reform related to formalities and documentation requirements**

Note: Each box plot displays the range of the implementation costs from the first (25 per cent) to the third (75 per cent) quartiles. The line going across the boxes is the median. The end points of two thin vertical lines ("whiskers") emanating from the boxes show the minimum and maximum values of the data.

Source: WTO Secretariat based on trade facilitation implementation costs collected.

also need to be developed to raise awareness of the single window system and promote its use. Compared to other types of trade facilitation measures, both measures are not only characterized by relatively high implementation costs, but also by greater cost variation. The heterogeneity of these costs stems not only from the scope and level of sophistication of both systems in terms of technology and equipment, but also from the country's initial conditions, such as the economy's size, the extent of existing systems and the need for network development.

A national single window system allows traders to submit relevant documentation and/or data requirements and be notified of decisions to release goods from border control through a single entry point. Yet, these functions can be fulfilled in several ways, without necessarily involving ICT. In some cases, single window schemes only require documents to be submitted at particular border points, while other case data can be submitted electronically via a system that connects several or all relevant border agencies. Past experiences suggest that the implementation costs of electronic single window are expected to be lower in the presence of advanced customs automation systems. This is in line with the view shared by many developing countries and LDCs that a substantial part of the implementation costs of trade facilitation reform is attributed to installing, operating and upgrading customs automation systems.

As with many investments in IT equipment and infrastructure, customs automation can serve other purposes besides trade facilitation, such as improving regulation enforcement by preventing corruption and smuggling, enhancing customs operations

productivity, and improving valuation methods and revenue collection. Empirical evidence suggests that a large number of developing countries have already introduced automation in their main customs border management agencies, such as airports and seaports (OECD, 2005). Although a certain level of customs IT is already in place, there might often still be scope to upgrade and improve the efficiency of some operations, such as the information exchange between border management agencies and with the private sector. However, the lack of a stable electricity supply and telecommunication infrastructure in certain LDCs may prevent a full implementation of complex customs automated systems in the short to medium term (World Bank, 2006a). Similar to other trade facilitation measures, part of the implementation and operating costs of both single window and custom automation systems can be shouldered by the users through the payment of fees and charges. In 2014, about 60 per cent of the customs automation projects falling under the auspices of the UNCTAD Automated System for Customs Data (ASYCUDA) Programme were financed by developing countries' own customs administrations (UNCTAD, 2014b).

Even though automation is a useful tool for normalizing and simplifying forms and documents, lessons learned from past customs modernization projects confirm that automation does not achieve trade facilitation reform on its own (OECD, 2005). In other words, automation is neither a precondition nor a sufficient condition to undertake most trade facilitation measures. For instance, risk management procedures and authorized operators programmes do not necessarily require an automated system, although automation would make their implementation more effective. As discussed in

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the next subsection, other institutional and regulatory aspects, such as political commitment and available skilled staff, are among the main factors associated with the successful implementation of trade facilitation measures. Ultimately any customs automation system is only as efficient as the staff that run it.

Although customs automation is often closely associated with the simplification of procedures, not all measures related to streamlining formalities and documentation requirements are necessarily costly. For instance, simplifying or minimizing import and export documentation requirements does not seem to entail substantial inception costs. Measures establishing the use of international standards for customs procedures, introducing periodical reviews of import/export documentation requirements, eliminating the requirement for mandatory use of customs brokers, and prohibiting preshipment inspection have also been considered as relatively affordable in terms of training and equipment costs compared to other type of trade facilitation measures (Duval, 2006; UNCTAD, 2014b).

### (iv) Customs and border agencies cooperation

As depicted in Figure E.16, the level of inception costs of projects related to integrated border management and one-stop border posts tend to fall in the same range as the implementation costs of single windows and customs automation systems, ranging between US\$ 840,000 and US\$ 45.9 million, and between US\$ 609,000 and US\$ 16.3 million, respectively. Integrated border management programmes harmonize, streamline, and simplify the border management

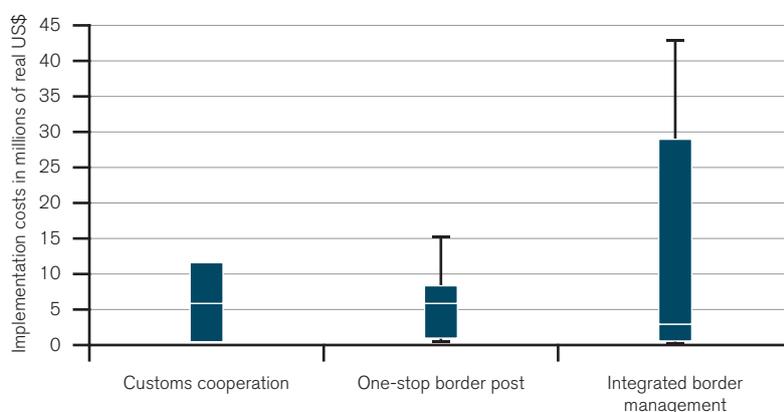
systems and procedures not only of customs, but of all border management agencies, such as immigration, transport, quarantine, sanitary and phytosanitary, environment, standard and consumer protection agencies. Some initiatives further promote border management coordination through information sharing, joint use of some facilities, administrative authority delegation, or cross-designation of officials (McLinden *et al.*, 2011).

In some cases, integrated border management initiatives are far more comprehensive and incorporate the establishment of one or more one-stop border posts. A one-stop border post consists of coordinating neighbouring countries' import, export, and transit procedures in order to avoid duplicating regulatory formalities on both border sides.

Equipment and infrastructure, including ICT and refurbishing border stations, are among the most expensive cost components of both types of projects, along with training activities to ensure border management agencies' staff acquire the right expertise and move away from a silo mentality towards an integrated and collaborative environment.

While the magnitude of these implementation costs demonstrate the challenges that developing countries and LDCs may face in implementing measures related to border agency cooperation, other forms of cooperation seem to be less expensive in terms of inception costs, such as the establishment of joint border committees aimed at involving all relevant public and private stakeholders in both countries in the decision-making process.

**Figure E.16: Implementation costs of trade facilitation reforms related to customs and border agency cooperation**



Note: Each box plot displays the range of the implementation costs from the first (25 per cent) to the third (75 per cent) quartiles. The line going across the boxes is the median. The end points of two thin vertical lines ("whiskers") emanating from the boxes show the minimum and maximum values of the data.

Source: WTO Secretariat based on trade facilitation implementation costs collected.

#### (v) *Other trade facilitation-related areas*

As mentioned previously, information on the implementation costs of trade facilitation reforms is limited and often available only at an aggregated level, which is why the inception costs of a number of trade facilitation measures covered by the TFA are not readily identifiable (see Box E.2). In this context, the absence of available data on particular trade facilitation measures does not imply that their inception costs are necessarily small. That being said, the few studies reviewing countries and experts' qualitative assessment of various trade facilitation measures have identified a number of trade facilitation areas for which inception costs are likely to be low. For instance, measures related to disciplines on fees and charges, such as the elimination or limitation of charges and the removal of consular fees, do not seem to call for significant additional resources or expertise.

Other measures related to transit and temporary admission, such as the guarantee of freedom of transit routes and the abolition of the mandatory use of escorts for goods in transit, have also been identified as measures not requiring necessarily major resources

or new specific knowledge (Duval, 2006; UNCTAD, 2014b). As discussed in subsection E.1, many of these measures are among the most-notified Category A commitments under the TFA, namely measures that can or should be implemented straightaway without requiring any particular technical assistance.

## 4. The Trade Facilitation Agreement Facility (TFAF)

While the anticipated costs of implementing the TFA appear modest relative to the expected benefits, they can still prove challenging for poor countries that have limited resources and expertise. This was recognized by WTO members when they formally agreed to launch negotiations on trade facilitation in July 2004. They decided that the principle of special and differential treatment (S&D) for developing countries and LDCs “should extend beyond the granting of traditional transition periods for implementing commitments. In particular, the extent and the timing of entering into commitments shall be related to the implementation capacities of developing and least-developed Members.”<sup>5</sup> These provisions in Section II (“Special

### Box E.2: Obstacles to estimating the implementation cost of the TFA

Ideally, any study estimating the expected benefits of a particular trade facilitation project would also include estimates of associated set-up and operating costs. By the same token, a study that attempts to quantify the benefits of the WTO TFA as this report does should also take into account the cost of implementing the Agreement if at all possible. This report has attempted to do this by collecting data – scattered, scarce and incomplete though it is – on the cost of implementing various trade facilitation reforms, and by presenting a number of charts and descriptive statistics based on this information. As noted in subsection E.2, this effort yielded information on 198 projects related to 31 trade facilitation measures grouped into five broad categories: border agency cooperation, customs automation, formalities and document requirements, release and clearance of goods, and transparency and predictability.

This information is valuable in that it gives an idea of the typical costs of the various trade facilitation measures, as well as the range of costs incurred by countries in different circumstances. Unfortunately, the number of observations is too small to derive a reliable global estimate of the cost of implementing the TFA. At the outset, matching the data to the TFA came at a cost in terms of the number of usable observations, with more than 42 observations on measures not covered by the actual Agreement, such as customs automation, discarded. Among the remaining trade facilitation measures, many had only one or two observations, which made cost estimation by measure impossible. Even when grouped into broad categories, certain types of measures (e.g. transparency and predictability) still had very few data points. Including other variables in regressions to control for country characteristics (e.g. per capita income, import volume, region and initial levels of implementation) further reduced the number of usable observations since values could not be matched for all countries. Finally, even when there was sufficient data for estimation, coefficients were statistically insignificant at conventional levels and R-squared statistics, indicating how well the data fit the statistical model, were extremely low, giving no confidence in the results.

