Introduction

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1. Rationale and theme of this publication

The Fifth Global Review of Aid for Trade, conducted at the WTO headquarters in July 2015, focused on the theme "Reducing Trade Costs for Inclusive Sustainable Growth". The discussions confirmed that high trade costs act as a barrier to the integration of developing countries into the global economy. This is especially true for LDCs, landlocked developing countries and geographically remote, small economies. It is against this backdrop of the challenges and opportunities arising from the reduction of trade costs generally and implementation of the TFA in particular that this volume of contributions from WTO Chairs was prepared. The WTO Chairs programme (WCP) supports trade-related academic activities by universities and research institutions in developing and least-developed countries. Ten contributions from WTO Chairs were accepted for this volume.

There is a general consensus in the economic literature that trade and openness could be a powerful engine for economic growth (Busse and Koniger, 2012). International trade integration could also promote inclusive growth, but this link is more complex (World Bank, 2011). Increasing poor countries' integration into global markets is essential to their economic development and poverty reduction strategy. It gives them an opportunity to benefit from greater specialization, access to new technologies and economies of scale. Yet, one important obstacle to realizing this objective is high trade costs, which isolate poor economies from international markets. Current estimates suggest that trade costs are as high as 200 per cent in *ad valorem* tariff equivalent terms for lower-middle-income countries and more than 250 per cent for low-income countries (Arvis et al, 2013). While there are many policy sources of trade costs, including tariffs, technical barriers to trade, etc., inefficient trade procedures constitute a significant part of the trade costs.

The World Trade Organization (WTO), and the General Agreement on Tariffs and Trade (GATT) before it, have provided an invaluable forum for their members to negotiate changes in policies that reduce trade costs. WTO members have been able to cut applied most-favoured-nation tariffs to an average of 9 per cent, which

is nearly a third lower than what it was two decades ago. During the WTO's Ninth Ministerial Conference in Bali in 2013, WTO members were able to conclude a Trade Facilitation Agreement (TFA), which aims to expedite the movement, release and clearance of goods thereby further reducing the costs of trading across borders. Given the broad consensus on the benefits that can be derived from reducing trade costs and implementing the TFA, the authors in this volume analyse how this would affect countries in various regions. Particular attention is given to Africa and to Arab countries, and, not surprisingly, the studies find that the gains that can be obtained are large. Based on the conclusions reached in the contributions to this volume, it is essential to assist developing countries, and particularly the least developed amongst them, to lower trade costs through trade policy reforms and implementation of the TFA.

Trade capacity building is a key element of the WTO's mission and is of critical importance to achieve the main objectives of the Agreement. As is pointed out in some of the studies in this book, many WTO members, and particularly developing-country members, have long recognized the importance of cutting red tape at customs, improving efficiency and reducing unnecessary delays affecting cross-border commerce. However, they do not have the infrastructure or capacity to undertake these changes and need technical support and assistance.

This volume is structured as follows. Section I of the book discusses a number of countries' experiences with policy reforms and reduction of trade costs. Section II focuses on the role of the Aid for Trade initiative in helping developing countries implement trade facilitation reforms. Finally, the contributions in Section III analyse in depth the sectoral and macroeconomic impacts on a number of developing regions of implementing the TFA.

2. Impact of trade facilitation: review of the literature

Definitions of trade facilitation used in the academic literature vary and 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 (i.e. intangible institutional aspects, such as transparency, customs management and the business environment), while other definitions encompass investments in hard infrastructure (i.e. tangible infrastructure, such as roads, ports, highways and telecommunications) as well (Portugal-Perez and Wilson, 2012).

In the WTO, according to the negotiating mandate adopted in August 2004, trade facilitation improves and clarifies GATT Articles V ("Freedom of Transit"), VIII ("Fees and Formalities connected with Importation and Exportation") and X ("Publication and Administration of Trade Regulations"), and introduces provisions on customs cooperation, aimed at "further expediting the movement, release and clearance of goods, including goods in transit".

As a consequence of the different definitions of trade facilitation, a wide range of trade facilitation indicators has also been developed. They include, among others, the World Bank's Ease of Doing Business indicators and Logistics Performance Index (LPI), the World Economic Forum's Enabling Trade Index (ETI) and the OECD's Trade Facilitation Indicators (TFIs). The Ease 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 and enable almost every TFI to be mapped to a corresponding provision of the TFA.

Despite these differences, the various indicators are closely correlated with one another (WTO, 2015a). The contributors to this volume have mostly used the LPI and Ease of Doing Business as their preferred indicators of trade facilitation.

Methods used to analyse effect of trade facilitation

The economic literature on trade facilitation has employed two principal methods to estimate or simulate its economic impact: gravity and computable general equilibrium (CGE) models. Gravity models are econometric models of trade that use historical data to determine the effect of past policy on trade flows. However, they can be used after estimation to simulate the effect of policies "ex-ante" (or prospective analysis of policy changes before they occur), provided that these policies are implemented in comparable circumstances. Following Novy (2012), gravity equations can also be "inverted" to estimate trade costs as a function of policy and natural impediments to international trade. CGE models simulate or mimic the behaviour of actual economies in response to changes in relative prices, such that in equilibrium, consumers maximize their welfare and firms their profits, under the constraints imposed by the available resources and policies. They are also designed to provide "ex-ante" analysis of policy changes.

Each approach has its advantages and disadvantages and both have been used, sometimes in combination, in the economic literature on trade costs and trade facilitation. Both gravity and CGE models, and a mixture of both, have been employed by the contributors to this volume, although we also see the use of a dynamic vector autoregressive (VAR)[1] model in one of the chapters, which is yet another interesting way to assess the economic implication of trade policy reforms.

Reducing trade costs

The WTO estimates that the full implementation of TFA could reduce global trade costs by an average of 14.3 per cent (WTO, 2015). Trade costs in developing countries would fall by between 13-15 per cent, while trade costs in least-developed countries (LDCs) would be reduced by 17 per cent. Other studies produce similar estimates. Moise and Sorescu (2013) estimate that the reduction of trade costs could be in the range of 9.6 to 23.1 per cent and could average 14.5 per cent.[2] Using the latest data on the OECD TFIs, the OECD projects that the implementation of the TFA could reduce worldwide trade costs by between 12.5 per cent and 17.5 per cent (OECD, 2015). Countries which implement the TFA in full will reduce their trade costs by between 1.4 and 3.9 percentage points more than those that do only the minimum that the TFA requires. Low and lower-middle-income countries are likely to see the biggest reductions in trade costs.

Increasing trade and GDP

The bulk of the economic literature on the impact of trade facilitation and implementation of the TFA in particular has focused on its impact on trade and GDP. Table 1, reproduced from the WTO's 2015 World Trade Report (WTO, 2015a), provides a comprehensive listing of those studies. The range of trade and GDP gains produced by these studies is relatively wide — from less than US$ 100 billion (Hufbauer et al., 2010) to over a trillion dollars (Hufbauer and Schott, 2013; WTO, 2015a) — largely arising from the nature of the implementation scenarios being contemplated.

The more recent studies, particularly WTO (2015a), pay greater attention to the construction of implementation scenarios and give a better sense of the likely impacts. A study prepared by the Peterson Institute (Hufbauer and Schott, 2013) projects that implementation of the TFA could result in an increase of over US$ 1 trillion in world trade and GDP. According to the authors, the increase in total merchandise exports will mostly benefit developing countries, with a 9.9 per cent increase in their trade and a 4.5 per cent increase for developed countries. The findings by Hufbauer and Schott (2013) are in line with the WTO estimates, which are based on dynamic computable general equilibrium (CGE) simulations, showing

Table 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% reduction in AVE cost of time at the border, soft and hard infrastructure.	Export	n.a.	n.a.	+bUS$ 383
Iwanow and Kirkpatrick (2009)	Gravity	10% improvement in trade facilitation index.	Export (manufacturing)	n.a.	Africa: +6%	+2.1%
Hufbauer et al. (2010)	Other	Improve measures of customs and regulatory environment halfway to global average.	Export	+bUS$ 39.5	+bUS$ 47.3	+bUS$ 86.8
Decreux and Fontagné (2011)	CGE	50% reduction in AVE cost of time at the border, soft infrastructure.	Export	n.a.	n.a.	+bUS$ 359 (1.9%)
Dennis and Shepherd (2011)	Gravity	10% reduction in costs of (1) exporting (2) international transport and (3) market entry.	Export variety	n.a.	n.a.	(1) +3% (2) +4% (3) +1%
Hoekman and Nicita (2011)	Gravity	Improve trade facilitation to middle-income countries average.	Export	n.a.	+17%	n.a.
			Import	n.a.	+13.5%	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: +17% Mongolia: +3% Kazakhstan: +23% Venezuela: +4%	Positive and significant
World Economic Forum (2013)	Gravity and CGE	Countries improve trade facilitation halfway to global best practice. Countries improve trade facilitation halfway to regional best practice.	Export	n.a.	n.a.	bUS$ 1,584 (14.5%) bUS$ 1,030 (9.4%)
Hufbauer and Schott (2013)	Gravity	Improve trade facilitation halfway to the region top performer in each category.	Export	+bUS$ 475 (4.5%)	+bUS$ 569 (+9.9%)	+bUS$ 1,043
Persson (2013)	Gravity	1% reduction in number of days needed to export.	Export variety	n.a.	n.a.	HG: +0.3% DG: +0.6%
Feenstra and Ma (2014)	Gravity	10% improvement in bilateral port efficiency.	Export variety	n.a.	n.a.	+1.5% to +3.4%
Zaki (2014)	Gravity and CGE (two steps)	50% reduction in AVE cost of time to import and export.	Export	EU: +10.6% US: +3.9% Japan: +2.1%	SSA: +22.3% Asia: +16.2% LAC: +16.2%	n.a.
Mevel et al. (2015)	CGE	25% reduction in AVE cost of time to import and export. Effect of trade facilitation post-CFTA implementation.	Export	EU: +bUS$ 164.5 US: +bUS$ 121.8	NA: +bUS$ 11.5 MENA: +bUS$36.4 RoA: +bUS$ 38.4	+bUS$ 1,224