The difficulty of estimating implementation costs underlines the importance of monitoring the status of the TFA after it comes into force. As noted in subsection E.6, monitoring of agreements is a core function of the WTO that extends to implementation and operational costs as well as economic impacts. Having more complete information on the costs of implementing the Agreement will help developing countries better gauge their technical assistance needs and obtain the necessary support from aid donors.

## II. SPEEDING UP TRADE: BENEFITS AND CHALLENGES OF IMPLEMENTING THE WTO TRADE FACILITATION AGREEMENT

and Differential Treatment Provisions for Developing Country Members and Least-Developed Country Members”) of the TFA were discussed in detail in Section B of this report.

The S&D provisions in the TFA imply far greater levels of differentiation than other WTO agreements. Each developing or least-developed country member can have its own unique implementation schedule as the timing of implementation depends on the acquisition of capacity. This would be consistent with the principle of tailoring trade commitments in light of the specific economic situation faced by the country. It is an idea for which one can find support in the economic literature (see Box E.3 on the economic rationale for S&D).

There are incentives for developed country members to provide capacity-building to developing countries and LDCs so that they can speed up their implementation of the TFA. As explained in Section C, inefficient trade procedures create deadweight losses that affect all parties involved in international trade. A member with inefficient trade procedures creates deadweight losses for both itself and its trade partners. By providing assistance and support for capacity-building to developing countries and LDCs so that they can fully implement the TFA, developed countries also reduce or eliminate the losses faced by their firms.

Making sure that the Category C commitments<sup>6</sup> come to fruition will require matching demands for capacity-building from developing countries and LDCs, as well

### Box E.3: The economic rationale for special and differential treatment

Economics and the theory of trade agreements in particular, provide justification for extending special and differential treatment of developing countries and LDCs in trade agreements. This is because developing countries and LDCs are often small in size, face significant resource constraints and confront many market failures.

As discussed in Section B of this report, there are several explanations for why countries enter into trade agreements. The terms of trade theory claims that trade agreements allow countries to escape a potentially ruinous tariff war (Bagwell and Staiger, 1999). The commitment theory states that trade agreements give weak governments intent on future economic reform credibility to overcome opposition from organized lobbies (Maggi and Rodriguez-Clare, 1998).

Horn *et al.* (2010) suggest that flexibilities should be afforded to countries that have fewer or less effective domestic policy instruments at their disposal and that have less power to manipulate their terms of trade. These conditions are more likely to apply to smaller countries at earlier stages of development than to larger, more advanced nations. Further, strict disciplines should apply to commitments involving border measures, such as tariffs, while more discretion should be allowed for commitments involving domestic policy instruments, such as subsidies.

Conconi and Perroni (2004; 2012) use the commitment theory of trade agreements to explain why a developed country would accept asymmetric commitments in the form of longer transition times for a developing or LDC trading partner. The capacity in the developing country’s or LDC’s import-competing sector depreciates slowly and the industry lobbies for the quasi-rents, or temporary returns, that can be earned during that time. Hence, the transition to the long-run cooperative equilibrium of market opening cannot take place in a single step. By letting its industry reap these rents during a transition period, the developing country or LDC caters to its special interests while at the same time credibly committing to welfare-improving market opening at a later stage. In the absence of flexibility afforded to it by its developed country partner, the developing country or LDC would have maintained high tariffs due to its domestic credibility problem. Rather than not obtaining any market opening at all, the developed country accepts a lower surplus during the transition period, in order to ensure a longer-term gain.

Rosendorff and Milner (2001) and Bagwell and Staiger (2005) note that the efficiency of flexibility or “escape clauses” increases with the level of uncertainty. If developing countries or LDCs are assumed to face systematically higher uncertainty over the future, a generally higher level of flexibility may be appropriate.

Finally, flexibility provides a way for countries to minimize the cost of adjusting to trade reform. The implementation of trade obligations, even if ultimately beneficial, may be associated with upfront administrative and infrastructure costs that developing countries or LDCs may find difficult to finance in the short term (Finger and Schuler, 1995; Maskus, 2000). Technical and financial assistance as well as longer time periods aimed at gradual implementation of obligations may be needed to effect the transition.

as a supply of capacity-building and assistance from donors. Since there is no “market” to match demand and supply, the WTO will have to act as a substitute, serving as clearing-house of information and matchmaker of last resort.<sup>7</sup> Filling this matchmaking role will require knowing precisely the demands or needs of members to be able to implement the TFA and knowing the capabilities and comparative advantages of bilateral, regional and multilateral donors and institutions in delivering technical assistance and expertise in trade facilitation. (Section B of this report identified many of these international organizations and their comparative advantages in the area of trade facilitation).

These various coordinating functions have been concentrated in the newly created Trade Facilitation Agreement Facility (TFAF), which was launched in July 2014 by Director-General Roberto Azevêdo (see Box E.4 for a description of its functions). The Facility works closely with individual members to make sure they are receiving the information and support needed. Where necessary the Facility provides technical assistance and/or assists members to find support through donor members or international or regional organizations.

This matching or coordinating role of the WTO is one of the reasons identified in Section C why it made economic sense for trade facilitation to be included in a multilateral trade agreement. Beyond the matching of demand and supply of capacity-building, there is another facet of coordination that the WTO will perform. While it is certainly possible for countries individually to

draw up trade procedures that are in keeping with the requirements of the TFA, it will be far more efficient to design them in accord with international best practices. In this way, trade procedures around the globe not only follow similar practices but those practices are also based on the best standards.

The Facility has conducted a number of activities aimed at raising awareness and encouraging support for ratification and the entry into force of the TFA. These activities are directed at many levels of decision-makers and stake-holders including parliamentarians, ministries, Geneva-based delegates, capital-based trade officials, and a broad range of interested stakeholders.

WTO officials have made presentations on the TFA in numerous events organized by other organizations, including an international conference for members of the Inter-Parliamentary Union held in early 2014.

The Facility worked to expand an existing WTO technical assistance program for parliamentarians to have a greater focus on trade facilitation. So far in 2014, trade facilitation workshops for parliamentarians have been conducted for African countries (in cooperation with Morocco), the Eastern African Community, ASEAN (in cooperation with Singapore), all Latin American countries, and the Pacific Islands (in cooperation with the World Bank Group and the Pacific Islands Forum).<sup>8</sup> Future workshops will be conducted in other regions as needed.

#### Box E.4: What the Trade Facilitation Agreement Facility does

The TFAF's specific functions will include:

- i) supporting LDCs and developing countries to assess their specific needs and identify possible development partners to help them meet those needs;
- ii) ensuring the best possible conditions for the flow of information between donors and recipients through the creation of an information-sharing platform for demand and supply of trade facilitation-related technical assistance;
- iii) disseminating best practices in the implementation of trade facilitation measures;
- iv) providing support to find sources of implementation assistance, including formally requesting that the Director-General act as a facilitator in securing funds for specific project implementation;
- v) providing grants for the preparation of projects in circumstances where a member has identified a potential donor but has been unable to develop a project for that donor's consideration, and is unable to find funding from other sources to support the preparation of a project proposal; and
- vi) providing project implementation grants related to the implementation of TFA provisions in circumstances where attempts to attract funding from other sources have failed. These grants will be limited to “soft infrastructure” projects, such as modernization of customs laws through consulting services, in-country workshops, or training of officials.

Finally, as shall be seen in the next subsection, there are many lessons that have been learned from trade facilitation reform. This wealth of knowledge is an important resource that can smooth the way for countries embarking on customs reform for the first time. The WTO could help ensure that they are transferred to implementing countries.

### 5. Country experiences of successful reforms: what are the lessons?

Similar to the empirical literature on the implementation costs of trade facilitation reforms, a limited number of papers have reviewed in a consistent manner the operational aspects associated with the implementation of trade facilitation measures. Trade facilitation reform addresses the operational interface between government and private sector, and as such often relies on an interdisciplinary approach that brings together legal, economic, political, technological and management aspects. Yet, the obstacles preventing trade facilitation reforms, such as conflicting interests and institutional limitations, have been the object of limited attention in the literature (Grainger, 2008; McLinden *et al.*, 2011).

As highlighted previously, a number of countries have already been implementing trade facilitation reforms as part of multilateral, regional or unilateral initiatives. These experiences can provide valuable information on the lessons learned and associated success factors in addressing and overcoming the obstacles and challenges that countries have faced in implementing trade facilitation projects. Any lesson in trade facilitation reforms needs, however, to be approached with care. Implementing trade facilitation reforms is not simply a matter of copying and pasting other countries' experience. There is no single model of trade facilitation reform. An approach that has proved to be successful in a given country might fail in another. Ultimately, trade facilitation lessons depend on several factors, including the type of trade facilitation reform and the country's geography, level of development, legal framework, infrastructure, human resources, and type and volume of trade (De Wulf and Sokol, 2005).

While it is difficult to draw universal lessons from trade facilitation reforms, a useful source of information can be found in case stories that explicitly identify and report the success factors of specific trade facilitation projects. One hundred and fifty-five different case stories<sup>9</sup> have been compiled by the WTO Secretariat from various sources, including the 2011 and 2012 WTO symposia on Practical Experience of Implementing Trade Facilitation Reforms, the Third and Fifth Global

Reviews of Aid for Trade Review, UNECE's Trade Facilitation Implementation Guide, the UN Network of Experts for Paperless Trade (UNNEXt) in Asia and the Pacific, the World Bank, the Asian Development Bank, the World Customs Organization, and the Asia-Pacific Economic Cooperation.