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.
Source: WTO (2015a).

that export gains from the TFA could amount to US$ 750 billion, and perhaps even to well over US$ 1 trillion per annum, depending on the implementation time-frame and coverage. Developing countries' exports are expected to increase by US$ 730 billion per annum, so more than 70 per cent of the project expansion is expected to accrue to developing countries.

The WTO study also employs a gravity model to estimate the trade gains of TFA implementation which suggests that the benefits could even be far higher — up to US$ 3.6 trillion — depending on the extent to which the provision of the TFA are implemented. It also again confirms that the developing countries have the most to gain, as both exports and GDP will increase more than in developed countries.

Export diversification

Significant export diversification gains would result from reducing trade costs for developing countries, an important policy goal for many developing countries. Diversification helps to insulate them from adverse trade shocks in specific sectors or destination markets. Indeed, as shown by Ben Hammouda and Ali (2009), as well as by Dennis and Shepherd (2011), developing countries, and in particular African countries, can scale up their economies' growth by raising their total factor productivity through pursuing policies, such as trade facilitation reforms, that enhance diversification. Beverelli, Neumueller and Teh (2015) estimate that, with trade facilitation reform, sub-Saharan African countries could see an increase of up to 15.7 per cent in the number of products exported by destination and up to 34.9 per cent in the number of new markets by product. Countries in Latin America and the Caribbean could see an increase of up to 12.2 per cent in the number of products exported by destination and up to 26.9 per cent in the number of export destinations by product.

Increased participation in GVCs

Timeliness and predictability of delivery times are critical to the successful management of global value chains (GVCs). It will appear then that trade facilitation is particularly important for countries which wish to participate in GVCs. 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, Saslavsky and Shepherd (2014) find that intra-GVC trade is about 50 per cent more sensitive to improvements in logistics performance than trade in other types of goods. Lanz and Piermartini (2016) find that countries with trade facilitation measures (better infrastructure, reduced time to export and timely delivery) and better institutions tend to specialize in value chains.

Greater involvement of SMEs in trade

There is growing evidence that improvements in trade and customs procedures – such as reducing delays and improving transparency – boost the participation of small and medium-sized enterprises (SMEs) in trade. Using the World Bank Enterprise Surveys database, Han and Piermartini (2016) find that micro, small and medium firms benefit more than large firms from reducing delays in exporting. They estimate that reducing export time for all firms to the median regional level can boost the share of SME exports by nearly 20 per cent, compared to 15 per cent for large firms. Fontagné, Orefice and Piermartini (2016) also find that improving information availability and introducing advance ruling and appeal procedures benefit small exporting firms relatively more than large exporting firms.

Attracting more foreign direct investment

Countries that reform their trade regimes to make them more open also tend to attract more foreign direct investment (FDI) (Edwards, 1990; Gastanaga, Nugent and Pahamova, 1998; Hausman and Fernández-Arias, 2000). By the same token, reforms that reduce trade costs, such as trade facilitation, should lead to greater FDI inflows to the reforming economy, although there is little empirical research on this so far. Engman (2005) uses case studies from several multinational companies to show how the facilitated cross-border movement of goods may have a positive effect on the ability of a country to attract foreign direct investment. Going beyond case studies, WTO (2015a) establishes a positive and statistically significant link between trade facilitation and inward FDI flows using data covering 141 countries over the period from 2004 to 2013.

Improving the collection of customs revenues and reducing corruption

Finally, trade facilitation can improve the collection of customs revenue. This is an important consideration for LDCs since customs collections make up a significant part of government revenues. This revenue enhancement effect can occur in at least three different ways: by increasing trade flows, improving traders' compliance, and helping to recover revenue losses from customs fraud. Engman (2005) documents twelve case studies of customs reform across the developing world which led to greater customs collections. Lesser and Moisé-Leeman (2009) show that simplifying customs procedures encourages compliance and increases the likelihood of duties being paid. 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.

Cadot, Anson and Olarreaga (2006) show that the adoption of the Automated System for Customs Data (ASYCUDA) in a number of developing countries has generated a substantial reduction in tariff evasion.

Gaps in the literature and the contribution of this publication

Despite the growing literature on the trade facilitation, there are still notable gaps. They include:

- The methodological approaches, which have been confined to gravity and CGE models, or a mixture of the two; while there may be scope to employ other quantitative methods, access to reliable data could be a challenge.
- Many of the studies found in the literature have avoided detailed country-level analysis of the impact of trade facilitation in favour of an analysis of the global or regional impacts.
- Most of the attention has focused on the overall trade and GDP impacts of trade facilitation reforms, and far too little attention has been paid to what we believe are other positive benefits of trade facilitation, including export diversification, greater GVC participation, the possibility of moving from the informal to the formal sector, combined with taxation reforms, the insertion of SMEs into international trade, the attraction of more FDI, and better governance.
- Information on the cost of implementing trade facilitation reforms is limited because trade facilitation reforms are rarely carried out independently of other broader policy objectives and costs may vary depending on the type of trade facilitation measures considered. However, information on the amount and type of capacity building that implementing countries will need is crucial for donors.

The studies included in this publication go some way to filling these gaps; for example, on the methodological front, one of the studies uses a dynamic VAR approach to quantify the impact of trade facilitation reform rather than the conventional gravity and CGE frameworks. The volume includes national-level studies that examine the impact of trade facilitation reform on specific countries, thereby providing much more granular detail of the measures being put in place and the challenges encountered. One study examines how trade facilitation reforms can attract more FDI. There are also a number of contributions in this volume that look at how Aid for Trade can be utilized effectively to promote trade facilitation.

3. Policy reforms and the reduction of trade costs

As indicated earlier, trade liberalization and policy reforms fostering trade openness have long been linked to reduced trade costs, which, in turn, have resulted in higher

trade volumes. Many studies have demonstrated evidence of trade-related growth and its impact on poverty reduction. International mobility and division of labour have the power to alter the distribution of resources in domestic economies which could potentially have an impact on trade costs.

Trade openness has the potential to boost growth rates, increase consumer benefits, and increase and diversify exports, which are crucial for developing countries and which often suffer from being dependent on agricultural goods. Chapter 1 illustrates how improvements in trade facilitation measures have positive spillover effects on Kenya's FDI flows. The results of the study on the sample period between 2001 and 2012 suggest that the improvement in trade facilitation indicators have a positive effect on FDI flows. The chapter presents the relationship between the FDI and trade costs as well as of FDI in Kenya and neighbouring countries. Similarly, Edwards and Lawrence (2006) analysed the implications of trade liberalization on exports and their differentiation in South Africa. They stated that, when trade policies are reformed by eliminating the tariffs, import and export levels increase and the latter are diversified. The findings in Chapter 1 confirm the analysis conducted by Edwards and Lawrence (2006), using a gravity model to indicate that trade facilitation reforms have the potential to boost inward FDI and generate more growth.

In order to further decrease trade costs and improve the exporters' efficiency and welfare, Chapter 2 presents a Decision Support Model, which would enable South African exporters to choose from a pool of product-country combinations within the sub-Saharan region in order to diversify the exports and provide a much-needed boost for the sub-Saharan region as a whole. The model, aimed at policy-makers, could be a robust tool for reforming and enhancing the country's trade facilitation efforts. The Decision Support Model holds in developed economies as well, as shown in the case study by Cuyvers, Steenkamp and Viviers (2012). This contribution reinforces the view that export diversification is crucial in efficient resource allocation and consequently reducing trade costs and that the Decision Support Model is a helpful tool to do so. From a policy perspective, the authors indicate that the Decision Support Model stands out as a straightforward and relatively simple tool for governments to navigate their trade policy in accordance with other trade facilitation measures.