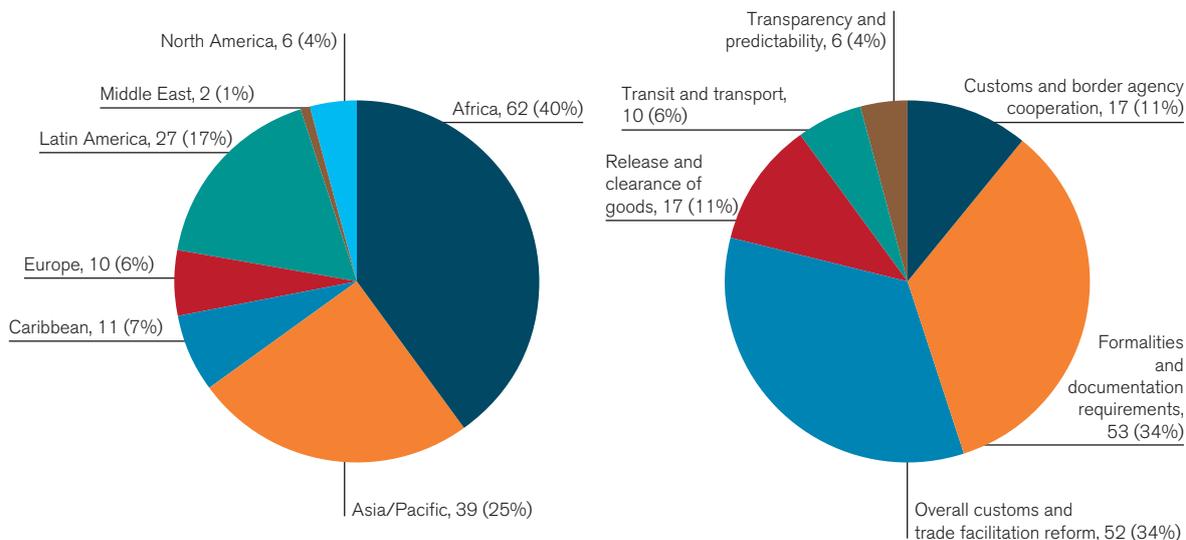
Of this total, 105 (68 per cent) case stories cover trade facilitation initiatives in developing countries, 38 (24 per cent) in LDCs, and 13 (8 per cent) in developed countries. These case stories are also spread geographically with 62 (40 per cent) case stories on trade facilitation initiatives in Africa, 39 (25 per cent) in Asia/Pacific, 27 (17 per cent) in Latin America, 11 (7 per cent) in the Caribbean, 10 (6 per cent) in Europe, 6 (4 per cent) in North America, and 2 (1 per cent) in the Middle East.<sup>10</sup>

As shown in Figure E.17, the case stories cover a broad range of areas related to trade facilitation reform. Fifty-two case stories report on overall and broad customs and trade facilitation reforms, while the remaining 103 cases cover more specific trade facilitation measures. In particular, 53 cases (34 per cent) focus on formalities and documentation requirements, such as single windows, and 17 (11 per cent) case stories cover the release and clearance of goods, such as risk management. Other trade facilitation areas discussed in the remaining case stories include customs and border agency cooperation, reported in 17 (11 per cent) stories, transit and transport mentioned in 10 (6 per cent) stories, and transparency and predictability, such as advance rulings, which are covered in six (4 per cent) stories.

Two caveats regarding these case stories have to be underlined. First, these case stories are probably not totally representative because of a potential selection bias and the tendency to publish only trade facilitation initiatives with positive outcomes. Second, this story collection can suffer from omitted variables, since most case stories are reported by those financing and/or participating in these trade facilitation initiatives (i.e. governments, donors, or experts), implying a higher probability of being less objective than an external assessment. In this context, the absence of any reference to a given success factor does not necessarily imply that this factor did not later turn out to be critical in explaining the trade facilitation initiative's positive outcome. Despite these drawbacks, these case stories can still provide insights into important patterns and nuances of some of the factors that contributed to successful trade facilitation experiences at the national and regional level.

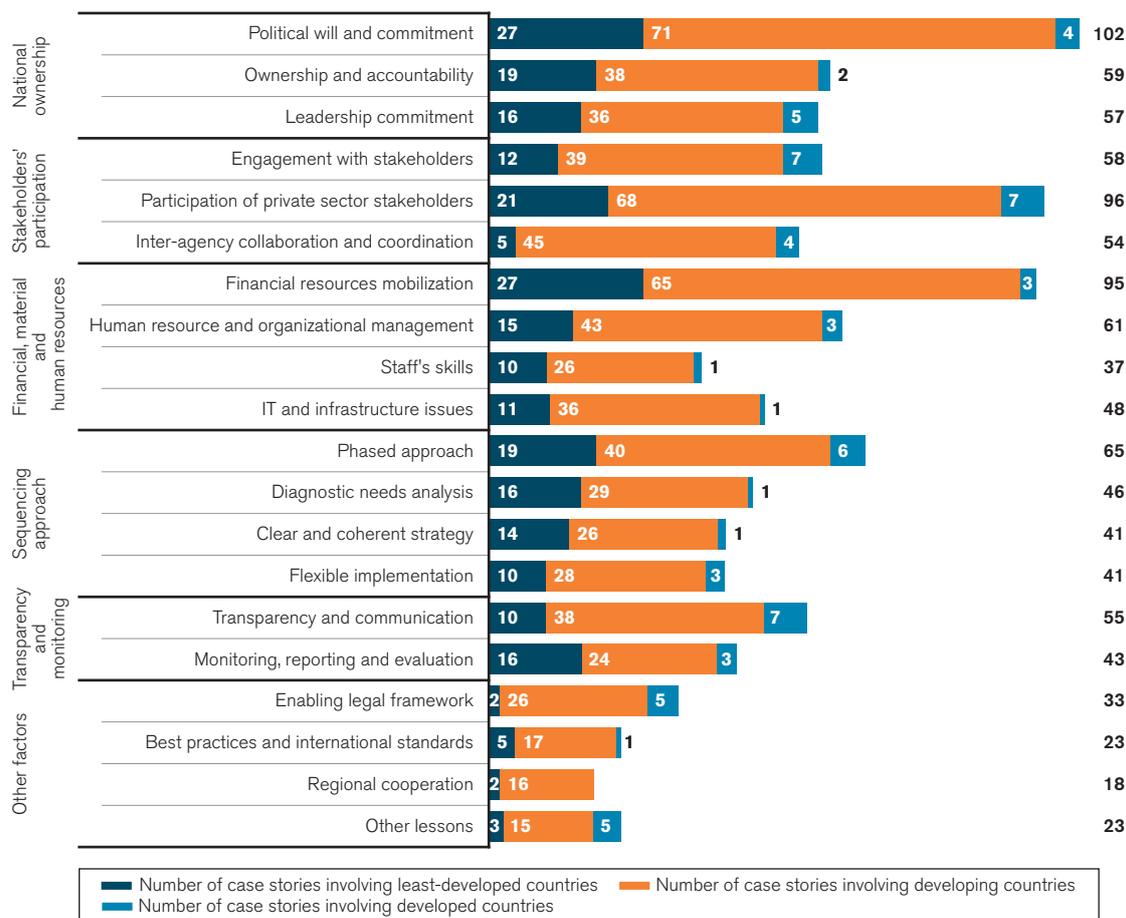
As shown in Figure E.18, the review of these 155 case stories highlights a number of converging

Figure E.17: Distribution of the trade facilitation case stories by regions and areas



Source: WTO Secretariat based on case stories on trade facilitation measures collected.

Figure E.18: Main success factors reported in case stories on trade facilitation



Source: WTO Secretariat based on case stories on trade facilitation measures collected.

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success factors, despite the relative high number of different success factors identified. Many of these success factors are often interrelated, and in several cases they are mutually supportive of each other. In addition, different trade facilitation measures often involve different types of success factors. Keeping this in mind, the factors can be grouped in six broad categories: (1) national ownership; (2) stakeholders' participation; (3) financial, material and human resources; (4) sequencing approach; (5) transparency and monitoring; and (6) other factors.

### (a) National ownership

The most frequently reported success factor is strong high-level political will and commitment regarding the trade facilitation process reform, mentioned in 102 out of the 155 case stories. As highlighted in subsection E.1, this finding is in line with the relatively high number of donor countries that participated in the monitoring exercise of the Fifth Global Review of Aid for Trade and identified the lack of "national coordination and political will demonstration" as one of the most important difficulties that might be encountered in implementing the TFA. Political involvement, at the ministerial, prime ministerial or presidential level, is often viewed as a manifestation of appropriation and ownership of the trade facilitation reform. Fifty-nine case stories specifically identify ownership and accountability of the government but also of the staff being brought to implement the initiative as a success factor.

Political will frequently represents the overarching factor upon which most of the other success factors rest and depend. In particular, active government involvement is often required to resolve any conflicting political priorities and allocate the appropriate levels of financial, material and human resources needed to successfully implement trade facilitation reform. In addition, a firm political commitment is often essential to overcome possible opposition and resistance by some of the stakeholders in the public and private sectors who gain from the existing system, including inefficiencies and relationships, and whose vested interests could be defused with the trade facilitation reform (Brandi, 2013; Holler *et al.*, 2014; World Bank, 2006b).

Continuity in strong political commitment is also important to sustain the momentum for trade facilitation reforms over the years and mitigate, among other things, the risks of changes in policy direction, and lack of financial and human resources. This could explain why case stories covering formalities and documentation requirements, which are often viewed as an ongoing process, report a relatively higher prevalence of political will as a success factor. Related to political will is also

the existence of an active and dedicated lead agency, team or individual in charge of launching, implementing and overseeing trade facilitation reform, reported in 57 case stories. Such strong and stable leadership can help to ensure trade facilitation reform remains on the agenda of the different stakeholders.