As for the consumers, the transmission channel of trade policy reforms that would be the most visible is the price channel. Trade policy reforms affect prices of all goods produced and consumed and domestically they act as a buffer between the international market and the domestic market. Giordiani, Rocha and Ruta (2014) investigate a link between trade policies and food prices. This study could be of particular interest to developing countries with lower incomes, as the percentage

of expenditure spent on food is generally higher than those of middle- or high-income households in developed countries, which can be explained by Engel's Law of a decrease in food expenditure as a household's income increases. Giordiani, Rocha and Ruta (2014) find that the government may use trade policy reforms in order to mitigate the effects of an exogenous food price shock, causing a multiplier effect that would spark off another round of trade policy interventions that distort the global food market.

Chapter 3 tackles the extent of a transmission of changes in tariffs and international prices to consumer prices in Tunisia from 2000 until 2008. Gouel and Jean (2013) argue that consumers' tendency to be risk-averse is to be blamed for the volatility in the food market, due to numerous trade-distorting measures. Such measures, elaborated in Chapter 3, lead to a low pass-through effect of changes in tariffs and international prices to consumer prices in the case of Tunisia. The authors of Chapter 3 conclude that, in order for Tunisia to reap the benefits of liberalized trade policy reforms, they need to be conducted in a stable macroeconomic environment with trade-supporting institutions. A similar conclusion was reached by Chang, Kaltani and Loayza (2008), who add a labour market flexibility factor in a Harris-Todaro model, the basic premise of which is the complementarity of economic reforms as the key to their effectiveness. Using the model, Chang, Kaltani and Loayza (2008) demonstrate how different fluctuations in the labour market interact with trade distortions, such as imposed tariffs. They conclude that the effect of trade liberalization on welfare and productive efficiency depends on the condition of the labour market. Nevertheless, Chang, Kaltani and Loayza (2008) agree with the premise that trade openness promotes efficient resource allocation. There is a plethora of evidence that suggests the link between trade, growth and poverty. The extent of the effect of trade policies is case-specific, due to a number of differences between developed and developing countries, resource endowment, population structure, capital or labour-intensive focus, export orientation, protectionist tendencies or income inequality within a country. A unified trade facilitation effort is one of the key elements in achieving a balanced multilateral trading system that has the power to increase a country's capacity to trade.

Chapter 4 indicates that, while the removal of the obstacles related to road transport quotas and transit permits is a pre-requirement to reducing trade costs, the core issues in this field rely more on how this removal can effectively take place. As per the World Bank (2014), the road transport quotas and transit permits impede the free circulation of goods covered by this custom union. From that perspective, Chapter 4 illustrates, by means of a case study, that multilateral commitments and disciplines are important because most transit operations require the involvement of various countries and thus necessitate a series of agreements on both bilateral and transit traffic rights. The author also discusses

the relation of the WTO's legal instruments to transit traffic and the freedom of transit. She shows how, in particular, Article V ("Freedom of Transit") of the GATT 1994 and the more recent Article 11 ("Freedom of Transit") of the TFA can come into play to liberalize trade in a more systemic and inclusive way. Furthermore, Magee (2016) proposes an industry-level analysis of trade flows to estimate the trade effects of Turkey's customs union with the European Community, and provide empirical evidence that this customs union has created more trade than it has diverted. One important element of his results is that, while the net effect is positive, the global impact of the customs union has been relatively modest compared to its potential. Therefore, reducing trade costs may have some important dynamic effects on both parties.

4. Aid for Trade as a catalyst for trade facilitation measures

At the WTO's Tenth Ministerial Conference, held in December 2015 in Nairobi, the WTO membership, represented by its ministers, "recognised the importance of the Aid for Trade initiative in supporting developing country members to build supply-side capacity and trade-related infrastructure and to give priority to LDCs needs" (WTO, 2015b). Since its inception in 2005, the Aid for Trade (AfT) Initiative has contributed to collect more resources, increasing AfT from around US$ 25 billion in the period 2002-05 to over US$ 54.8 billion in 2014.[3] AfT has contributed to reinforce trade policy into national development strategy, but results depend on national capacities to implement such trade policy reforms (Newfarmer, 2014).

Section II of this book illustrates how AfT measures could effectively support developing countries in reducing trade costs and ensuring better international trade integration. The various Global Reviews of Aid for Trade organized by the WTO[4] have shown that trade costs still matter and that many developing countries continue to face difficulties in connecting to global markets, either through supply-side constraints or market access challenges (WTO, 2015a). The AfT Work Programme for 2016-2017 underlines the necessity to further deepen the analysis of the supply-side capacity and trade-related infrastructure constraints faced by developing countries, with specific attention to be given to services and upgrading infrastructure. It also emphasizes the need to identify the positive implications that reducing trade costs could have for poverty reduction.

Chapter 5 provides an illustration of specific AfT measures taken when upgrading port infrastructures in Cotonou, Benin. The chapter illustrates the importance of identifying specific measures which may facilitate trade due to cost reduction and efficiency gains. This is particularly important because in 2014 the increase in trade in services represented 50.2 per cent of Benin's GDP (ADB, OECD, UNDP,

2015). Benin benefited in 2006 from the Millennium Challenge Account (MCA), a US Government initiative which, as indicated by the authors, is a series of strategic investments aimed at developing the country's physical and institutional infrastructure and increasing investment and private sector activity.

The main component of the MCA is the "Markets Project", which represents 61 per cent of the grants under the initiative. Basically, the function of this component is to promote markets access and to improve port operations. It also seeks to increase competitiveness, performance and port security through infrastructure modernization, management and institutional reforms of the systems in order to develop capacity through access to new technologies and to reduce transaction costs. The final objective is to reduce costs as well as times, but also to improve the quality of port operations.

Cadot et al. (2014) indicate that there is "a missing link" in the literature on AfT, as it does not analyse empirically the impact of AfT on trade performance. Chapter 5 contributes to filling this gap by providing a quantitative assessment of specific AfT measures on trade performance in Benin. The authors analyse the impact of MCA AfT support on efficiency gains in ports, as well as on trade volume. Empirical evidence confirms the positive effect of the AfT package of measures (with or without MCA support) on imports in Benin on the one hand, and the positive effect of the time and cost of import container treatment on the other. Empirical analysis also confirms an increase of import flows when MCA support is included in the estimation. In addition, the results confirm that MCA support contributes to lowering transaction costs due to better performances in the treatment of import containers characterized by fewer hours on the roads and days in dock for container vessels. The authors recommend a continuation of the port trade facilitation reforms of Cotonou, which guarantee its competitiveness and the positive implications for the region. The results obtained are in line with others findings, especially those of Königer, Busse and Hoekstra (2011), who show that AfT, and more specifically AfT facilitation measures, may lower trade costs and play an important role in helping developing countries to benefit from trading opportunities.

The case of Morocco, in Chapter 6, provides another convincing example of the potential role of AfT in trade facilitation, and more specifically in the reduction of trade costs and in improving trade performance. While there is still ongoing discussion regarding the importance of "hard" versus "soft" infrastructure (Cadot et al., 2014), the research from Morocco shows that both are important. In line with a previous study produced by the Moroccan WTO chair-holder in 2014,[5] the authors indicate that a rigorous needs assessment coupled with tailor-made AfT measures have positive implications on boosting trade flows, but also are a key

driver of regional integration and of the effective insertion of Morocco into regional and global value chains. More importantly, after presenting all reforms implemented by Morocco to reduce trading costs, the authors show that the implementation of such measures contributes not only to improving the macroeconomic environment, but also to the attractiveness of the country for private investment.

5. Sectoral and macroeconomic impacts of the Trade Facilitation Agreement on various regions

Section III outlines the various sectoral and macroeconomic impacts of the TFA on selected regions. There is evidence in the literature that the implementation of the TFA will have significant beneficial effects on the three regions analysed in Chapters 7-10 (i.e. Africa, the Arab region and Brazil), both at country and regional levels, thus offering important new economic opportunities for both trade and investment. In order to unlock the economic potential, the authors of the four chapters suggest that it is urgent that WTO members make the ratification of the TFA a priority and that they undertake the necessary legislative adjustments. The authors' findings closely match the evidence presented in the economic literature, which shows that not only will the TFA lead to a reduction in transaction costs, it is likely to generate new trade and investment flows, lead to upscaled production in terms of value addition, and facilitate developing countries' efforts to link to GVCs.

Chapter 7 investigates the impact of trade facilitation on trade flows for the case of a sample of 20 African economies over the time period 2007-2014. Importers and exporters in the African continent face more difficulties than anywhere else in the world. Based on a panel vector autoregressive framework, the authors find that trade facilitation enhances trade flows for the given sample of African countries. Empirical evidence indicates that a 1 per cent increase in trade facilitation contributes to 0.77 per cent increase in the trade flow. Such a finding tends to support the existing literature, which argues that improving trade facilitation measures in a country generates significant trade benefits to that economy (WTO, 2015a). Nonetheless, they point out that non-tariff barriers remain a major concern and have had a very significant negative impact on trade flows in the African region.