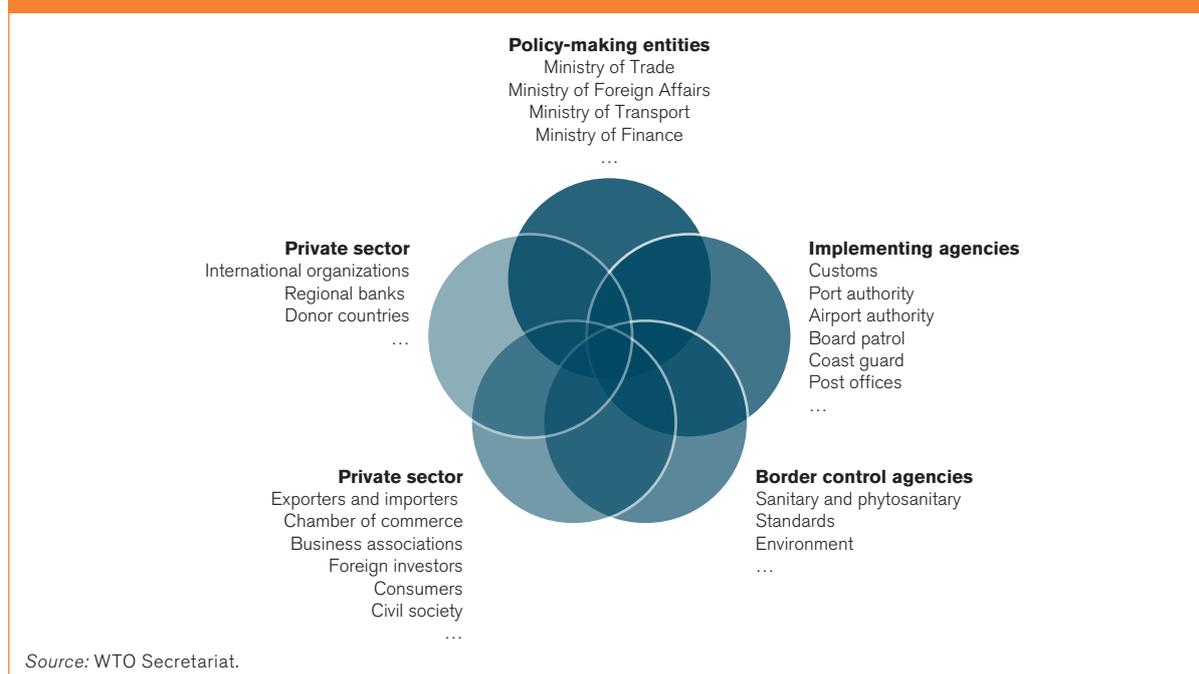
### (b) Stakeholders' participation

Another key lesson, mentioned in 58 case stories, is the participation and commitment of relevant stakeholders in each phase of the trade facilitation initiative. As mentioned previously, trade facilitation is by nature a cross-cutting issue affecting the interest of various stakeholders in the public and private sectors. As portrayed in Figure E.19, policy-making entities (e.g. ministries of trade, foreign affairs, finance, transport), cross-border agencies (e.g. sanitary and phytosanitary, health and environmental departments), implementing agencies (e.g. customs, port and airport authorities), the private sector (e.g. suppliers – including foreign investors – customers and intermediaries) and external donors are among the potential stakeholders involved in trade facilitation not only at the national level, but in some cases also at the regional and international level.

The second most reported success factor, mentioned in 96 case stories, is the active involvement and adherence of local private sector stakeholders, including chambers of commerce, business associations, and civil society engaged in trade and transport activities. As some of the first and main beneficiaries of trade facilitation reform, providing traders and businesses with the opportunity to share views and make suggestions during the needs assessment, design, implementation, and evaluation of the trade facilitation reform is critical to ensure that the initiative leads to concrete and practical benefits. Yet there is rarely a single private sector voice that naturally emerges from the different industries and sectors involved. Conflicting and opposing industry interests can therefore hamper the implementation of trade facilitation initiatives (Grainger, 2008). A few case stories underscore how important it is that the government remain neutral and not favour certain firms or industries in order not to jeopardize the broad support needed from the business community.

Different approaches exist to consult and involve the private sector: establishing trade facilitation bodies; sending open consultation letters calling upon interested parties to express their views; or commissioning studies and surveys (Grainger, 2014). In particular, national trade facilitation bodies can be proved to be useful in addressing trade facilitation issues in a coordinated way, accommodating conflicting interests and enhancing formal and informal dialogue and cooperation between private- and public-sector stakeholders (UNCTAD, 2006).

Figure E.19: Stakeholders in trade facilitation reform



In the last 15 years, the number of bodies, such as committees, commissions and working groups, put in place to bring together relevant stakeholders, including the private sector, has increased significantly. While different geographic, economic and cultural factors influence trade facilitation bodies' functions, performance, and sustainability, private sector involvement and coordination among participants are considered by trade facilitation bodies as the most critical factors in attaining their objectives and effectively developing their activities (UNCTAD, 2014a).

In fact, the success of trade facilitation initiatives depends also, as mentioned in 54 case stories, on the involvement, commitment and readiness of the different ministries and agencies operating at border crossings. Customs are not the only government agency involved in trade facilitation. Delineation and coordination of the responsibilities of implementing agencies, including customs, but also airport and port authorities and border control agencies, such as sanitary and phytosanitary and environmental protection departments, can be important to eliminate any incompatible procedures, redundancy and duplication in the design and implementation of trade facilitation measures. For instance, it is not unusual that, at times, agencies in charge of safety, phytosanitary and quality standards proceed to different and separate inspections and testing to ensure that imports are in conformity with the relevant standards. Until these agencies give their approval, customs will not be in a position to grant the release of the imported goods. In the absence of coordination among these

agencies, any trade facilitation measures related to the release and clearance of goods, such as pre-arrival processing and risk management, will not fully realize all of its potential benefits. As discussed previously, consultation mechanisms, such as national trade facilitation bodies and multi-agency working groups, can convene the different views and interests to define a common strategy and assign priorities. Similarly, the establishment of a feedback mechanism between the government and stakeholders can be useful to be able to identify and resolve issues related to the trade facilitation reform implementation.

### (c) Financial, human and material resources

Another recurring success factor, reported in 95 case stories, is the importance of envisaging and preparing a realistic and sustainable funding mechanism to implement the trade facilitation initiative, ranging from domestic funding to external financial support, or a combination of both. In particular, a relatively higher number of case stories on trade facilitation projects and programmes in LDCs underscores the key role played by adequate, predictable and reliable donor funding. As noted in subsection E.1, initiatives such as Aid for Trade play an important role in mobilizing donor support for capacity-building and trade-related infrastructure (OECD and WTO, 2015). A few case stories also highlight the importance of public-private partnership as a means to fund trade facilitation reform and increase private sector participation. More generally, the long-term sustainability of most trade

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facilitation reforms requires securing a steady annual budget allocation once external funding and technical assistance cease, which in turn can be difficult to obtain without strong political will.

Adequate human resources and organizational management, mentioned in 61 case stories, are also reported as a critical element in enhancing the quality and integrity of staff with respect to the trade facilitation initiative (World Bank, 2006b). As highlighted in 37 case stories, trade facilitation often requires specific technical expertise. In this context, on-the-job training, including through technical assistance and capacity-building activities, is key to ensuring that the staff concerned acquire the proper skills and remain competent. Besides training and professional development, the remuneration, incentives, promotion, rotation and relocation offered to staff may have to be considered to ensure that they internalize the objectives of the trade facilitation reform and accept their (new) role and responsibilities (World Bank, 2006b). In some cases, organizational changes also have to be pursued by reallocating resources previously assigned to other tasks in order to provide greater flexibility, effectiveness and efficiency in operational matters (McLinden *et al.*, 2011).

The importance of information and communication technology and infrastructure, including equipment, to materialize trade facilitation reforms has also been highlighted in 48 case stories. In particular, the use of ICT can contribute significantly to streamlining and simplifying customs procedures and documents, as reported in many case stories on single window and paperless trade initiatives. It follows that deficiencies in ICT can prevent the full implementation of certain trade facilitation measures that tend to rely on ICT, such as single windows. A few case stories further underscore the importance of designing trade facilitation reforms attuned to the country's actual IT capacities.

### (d) Sequencing approach

Another critical factor in implementing a successful trade facilitation initiative, reported in 65 case stories, is to establish and follow proper sequencing. Sufficient time is often needed between the elaboration of the trade facilitation measures and their actual implementation in order to prepare the ground, bring all stakeholders on board and build internal capacity through outreach and training activities and potential additional investment (e.g. infrastructure, IT upgrades, etc.). More generally, trade facilitation reform is often viewed as a long-term and gradual process that should not be too slow, so as not to erode the initiative's momentum, and not too fast, so as not to exacerbate resistance and undermine the reform's sustainability. In this context, a flexible implementation plan, mentioned

in 41 case stories, can be crucial for adapting and responding to external factors, such as the global recession, that can lead to delays and change priorities. User-friendliness has also been identified in a number of case stories as an important element of successful trade facilitation reforms.

As highlighted in 46 case stories, the starting point of the sequencing often takes the form of an accurate and comprehensive assessment of the trade facilitation needs and priorities of the current situation, taking into account, among other things, the country's specific operating environment, administrative competencies, resources availability, technological levels and political system, with a view to identify the situation's shortcomings (De Wulf and Sokol, 2005). Diagnosing needs is frequently considered as a prerequisite to be able to define not only realistic objectives but also a clear and coherent strategy tailored to the situation, as mentioned in 41 case stories. Evidence suggests that, as most trade facilitation measures are interrelated, they may fail to achieve their full potential effectiveness when the measures in question are implemented partially, in isolation and in the absence of an appropriate sequencing of measures (De Wulf and Sokol, 2005; Moisé, 2006).