Economic growth, investment and regional trade agreements were also found to be ingredients of trade. The analysis within Chapter 7 supports a bi-causal and reinforcing relationship between trade facilitation and trade flows, and the level of development. A number of regional trade agreements in place are found to be factors that enhance trade facilitation. Interestingly, trade facilitation is also reported to have some positive effects on economic growth and the level of investment. The findings clearly highlight the fundamental importance of trade

facilitation in fostering trade. From a policy perspective, Chapter 7 concludes that it is crucial for African countries to prolong their endeavours to implement reforms geared towards reducing tariffs and, more importantly, geared towards the reduction and/or elimination of non-tariff measures which substantially add to trade costs.

Chapter 8 argues that over the last 20 years, the countries of the Arab region have liberalized trade through unilateral reform, multilateral negotiations and regional integration. The latter has involved the creation of a number of regional trade arrangements (RTAs), of which the most comprehensive in terms of product and country coverage has been the Greater Arab Free Trade Area (GAFTA). Unlike most recent RTAs, GAFTA has limited itself to goods liberalization and does not include trade facilitation provisions. A rigorous assessment of the trade facilitation performance of the Middle East and North African (MENA) countries is provided. Specifically, the welfare and sectoral effects of trade facilitation improvements within the context of regional trade integration are presented.

The main contribution is that the introduction of a trade facilitation provision in the GAFTA will lead to a significant welfare increase for all MENA sub-regions, compared to a scenario of further trade liberalization without trade facilitation. Trade facilitation in the GAFTA has the potential to enhance export competitiveness and lead to a significant increase in overall and intra-trade export value for all countries, particularly for the Mashreq and Maghreb countries.[6] All sub-regions would witness an export boost in the agro-food industries, particularly for those products in which the Mashreq and the Maghreb countries have a comparative advantage. The welfare-enhancing results indicate that the stakes for the MENA region in implementing the WTO TFA are high. However, many countries in the MENA region may face challenges in making trade facilitation reforms due to a lack of human and financial resources. As experience has shown that sequencing and prioritizing the areas of reforms can be a cost-effective way to implement trade facilitation projects, the MENA region could start reforms in areas which contribute most to trade cost reduction, such as automation, involvement of trade community and streamlining of trade procedures.

In the same vein, Chapter 9 tests the effects of trade facilitation on bilateral trade flows within the Arab region. The findings suggest that the performance of logistics systems in the Arab economies in general is still weak and needs to be improved, as indicated by the World Bank's LPI. Vast divergence and discrepancies among Arab countries, due to differences in income levels and geopolitical conditions, can be observed. Hence, while some Arab countries try to develop logistics activities to take advantage of opportunities and seek to establish regional logistics platforms,

others are not only ranked among the lowest in terms of the overall index, but are also at the bottom of the list for the different components of the LPI.

The estimations suggest that trade facilitation has positive impacts on intra-regional trade, but the scope is rather limited. An improvement in trade facilitation of the exporting country by 1 per cent increases trade flow by 0.70 per cent. This impact could be higher and reach more than 2 per cent when sensitivity analysis is included. An improvement in trade facilitation of the importing country of 1 per cent boosts imports by 0.66 per cent, suggesting that there are slight gains in trade from improving trade facilitation in Arab countries. Despite the fact that the overall impact is significant for both the exporting and the importing countries, its amount is relatively small compared with what previous research found regarding the same measures in other regions (WTO, 2015a). However, the study suggests that trade facilitation could potentially have a higher trade impact among Arab countries and other regions and underlines the importance of developing transport and physical infrastructure to enhancing regional integration and trade cooperation. Arab countries should benefit from their geography and stimulate investment in infrastructure, as well as encourage public-private partnerships. Efforts should be made to encourage member countries to fulfil commitments into which they have entered, and to also encourage other non-members to do so.

In fact, there is great potential for expanding trade with other regions, such as Europe, Asia and Africa. Thus, developing transport and physical infrastructure are fundamental prerequisites to enhancing regional integration and trade cooperation. Additionally, improving intra-Arab trade requires addressing the various structural issues impeding trade development, such as removing the remaining tariff barriers and full implementation of the commitments under the GAFTA. Finally, it is vital to enhance productive capacities in the region and to develop the financial sector in order to boost investment in the Arab region and to improve intra-Arab trade.