### (e) Transparency and monitoring

Keeping policy-makers and relevant stakeholders, including the private sector, informed on the elaboration of a trade facilitation initiative, progress achieved, difficulties encountered and surmounted, and measures proposed to address delays and changed conditions, can also contribute to its success, as reported in 55 case stories. For instance, a number of national trade facilitation bodies has adopted a communication strategy to share and disseminate relevant information to stakeholders and the general public (UNCTAD, 2014a). Such transparency mechanisms can often foster the trust necessary to convince and obtain the support, participation and ownership of all relevant stakeholders. A number of case stories further underscore the usefulness of raising awareness and promoting trade facilitation initiatives in order to sustain the momentum and gain greater support among all stakeholders. In this regard, and as mentioned in 43 case stories, monitoring, reporting and evaluating trade facilitation initiatives can be an important success factor by keeping stakeholders informed of the results achieved, and of whether the initiative is on track or needs to be adjusted. An efficient monitoring mechanism often starts with the establishment of clear performance indicators (World Bank, 2006b). Monitoring can also be essential to secure external funding, as it is a way to assess the project's effectiveness and convince donors (Holler *et al.*, 2014).

### (f) Other success factors

A limited number of other success factors has been explicitly identified in a few cases stories. For instance, 33 case stories stress the role of an adequate, enabling and clear legal framework. As discussed in subsection E.2, some trade facilitation measures may entail a change in laws, regulation and administrative guidelines to fully support trade facilitation reform implementation, such as authorizing electronic data submission and exchange among agencies. Other specific measures may already be applied informally by customs or border agencies in some developing countries, but require a proper legal framework and institutional support to become mainstream (UNCTAD, 2014b). The importance of adopting international and/or regional best practices and of aligning the legal framework and trade facilitation procedures, such as data and documents harmonization, with international standards, guidelines and recommendations, has also been highlighted in 23 case stories. Similarly, regional cooperation and coordination, reported in 18 case stories, can prove to be useful to build on regional experiences and enhance regional integration, and thus complement cooperation and coordination at the domestic level.

## 6. Monitoring implementation of the TFA

Finally, given the large estimated benefits for the global economy of implementing the TFA, it is vital to monitor its implementation. This will help gauge the progress that has been achieved, identify the problems that have been encountered by implementing members and assess how well the flexibilities in the Agreement for developing countries or LDCs have worked.

Monitoring the implementation of WTO agreements is one of the core responsibilities of members. In the specific case of the TFA, the Agreement will establish a Committee on Trade Facilitation which is to review its operation and implementation four years from entry into force, and periodically thereafter. The WTO Secretariat can complement WTO members' monitoring efforts through the collection of economic information and the evaluation of economic outcomes. Even if governments in poor countries are able to translate multilateral commitments into national law and practice, the administrative capacity to carry them out effectively may not be sufficient, thus producing a divergence between expectations and outcomes. Economic monitoring will help ensure that such problems are caught early and solutions found. It will alert the international community to obstacles that prevent developing countries and LDCs from acquiring implementation capacity.

Resources will be needed to increase capacity in developing countries to implement the TFA. To ensure that they are allocated efficiently, one needs to know what types of capacity-building initiatives are most effective, and under what circumstances. These are typically the types of questions that impact evaluation studies are best equipped to answer. There has been some work on developing methodologies for impact evaluation of trade-related interventions, including trade facilitation measures (see for example Cadot *et al.* (2011) and Fernandes *et al.* (2015)). They show promise suggesting that rigorous impact evaluation is possible even without randomized trials, which are typically considered to be the gold standard.

Good data, indicators and analytical tools are required to effectively monitor and evaluate the economic impact of the TFA. One important constraint encountered in this report is the paucity of data on implementation costs despite its obvious importance for developing countries and LDCs. This report has also made use of a number of indicators and economic tools to estimate the likely benefits of the TFA. While there is no question about their reliability and usefulness, they are by no means perfect because of, among other issues, limited country and historical coverage. This should motivate the WTO, in conjunction with other international organizations and regional development banks, to pool resources and expertise so that more and better data are collected, existing indicators and analytic tools are improved and, where necessary, new ones developed so as to effectively monitor and evaluate implementation of the TFA.

## 7. Conclusions

This section underscored the high priority given to trade facilitation by developing and least-developed WTO members, as expressed through surveys. Countries have been implementing trade facilitation measures for several years and no country is starting from zero. At the same time, many of these countries voice concerns about the uncertainty related to the benefits and costs associated with the implementation of the TFA. Measures related to border agency cooperation, trade-related formalities, and information publication and availability have been identified as the most challenging measures to implement. Although limited, information compiled on the implementation costs of trade facilitation initiatives shows that the magnitude of the trade facilitation reforms' inception costs is country-specific and depends on the type of trade facilitation measure considered. Trade facilitation measures related to transparency and the release and clearance of goods tend to entail lower implementation costs than those related to customs and border agency cooperation, customs automation, and formalities,

which often rely on ICT infrastructure and equipment. But overall, the anticipated costs of implementing the TFA appear modest relative to the expected benefits.

The section also highlighted the TFAF's key role in matching and coordinating countries requesting technical assistance with countries supplying capacity-building and technical assistance. An analysis of a large number of case stories on trade facilitation initiatives confirms that, while financial resources availability and sustainability are essential, they do not constitute a sufficient condition to ensure that trade facilitation initiatives will be successful. Strong political commitment at the highest level appears to be the most important success factor in implementing

trade facilitation measures. Other key factors include cooperation and coordination between ministries and government agencies, private sector participation, adequacy of human and material resources, adoption of a sequencing approach, and transparency and monitoring. Looking ahead, it is essential to monitor implementation of the TFA once it comes into force. Good indicators, including information on trade facilitation needs and implementation costs, as well as analytical tools are required to effectively evaluate the economic impact of the TFA. In this context, cooperation between international organizations and regional development banks is vital to further pool resources and expertise so that existing indicators and analytic tools are improved.

## Endnotes

- 1 Summary statistics for groups of countries are computed by mapping responses to country characteristics (e.g. per capita income, land area, geographical region, landlocked status, etc.). Standard WTO geographical regions have been modified due to insufficient data in particular regions. For example, Africa and the Middle East were combined due to the fact that only one Middle Eastern country replied to the questionnaire. Latin America was also used rather than South America for the same reason since Mexico was the only North American developing country that replied to the questionnaire.
- 2 Duval (2006) identifies the potential reduction in government revenue following the reduction of the numbers and diversity of fees and charges resulting from the adoption of some trade facilitation measures as another component of the implementation costs.
- 3 For comparison purposes, costs data had to be adjusted to a common measure. Costs expressed in nominal dollars were deflated into constant 2014 US dollars using the consumer price index provided by the Federal Reserve Bank of St. Louis (USA). Similarly, costs expressed in non-US currency (e.g. euro, British pound) were transformed into nominal dollars using the yearly exchange rate as reported by the OECD and subsequently deflated into constant dollars. Period averages (e.g. 1998-2002, 2008-12) were assigned for the observations not reporting the implementation year. The total number of observations does not include trade facilitation measures for which only operational costs are available (10 observations). Although most observations refer to trade facilitation measures adopted by a single country, a limited number of trade facilitation projects are regional initiatives covering two or more countries, some of which are developing countries and others least-developed countries. As a result, the percentages do not always add up to 100 per cent.
- 4 Data on automation costs include two outliers. First, Mozambique entrusted a private company to install a customs automation system for a symbolic payment of US\$ 4 in 1997 (Moisé, 2004). Second, the cost of automation of the Russian Federation's Customs Development Project (2003-09) was estimated at US\$ 133 million (OECD, 2005).
- 5 See Annex D (Modalities for Negotiations on Trade Facilitation) in "Doha Work Programme Decision Adopted by the General Council on 1 August 2004", WTO document WT/L/579, 2 August 2004 and Moisé (2006).
- 6 These are provisions of the TFA that a developing country member or LDC member designates for implementation on a date after a transitional period of time following the entry into force of this Agreement and requiring the acquisition of implementation capacity through the provision of assistance and support for capacity-building.
- 7 The economic literature has studied the question of non-market matching and identified crucial design principles that would aid in achieving optimal outcomes (see Gale and Shapley (1962) and Roth (1984; 1985)). Consumers are presumed to have a ranking of donors with whom they want to be matched. One can imagine this ranking to reflect consumers' perception of their own technical needs and the comparative advantage of donors to meet those needs. Donors have their own ranking of the countries they want to assist. A stable outcome is a matching of consumers and donors such that no consumer-donor pair would prefer to be matched with each other rather than staying with their current matches. A stable matching is optimal in the sense that there does not exist any alternative pairing of consumer and donor that would leave either partner better off than with their current partner. If the pool of consumers and donors is not too large, this matching can take place in a decentralized fashion. If one or both sides of the market is large, there is a well-known algorithm (the Gale-Shapley algorithm) that arrives at the stable outcome.
- 8 Materials for these workshops, and a wealth of other information, are available on the Facility website ([www.TFAFacility.org](http://www.TFAFacility.org)).
- 9 Technically, 179 case stories were collected, but a number of those case stories refer to the same trade facilitation initiative, and as such are only considered once in the statistics.
- 10 A few case stories report on trade facilitation initiatives in different countries and/or regions. As a result, the percentages do not necessarily add up to 100 per cent.

# F. Conclusions

Although traditional trade barriers such as tariffs have come down, and innovations in transportation and communications technology have shrunk the distance between nations, trade costs remain high, particularly in developing countries. High trade costs isolate developing countries from world markets, limiting their trade opportunities and impeding growth. High trade costs also appear to disproportionately affect small and medium-sized enterprises (SMEs), time-sensitive products and goods produced in global value chains. Trade procedures that are more cumbersome than necessary and delay the movement, release and clearance of goods constitute a significant part of these trade costs.

Trade facilitation is intended to relieve these bottlenecks at the border. The WTO's Trade Facilitation Agreement (TFA) represents an important milestone by creating a multilateral framework for reducing trade costs. While changes in trade procedures can be implemented unilaterally, a multilateral agreement on trade facilitation brings added value. It provides greater legal certainty to the changes in measures. It helps reforming governments to marshal support from domestic constituents. Finally, it helps with the adoption of similar or compatible approaches to trade procedures and coordinates the provision of donor support for capacity-constrained developing countries.