Chapter 10 confirms that the TFA is expected to have a significant impact on the Brazilian economy and more specifically on its transformation industry (parts and components trade). The study suggests that Brazil could reverse the ongoing deindustrialization process by reducing the share of primary products in its total exports. The results also suggest that this movement should be tied to the rise of imports of intermediates as a consequence of rising investment levels. More imports of parts and components may lead to an increase in the foreign content embedded in Brazil's exports, contributing to connecting its manufacturing sector to relevant GVCs. In order for the benefits to occur and to fully take advantage of the TFA provisions, the adoption of a single window system (a single entry point for traders to submit documentation and data required for imports, exports or transit of goods – the Brazilian system is called *Portal Único*) for exporters and importers is

of critical importance. The simulations conducted show that time is a relevant trade barrier; time costs are particularly damaging to trade in higher value-added goods. The reduction of delays at customs in Brazil thanks to the *Portal Único* is likely to unlock Brazilian economic potential because it would benefit primarily capital-intensive industries. Brazil would benefit from increased competitiveness in its exporting sector throughout the years. The authors calculate that once the *Portal Único* is fully implemented, in the longer term it could add nearly US$ 70 billion per year to Brazil's GDP; the implementation of the *Portal Único* would require significant changes to be made to Brazil's legislation, which are under consideration by the law-makers. The authors confirm the findings of empirical analyses, which are that reduction of transaction costs may have positive effects not only for Brazil, but for many other WTO members. This makes it even more urgent for all members to ratify the TFA and work towards its implementation.

6. The WTO Trade Facilitation Agreement and its implementation

A survey of WTO members conducted by the WTO Secretariat on the occasion of the Fifth Global Review of Aid for Trade in July 2015 showed that trade facilitation is a high priority for many developing countries and LDCs. At the same time, the survey showed that some developing countries and LDCs were uncertain about the benefits of implementing the TFA.

Our review of the economic literature on trade facilitation and the studies collected in this volume should lay to rest this uncertainty. The studies reveal that implementation of the TFA, and a reduction of trade costs in general, would provide a huge boost to trade, FDI, export diversification, participation in GVCs, and other important indicators of economic performance. Developing and least-developed WTO members should find plenty of useful lessons in these studies, authored by WTO chair-holders, as the research and conclusions drawn are firmly rooted in circumstances and challenges frequently encountered in the developing world.

An observation that arises in a number of these studies is that the principle of special and differential treatment (i.e. special treatment given to developing countries in WTO agreements) in the TFA goes beyond the granting of transition periods for implementing commitments. Instead, the extent and the timing of commitments by developing and least-developed members are tied to their implementation capacities. This means the readiness of the international community to provide capacity building to developing and least-developed members is key in determining how speedily and fully the provisions of the TFA are realized. This point is reinforced by the studies in this book that have shown how

AfT can and have played a catalytic role in making possible trade facilitation reforms.

As of the date of publication of this book, we are still short of the ratification threshold needed – two-thirds of the WTO membership – for the TFA to come into force, although the number of countries that have ratified has increased significantly in recent months. The studies in this book show how urgent it is for those members who have not yet done so to complete their ratification process as soon as possible so that the TFA may be implemented and the benefits harvested.

Finally, the work of academics on trade facilitation will not end with the implementation of the TFA. One of the core functions of the WTO is to monitor the implementation of WTO agreements. Under the provisions of the TFA, a Committee on Trade Facilitation will be established to review the operation and implementation of the TFA four years from its entry into force and periodically thereafter. Academics, and WTO chair-holders in particular, can assist and complement WTO members' monitoring efforts through their analysis and evaluation of the economic impact of the TFA. Among other things, the WTO chair-holders can contribute to the development of better indicators and analytical tools, as well as the collection of more data, so as to monitor and evaluate the TFA effectively. Given the quality of the contributions collected in this volume, we look forward to seeing them contribute in this fashion to the WTO's work in the future.

Endnotes

1. The VAR is an econometric model generally used for the analysis of multivariate time series. It captures linear interdependencies among multiple time series. This methodology is frequently used to measure dynamic behaviour and to generate forecasts.

2. See also OECD (2015).

3. The global figure is extracted from the OECD aid for trade database, http://www.oecd.org/dac/aft/aid-for-tradestatisticalqueries.htm

4. In 2007, 2009, 2011, 2013 and 2015 – see https://www.wto.org/english/tratop_e/devel_e/a4t_e/aid4trade_e.htm.

5. Jansen, Sadni Jallab and Smeets (2014), Chapter 12.

6. The Maghreb countries include Algeria, Libya, Morocco and Tunisia; the Mashreq countries include Egypt, Iraq, Jordan, the Lebanese Republic and the Syrian Arab Republic.

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