Full implementation of the TFA has the potential to reduce trade costs by an average of 14.3 per cent. The computable general equilibrium (CGE) estimates see the TFA increasing global exports by between US\$ 750 billion and US\$ 1 trillion, depending on the speed and extent of implementation. The faster and more extensive the implementation, the greater the gains. TFA implementation has ramifications for the future trajectory of the global economy as well. This report estimates that over the 2015-30 horizon, implementation of the TFA could add up to 2.7 per cent a year to world export growth, and more than half a per cent a year to world GDP growth.

The simulations using the gravity model provide higher estimates of the potential global export expansion arising from TFA implementation. They range from US\$ 1.1 trillion to US\$ 3.6 trillion depending on the extent to which the provisions of the TFA are

implemented. Like the CGE simulation results, they show that the more fully the TFA is implemented, the greater are the gains for members.

Developing countries capture a big share of the trade and GDP expansion. The gravity model suggests that their exports can increase by as much as US\$ 1.9 trillion (making up more than 53 per cent of the global trade expansion). LDCs are likely to see an increase in their exports of 36 per cent, much more than developed or developing economies. The CGE simulation result also shows that the TFA has the potential to add almost 0.9 per cent annually to economic growth in developing countries compared to a quarter of a per cent annually to economic growth in developed countries.

Furthermore, by implementing the TFA, developing countries will be able to diversify their exports, entering new markets and selling a wider array of products. Diversification reduces the risk posed to developing countries of a downturn in a specific export market or product. This report estimates that, if the TFA is fully implemented, developing countries will increase the number of new products exported by as much as 20 per cent, with LDCs likely to see a much bigger increase of 36 per cent. It envisages developing countries entering an additional 39 per cent, and LDCs a further 60 per cent, of foreign markets.

Many developing countries have used participation in global value chains to expand their trade, improve access to technology and increase productivity. Timeliness and predictability in the delivery of intermediate goods are essential to the successful management of global value chains. The TFA will reduce both delays and variability in delivery time, which should increase the opportunity for implementing developing countries to participate in global value chains.

SMEs suffer more from administrative burdens than large enterprises, particularly in developing countries. For instance, exports by SMEs are more sensitive to delays at the border than exports by large firms. Since the TFA will reduce delays at the border, it increases the opportunity for SMEs to become more integrated in international trade. Using data from the World Bank's Enterprise Survey which covers nearly 130 developing countries, this report finds statistical evidence to

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show that implementation of the TFA will increase the probability of SMEs exporting and, compared to large firms, will see a far greater rise in the share of their sales that go into the export market.

The TFA will help developing countries attract more foreign direct investment (FDI). Companies making foreign investment decisions typically take the efficiency of trade procedures into account. Implementation of the TFA could be interpreted by foreign investors as a signal of improvement in the overall investment climate, which would induce inward FDI flows even in those sectors in the domestic economy that are not highly dependent on trade. This report has found a positive and statistically significant link between trade facilitation and inward FDI flows using a dataset covering 141 countries over a 10-year period (2004-13).

Many LDCs are dependent on customs duties and other taxes collected at the border for their revenues, which can constitute up to 45 per cent of LDCs' government revenues. Inefficient trade procedures reduce the volume of goods passing through customs and result in foregone revenues, which, in the cases of a number of African countries, are equivalent to 5 per cent of their GDP. Furthermore, there is evidence to show that the likelihood of engaging in fraudulent practices at the border is higher the longer the time needed to clear goods. By simplifying trade procedures and reducing the time to move goods across borders, the TFA will increase the volume of goods flowing through customs, reduce the scope for corruption and increase the amount of revenue collected.

Given the magnitudes of estimated trade gains, the benefits of the TFA are likely to far outweigh the cost of implementation. Nevertheless, implementation still poses a challenge to resource-strapped developing countries. The TFA itself provides a vital part of the

solution, as its special and differential treatment provisions give developing countries ample scope for differentiated undertakings that depend on their level of capacity. The availability of international donor assistance helps governments in developing countries develop their capacity to implement the TFA and also to shore up domestic support for implementation. This cannot be emphasized enough, as the biggest factors for success identified from country cases of successful reform are national ownership of the process, political will and commitment at the highest level. The WTO is uniquely placed to match demands for capacity building from developing countries with the supply of capacity building assistance from bilateral, regional and multilateral donors.

Beyond these quantifiable economic benefits, there are systemic effects that augur well for the global trading system and the multilateral rules that underpin it. The TFA is the first multilateral agreement successfully negotiated at the WTO since its foundation two decades ago. This illustrates that global rule-making is able to effectively address impediments to commerce that concerns today's businesses.

Finally, it is vital to monitor the implementation of the TFA to gauge its progress, identify problems, and assess how well the special and differential treatment provisions of the Agreement are working. Monitoring implementation of the TFA should include evaluation of economic outcomes so as to provide a better picture of how the TFA is working to reduce trade costs and increase trade. The WTO, together with other international organizations and regional development banks, should invest more resources in the collection of data, particularly on implementation costs, improvement of existing indicators and analytic tools and development of new ones so as to better monitor and evaluate the implementation of the TFA.

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# Technical notes

## Composition of regions and other economic groupings Regions

### North America

Bermuda	Canada*	Mexico*	United States of America*	
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Other territories in the region not elsewhere specified (n.e.s.)

### South and Central America and the Caribbean

Antigua and Barbuda*	Chile*	El Salvador*	Panama*	Trinidad and Tobago*
Argentina*	Colombia*	Grenada*	Paraguay*	Uruguay*
Aruba, the Netherlands with respect to*	Costa Rica*	Guatemala*	Peru*	Bolivarian Republic of Venezuela*
Bahamas**	Cuba*	Guyana*	Saint Kitts and Nevis*	
Barbados*	Curaçao*	Haiti*	Saint Lucia*	
Belize*	Dominica*	Honduras*	Saint Vincent and the Grenadines*	
Bolivia, Plurinational State of*	Dominican Republic*	Jamaica*	Sint Maarten*	
Brazil*	Ecuador*	Nicaragua*	Suriname*	

Other territories in the region n.e.s.

### Europe

Albania*	Czech Republic*	Hungary*	Malta*	Slovak Republic*
Andorra**	Denmark*	Iceland*	Montenegro*	Slovenia*
Austria*	Estonia*	Ireland*	Netherlands*	Spain*
Belgium*	Finland*	Italy*	Norway*	Sweden*
Bosnia and Herzegovina**	France*	Latvia*	Poland*	Switzerland*
Bulgaria*	FYR Macedonia*	Liechtenstein*	Portugal*	Turkey*
Croatia*	Germany*	Lithuania*	Romania*	United Kingdom*
Cyprus*	Greece*	Luxembourg*	Serbia**	

Other territories in the region n.e.s.

### Commonwealth of Independent States (CIS)<sup>a</sup>

Armenia*	Georgia <sup>a</sup>	Moldova, Republic of*	Turkmenistan	
Azerbaijan**	Kazakhstan***	Russian Federation*	Ukraine*	
Belarus**	Kyrgyz Republic*	Tajikistan*	Uzbekistan**	

Other territories in the region n.e.s.

### Africa

Algeria**	Congo*	Guinea*	Morocco*	South Africa*
Angola*	Côte d'Ivoire*	Guinea-Bissau*	Mozambique*	Sudan**
Benin*	Democratic Republic of the Congo*	Kenya*	Namibia*	Swaziland*
Botswana*	Djibouti*	Lesotho*	Niger*	Tanzania*
Burkina Faso*	Egypt*	Liberia, Republic of**	Nigeria*	Togo*
Burundi*	Equatorial Guinea**	Libya**	Rwanda*	Tunisia*
Cabo Verde*	Eritrea	Madagascar*	São Tomé and Príncipe**	Uganda*
Cameroon*	Ethiopia**	Malawi*	Senegal*	Zambia*
Central African Republic*	Gabon*	Mali*	Seychelles*	Zimbabwe*
Chad*	The Gambia*	Mauritania*	Sierra Leone*	
Comoros**	Ghana*	Mauritius*	Somalia	

Other territories in the region n.e.s.

\* WTO members

\*\* Observer governments

\*\*\* WTO members formally adopted Kazakhstan's WTO terms of entry in July 2015. Kazakhstan will become a member 30 days after it notifies its ratification to the WTO.

<sup>a</sup> Georgia is not a member of the Commonwealth of Independent States but is included in this group for reasons of geography and similarities in economic structure.

<b>Middle East</b>				
Bahrain, Kingdom of*	Israel*	Lebanese Republic**	Saudi Arabia, Kingdom of*	Yemen*
Iran**	Jordan*	Oman*	Syrian Arab Republic**	
Iraq**	Kuwait, the State of*	Qatar*	United Arab Emirates*	
Other territories in the region n.e.s.				
<b>Asia</b>				
Afghanistan**	Hong Kong, China*	Malaysia*	Papua New Guinea*	Timor-Leste
Australia*	India*	Maldives*	Philippines*	Tonga*
Bangladesh*	Indonesia*	Mongolia*	Samoa*	Tuvalu
Bhutan**	Japan*	Myanmar*	Singapore*	Vanuatu*
Brunei Darussalam*	Kiribati	Nepal*	Solomon Islands*	Viet Nam*
Cambodia*	Korea, Republic of*	New Zealand*	Sri Lanka*	
China*	Lao People's Democratic Republic*	Pakistan*	Chinese Taipei*	
Fiji*	Macao, China*	Palau	Thailand*	
Other territories in the region n.e.s.				
<b>Other Groups</b>				
<b>ACP (African, Caribbean and Pacific countries)</b>				
Angola	Côte d'Ivoire	Guyana	Nauru	Somalia
Antigua and Barbuda	Cuba	Haiti	Niger	South Africa
Bahamas	Democratic Republic of the Congo	Jamaica	Nigeria	Sudan
Barbados	Djibouti	Kenya	Niue	Suriname
Belize	Dominica	Kiribati	Palau	Swaziland
Benin	Dominican Republic	Lesotho	Papua New Guinea	Tanzania
Botswana	Equatorial Guinea	Liberia, Republic of	Rwanda	Timor-Leste
Burkina Faso	Eritrea	Madagascar	Saint Kitts and Nevis	Togo
Burundi	Ethiopia	Malawi	Saint Lucia	Tonga
Cabo Verde	Fiji	Mali	Saint Vincent and the Grenadines	Trinidad and Tobago
Cameroon	Gabon	Marshall Islands	Samoa	Tuvalu
Central African Republic	The Gambia	Mauritania	São Tomé and Príncipe	Uganda
Chad	Ghana	Mauritius	Senegal	Vanuatu
Comoros	Grenada	Micronesia	Seychelles	Zambia
Congo	Guinea	Mozambique	Sierra Leone	Zimbabwe
Cook Islands	Guinea-Bissau	Namibia	Solomon Islands	
<b>Africa</b>				
<i>North Africa</i>				
Algeria	Egypt	Libya	Morocco	Tunisia
<b>Sub-Saharan Africa</b>				
<i>Western Africa</i>				
Benin	The Gambia	Guinea-Bissau	Mauritania	Senegal
Burkina Faso	Ghana	Liberia, Republic of	Niger	Sierra Leone
Cabo Verde	Guinea	Mali	Nigeria	Togo
Côte d'Ivoire				
<i>Central Africa</i>				
Burundi	Central African Republic	Congo	Equatorial Guinea	Rwanda
Cameroon	Chad	Democratic Republic of the Congo	Gabon	São Tomé and Príncipe
<i>Eastern Africa</i>				
Comoros	Ethiopia	Mauritius	Somalia	Tanzania
Djibouti	Kenya	Seychelles	Sudan	Uganda
Eritrea	Madagascar			

<i>Southern Africa</i>				
Angola	Lesotho	Mozambique	South Africa	Zambia
Botswana	Malawi	Namibia	Swaziland	Zimbabwe
Territories in Africa n.e.s.				
<b>Asia</b>				
<i>East Asia (including Oceania)</i>				
Australia	Indonesia	Malaysia	Samoa	Tuvalu
Brunei Darussalam	Japan	Mongolia	Singapore	Vanuatu
Cambodia	Kiribati	Myanmar	Solomon Islands	Viet Nam
China	Korea, Republic of	New Zealand	Chinese Taipei	
Fiji	Lao People's Democratic Republic	Papua New Guinea	Thailand	
Hong Kong, China	Macao, China	Philippines	Tonga	
<i>West Asia</i>				
Afghanistan	Bhutan	Maldives	Pakistan	Sri Lanka
Bangladesh	India	Nepal		
Other countries and territories in Asia and the Pacific n.e.s.				
<b>Least-developed countries (LDCs)</b>				
Afghanistan	Comoros	Kiribati	Myanmar	Tanzania
Angola	Democratic Republic of the Congo	Lao People's Democratic Republic	Nepal	Timor-Leste
Bangladesh	Djibouti	Lesotho	Niger	Togo
Benin	Equatorial Guinea	Liberia, Republic of	Rwanda	Tuvalu
Bhutan	Eritrea	Madagascar	São Tomé and Príncipe	Uganda
Burkina Faso	Ethiopia	Malawi	Senegal	Vanuatu
Burundi	The Gambia	Maldives	Sierra Leone	Yemen
Cambodia	Guinea	Mali	Solomon Islands	Zambia
Central African Republic	Guinea-Bissau	Mauritania	Somalia	
Chad	Haiti	Mozambique	Sudan	
<b>Six East Asian traders</b>				
Hong Kong, China	Malaysia	Singapore	Chinese Taipei	Thailand
Korea, Republic of				
<b>Regional Integration Agreements</b>				
<b>Andean Community (CAN)</b>				
Bolivia, Plurinational State of	Colombia	Ecuador	Peru	
<b>ASEAN (Association of South East Asian Nations) / AFTA (ASEAN Free Trade Area)</b>				
Brunei Darussalam	Indonesia	Malaysia	Philippines	Thailand
Cambodia	Lao People's Democratic Republic	Myanmar	Singapore	Viet Nam
<b>CACM (Central American Common Market)</b>				
Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua
<b>CARICOM (Caribbean Community and Common Market)</b>				
Antigua and Barbuda	Belize	Guyana	Montserrat	Saint Vincent and the Grenadines
Bahamas	Dominica	Haiti	Saint Kitts and Nevis	Suriname
Barbados	Grenada	Jamaica	Saint Lucia	Trinidad and Tobago
<b>CEMAC (Economic and Monetary Community of Central Africa)</b>				
Cameroon	Chad	Congo	Equatorial Guinea	Gabon
Central African Republic				

<b>COMESA (Common Market for Eastern and Southern Africa)</b>				
Burundi	Egypt	Libya	Rwanda	Uganda
Comoros	Eritrea	Madagascar	Seychelles	Zambia
Democratic Republic of the Congo	Ethiopia	Malawi	Sudan	Zimbabwe
Djibouti	Kenya	Mauritius	Swaziland	
<b>ECCAS (Economic Community of Central African States)</b>				
Angola	Central African Republic	Democratic Republic of the Congo	Gabon	São Tomé and Príncipe
Burundi	Chad	Equatorial Guinea	Rwanda	
Cameroon	Congo			
<b>ECOWAS (Economic Community of West African States)</b>				
Benin	Côte d'Ivoire	Guinea	Mali	Senegal
Burkina Faso	The Gambia	Guinea-Bissau	Niger	Sierra Leone
Cabo Verde	Ghana	Liberia, Republic of	Nigeria	Togo
<b>EFTA (European Free Trade Association)</b>				
Iceland	Liechtenstein	Norway	Switzerland	
<b>European Union (28)</b>				
Austria	Denmark	Hungary	Malta	Slovenia
Belgium	Estonia	Ireland	Netherlands	Spain
Bulgaria	Finland	Italy	Poland	Sweden
Croatia	France	Latvia	Portugal	United Kingdom
Cyprus	Germany	Lithuania	Romania	
Czech Republic	Greece	Luxembourg	Slovak Republic	
<b>GCC (Gulf Cooperation Council)</b>				
Bahrain, Kingdom of	Oman	Qatar	Saudi Arabia, Kingdom of	United Arab Emirates
Kuwait, the State of				
<b>MERCOSUR (Southern Common Market)</b>				
Argentina	Brazil	Paraguay	Uruguay	Bolivarian Republic of Venezuela
<b>NAFTA (North American Free Trade Agreement)</b>				
Canada	Mexico	United States		
<b>SAFTA (South Asia Free Trade Agreement)</b>				
Bangladesh	India	Nepal	Pakistan	Sri Lanka
Bhutan	Maldives			
<b>SADC (Southern African Development Community)</b>				
Angola	Lesotho	Mauritius	Seychelles	Tanzania
Botswana	Madagascar	Mozambique	South Africa	Zambia
Democratic Republic of the Congo	Malawi	Namibia	Swaziland	Zimbabwe
<b>WAEMU (West African Economic and Monetary Union)</b>				
Benin	Côte d'Ivoire	Mali	Senegal	Togo
Burkina Faso	Guinea-Bissau	Niger		

WTO members are frequently referred to as "countries", although some members are not countries in the usual sense of the word but are officially "customs territories". The definition of geographical and other groupings in this report does not imply an expression of opinion by the Secretariat concerning the status of any country or territory, the delimitation of its frontiers, nor the rights and obligations of any WTO member in respect of WTO agreements. The colours, boundaries, denominations and classifications in the maps of the publication do not imply, on the part of the WTO, any judgement on the legal or other status of any territory, or any endorsement or acceptance of any boundary.

Throughout this report, South and Central America and the Caribbean is referred to as South and Central America.

Aruba; the Bolivarian Republic of Venezuela; Hong Kong Special Administrative Region of China; the Republic of Korea; and the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu are referenced as: Aruba, the Netherlands with respect to; Bolivarian Rep. of Venezuela; Hong Kong, China; Korea, Republic of; and Chinese Taipei respectively.

The data supplied in the World Trade Report 2015 are valid as of 31 July 2015. The statistical data in this publication are supplied by and under the responsibility of the relevant statistical authorities. The use of such data by the WTO is without prejudice to the status of or sovereignty over any territory, or to the delimitation of international frontiers and boundaries. 2014 data for the Russian Federation are provisional.

# Abbreviations and symbols

ADB	Asian Development Bank
AfDB	African Development Bank
APEC	Asia-Pacific Economic Cooperation
APTF	Asia-Pacific Trade Facilitation Forum
ASYCUDA	Automated System for Customs Data
CAREC	Central Asia Regional Economic Cooperation
CFTA	African Continental Free Trade Area
CGE	computable general equilibrium
CIS	Commonwealth of Independent States
CPIA	country, policy and institutional assessment
CRS	creditor reporting system
CVA	Customs Valuation Agreement
DB	Doing Business
ECOWAS	Economic Community of West African States
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport
ETI	Enabling Trade Index
EU	European Union
FDI	foreign direct investment
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GTAP	Global Trade Analysis Project
GVCs	global value chains
HS	harmonized system
ICAO	International Civil Aviation Organization
ICT	information and communication technology
IDB	Inter-American Development Bank (IDB)
IMO	International Maritime Organization
IRU	International Road Transport Union
ITC	International Trade Centre
LDCs	least-developed countries
LPI	Logistics Performance Index
MTEC	Micronesian Trade and Economic Community
NAFTA	North American Free Trade Agreement
OECD	Organisation for Economic Co-operation and Development
OECS	Organization of Eastern Caribbean States
OSBP	one-stop border post
PCA	Principal Component Analysis
PPD	public-private dialogue
PPP	purchasing power parity
PTA	preferential trade agreement
RECs	Regional Economic Communities
RTAs	regional trade agreements
S&D	special and differential treatment

SME	small and medium-sized enterprises
SPS	sanitary and phytosanitary
TBT	technical barriers to trade
TFA	Trade Facilitation Agreement
TFIs	Trade Facilitation Indicators
TFP	total factor productivity
TIACA	The International Air Cargo Association
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNNExT	United Nations Network of Experts for Paperless Trade
VAT	value-added tax
WAEMU	West African Economic and Monetary Union
WCO	World Customs Organization
WEF	World Economic Forum
WTO	World Trade Organization
WTR	World Trade Report

The following symbols are used in this publication:

...	not available
0	figure is zero or became zero due to rounding
-	not applicable
US\$	United States dollars
UK£	UK pound

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# WTO members\*

(As of 7 August 2015)

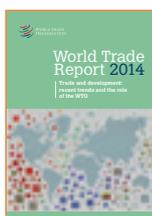
Albania	Greece	Pakistan
Angola	Grenada	Panama
Antigua and Barbuda	Guatemala	Papua New Guinea
Argentina	Guinea	Paraguay
Armenia	Guinea-Bissau	Peru
Australia	Guyana	Philippines
Austria	Haiti	Poland
Bahrain, Kingdom of	Honduras	Portugal
Bangladesh	Hong Kong, China	Qatar
Barbados	Hungary	Romania
Belgium	Iceland	Russian Federation
Belize	India	Rwanda
Benin	Indonesia	Saint Kitts and Nevis
Bolivia, Plurinational State of	Ireland	Saint Lucia
Botswana	Israel	Saint Vincent and the Grenadines
Brazil	Italy	Samoa
Brunei Darussalam	Jamaica	Saudi Arabia, Kingdom of
Bulgaria	Japan	Senegal
Burkina Faso	Jordan	Seychelles
Burundi	Kenya	Sierra Leone
Cabo Verde	Korea, Republic of	Singapore
Cambodia	Kuwait, the State of	Slovak Republic
Cameroon	Kyrgyz Republic	Slovenia
Canada	Lao People's Democratic Republic	Solomon Islands
Central African Republic	Latvia	South Africa
Chad	Lesotho	Spain
Chile	Liechtenstein	Sri Lanka
China	Lithuania	Suriname
Colombia	Luxembourg	Swaziland
Congo	Macao, China	Sweden
Costa Rica	Madagascar	Switzerland
Côte d'Ivoire	Malawi	Chinese Taipei
Croatia	Malaysia	Tajikistan
Cuba	Maldives	Tanzania
Cyprus	Mali	Thailand
Czech Republic	Malta	The former Yugoslav Republic of Macedonia (FYROM)
Democratic Republic of the Congo	Mauritania	Togo
Denmark	Mauritius	Tonga
Djibouti	Mexico	Trinidad and Tobago
Dominica	Moldova, Republic of	Tunisia
Dominican Republic	Mongolia	Turkey
Ecuador	Montenegro	Uganda
Egypt	Morocco	Ukraine
El Salvador	Mozambique	United Arab Emirates
Estonia	Myanmar	United Kingdom
European Union	Namibia	United States of America
Fiji	Nepal	Uruguay
Finland	Netherlands	Vanuatu
France	New Zealand	Venezuela, Bolivarian Republic of
Gabon	Nicaragua	Viet Nam
The Gambia	Niger	Yemen
Georgia	Nigeria	Zambia
Germany	Norway	Zimbabwe
Ghana	Oman	

\* WTO members formally adopted Kazakhstan's WTO terms of entry in July 2015. Kazakhstan will become a member 30 days after it notifies its ratification to the WTO.

# Previous World Trade Reports

## Trade and development: recent trends and the role of the WTO

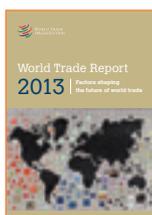
2014



The *World Trade Report 2014* looks at four major trends that have changed the relationship between trade and development since the start of the millennium: the economic rise of developing economies, the growing integration of global production through supply chains, the higher prices for agricultural goods and natural resources, and the increasing interdependence of the world economy.

## Factors shaping the future of world trade

2013



The *World Trade Report 2013* looks at what has shaped global trade in the past and reviews how demographic change, investment, technological progress, developments in the transport and energy/natural resource sectors, as well as trade-related policies and institutions, will affect international trade.

## Trade and public policies: a closer look at non-tariff measures in the 21st century

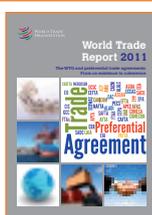
2012



Regulatory measures for trade in goods and services raise challenges for international cooperation in the 21<sup>st</sup> century. The *World Trade Report 2012* examines why governments use non-tariff measures and services measures and the extent to which these measures may distort international trade.

## The WTO and preferential trade agreements: from co-existence to coherence

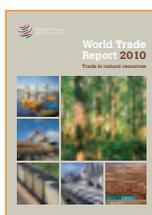
2011



The ever-growing number of preferential trade agreements (PTAs) is a prominent feature of international trade. The Report describes the historical development of PTAs and the current landscape of agreements. It examines why PTAs are established, their economic effects, the contents of the agreements themselves, and the interaction between PTAs and the multilateral trading system.

## Trade in natural resources

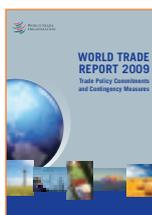
2010



The *World Trade Report 2010* focuses on trade in natural resources, such as fuels, forestry, mining and fisheries. The Report examines the characteristics of trade in natural resources, the policy choices available to governments and the role of international cooperation, particularly of the WTO, in the proper management of trade in this sector.

## Trade policy commitments and contingency measures

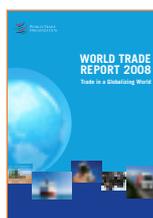
2009



The 2009 Report examines the range and role of contingency measures available in trade agreements. One of the Report's main objectives is to analyse whether WTO provisions provide a balance between supplying governments with the necessary flexibility to face difficult economic situations and adequately defining these in a way that limits their use for protectionist purposes.

### Trade in a globalizing world

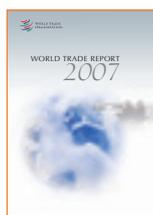
2008



The 2008 Report provides a reminder of what we know about the gains from international trade and highlights the challenges arising from higher levels of integration. It addresses the question of what constitutes globalization, what drives it, what benefits it brings, what challenges it poses and what role trade plays in this world of ever-growing inter-dependency.

### Sixty years of the multilateral trading system: achievements and challenges

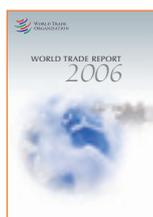
2007



On 1 January 2008 the multilateral trading system celebrated its 60th anniversary. The *World Trade Report 2007* celebrates this landmark anniversary with an in-depth look at the General Agreement on Tariffs and Trade (GATT) and its successor the World Trade Organization — their origins, achievements, the challenges they have faced and what the future holds.

### Exploring the links between subsidies, trade and the WTO

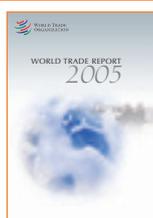
2006



The *World Trade Report 2006* focuses on how subsidies are defined, what economic theory can tell us about subsidies, why governments use subsidies, the most prominent sectors in which subsidies are applied and the role of the WTO Agreement in regulating subsidies in international trade. The Report also provides brief analytical commentaries on certain topical trade issues.

### Trade, standards and the WTO

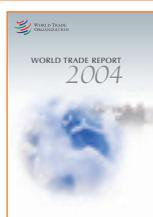
2005



The *World Trade Report 2005* seeks to shed light on the various functions and consequences of standards, focusing on the economics of standards in international trade, the institutional setting for standard-setting and conformity assessment, and the role of WTO agreements in reconciling the legitimate policy uses of standards with an open, non-discriminatory trading system.

### Coherence

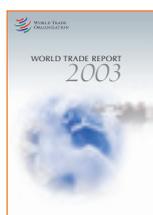
2004



The *World Trade Report 2004* focuses on the notion of coherence in the analysis of interdependent policies: the interaction between trade and macroeconomic policy, the role of infrastructure in trade and economic development, domestic market structures, governance and institutions, and the role of international cooperation in promoting policy coherence.

### Trade and development

2003



The *World Trade Report 2003* focuses on development. It explains the origin of this issue and offers a framework within which to address the question of the relationship between trade and development, thereby contributing to more informed discussion.

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# World Trade Report 2015

The WTO Trade Facilitation Agreement (TFA), which was agreed by WTO members at the Ministerial Conference in Bali in December 2013, is the first multilateral trade agreement concluded since the establishment of the World Trade Organization in 1995. The TFA represents a landmark achievement for the WTO, with the potential to increase world trade by up to US\$ 1 trillion per annum.

The 2015 World Trade Report is the first detailed study of the potential impacts of the TFA based on a full analysis of the final agreement text. The Report finds that developing countries will benefit significantly from the TFA, capturing a large part of the available gains.

The Report's findings are consistent with existing studies on the scale of potential benefits from trade facilitation, but it goes further by identifying and examining in detail a range of other benefits from the TFA. These include diversification of exports from developing countries and least-developed countries to include new products and partners, increased involvement of these countries in global value chains, expanded participation of small and medium-sized enterprises in international trade, increased foreign direct investment, greater revenue collection and reduced incidence of corruption.

The TFA is also highly innovative in the way it allows each developing and least-developed country to self-determine when and how they will implement the provisions of the Agreement, and what capacity building support they will require in order to do so. To ensure that developing and least-developed countries receive the support they need to implement the Agreement, the Trade Facilitation Agreement Facility was launched in 2014 by WTO Director-General Roberto Azevêdo.

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