Chapter 1

Quantitative Assessment of the Benefits of Trade Facilitation

by

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This chapter analyses the economic impact of trade facilitation and discusses the distribution of potential benefits across countries. Unlike earlier research, the analysis highlights differences in trade transaction costs due to the efficiency and integrity of interacting businesses and administration, the characteristics or kind of traded goods and the size and type of trading businesses. Assuming trade facilitation to lead to a reduction in trade transaction costs of 1% of the value of world trade, aggregate welfare gains are estimated to amount to about USD 40 billion worldwide, with all countries benefiting and non-OECD countries experiencing the biggest gains in relative terms.

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Introduction

Reductions of tariff barriers in successive rounds of international trade negotiations and changes in supply chain management practices, such as greater reliance on just-in-time deliveries, have resulted in a relative increase in the importance of trade transaction costs (TTCs) related to border procedures and have triggered keen public interest in trade facilitation efforts. This led to the launch of WTO negotiations on trade facilitation in July 2004.

Quantification of the economic impact of trade facilitation represents a major analytical challenge owing to the complexity of the underlying issues. However, a limited number of studies have tried to assess the implications of efforts to reduce TTCs. The literature on TTCs and trade facilitation benefits was reviewed in OECD (2002). The first objective of this chapter is to update and extend the earlier survey of the literature by analysing recent studies that report estimates of TTCs and the effects of trade facilitation measures. Particular attention is devoted to differences among countries, sectors and types of traders. Second, based on estimates of the costs of specific border procedures and measures and the impact of facilitation efforts on these costs as described in the literature, the worldwide economic effects of trade facilitation are modelled.

The analysis differs from earlier research in that it takes several salient features of import and export procedures into account. In particular, the different characteristics of direct and indirect TTCs are represented, and country-specific differences in the potential of trade facilitation are based on empirical information on border waiting times and survey-based evidence on the quality of border processes. In addition, the higher TTCs for agro-food products and small and medium-sized enterprises (SMEs) enter the analysis. Several scenarios involving hypothetical multilateral trade facilitation efforts are evaluated; they focus on comparing the scenarios rather than the overall welfare gains that might result from trade facilitation.

The following discussion first reviews the available information on direct and indirect TTCs, with particular emphasis on differences among countries, traded products and types of traders. It then reports findings on the impact of trade facilitation efforts on TTCs. Next, different approaches that have been used to quantify the benefits of trade facilitation are described. Finally, estimates derived from the model-based analysis are discussed and reflect the diversity of countries, sectors and traders.

Estimates of trade transaction costs

Trade transaction costs vary substantially. An OECD survey (OECD, 2002) found that such costs to businesses differ depending on the efficiency and integrity of interacting businesses and administrations, the characteristics or kinds of goods, and the size and type of businesses. Total costs were seen as composed of direct costs, such as expenses relating to supplying information and documents to the related authority, and indirect costs, such as those arising from procedural delays. The studies surveyed indicate that direct TTCs involved in export and import procedures amount to 2-15% of the value of traded goods;[1] a subsequent survey of the literature carried out by the Swedish Trade Procedures Council (SWEPRO, 2002) found the same range. Other studies (METI, 1998; Haralambides and Londoño-Kent, 2002; and JETRO, 2002), however, suggest that direct TTCs may in some cases be lower (Table 1.1) and amount to about 1% of the value of traded goods. All these estimates combine costs incurred on both the import and the export sides (Box 1.1).

In addition, there are indirect TTCs, even though these are rarely expressed in monetary terms. As noted in OECD (2002), lengthy waiting times can result in loss of business opportunities and impose inventory-holding and depreciation costs on traders. Costs for inventory holding include both the lost interest on capital tied up in goods at borders, as well as the need to keep larger buffer-stock inventories at final destinations in order to accommodate possible variations in border clearance times. Depreciation captures costs related to spoilage of fresh produce, items with immediate information content, such as newspapers, and goods for which demand cannot be forecast well in advance, such as holiday toys or high-fashion apparel.

A recent World Bank publication reported evidence from the World Business Environment Survey on typical border waiting times for 80 countries (Batra *et al*., 2003). The time typically required for release of imported cargo stretched from one to 24 days.[2] Assuming similar waiting times on the export side (Box 1.1), the range doubles to two to 48 days. These waiting times impose substantial costs on traders. Hummels (2001) investigated the willingness of exporters to pay for switching from slower ocean to faster air shipment and found each day saved to be worth about

1. Some of the studies reviewed did not explicitly distinguish between direct and indirect trade transaction costs or cover some indirect cost elements along with direct costs.

2. Average border waiting times were obtained by excluding survey responses that reported waiting times of more than 90 days.

0.5% of the value of the traded goods. The largest share of these costs is due to depreciation and lost business opportunities. Combining Hummels' cost estimate with the border waiting times from the World Bank survey gives a range for indirect TTCs of 1-24% of the value of the traded goods. However, since only six of the 80 countries in the World Bank survey showed average import waiting times of 16 days or more, the "tail" in the sample's distribution is thin, and the range of the indirect TTCs might be considered similar to the 1-15% for direct costs.

Box 1.1. Trade transaction costs on the export and import sides

Are procedures for clearing exports as costly to businesses as import procedures? Except for special cases, such as exports of dual-use goods, export procedures might be expected to be less costly and time-consuming than import procedures. Export procedures are often relatively simple, since customs inspections are rarely undertaken and no special documents, such as rules of origin or health and safety certificates, need to be submitted. However, in a number of cases, pre-shipment inspection (PSI) leads to a shift in procedures from the importing to the exporting side. Indeed, more than a quarter of all WTO members – mainly developing countries in Asia, Africa, and Latin America – regularly use designated PSI companies to inspect shipments at exporting locations for imports to PSI-using countries (WTO, 1999).

The available empirical studies suggest that TTCs are roughly the same on the import and the export side. According to a report by US-NCITD (1971), the magnitude of documentation costs for exports is very similar to that for imports. A more recent World Bank survey of import and export procedures in the Community of Independent States (CIS) found that costs and delays on the import side exceeded those on the export side in some countries, while for other countries the opposite was true (World Bank, 2002). Another survey found almost equal waiting times at borders: 3.5 days for imports to and three days for exports from Japan (MRI, 2001).

Country-specific diversity

A large part of the variation in TTCs is due to country-specific differences. The cost differences seem closely related to the quality of border procedures, which in turn are heavily influenced by the trade facilitation efforts pursued by governments. For example, among the 60 measures concerning "movement of goods" that have been proposed in the Menu of the APEC Trade Facilitation Action Plan, implementation by countries ranges from zero to 50 measures (APEC, 2003a). It seems reasonable to expect that greater trade facilitation efforts are associated with lower TTCs, and that less attention to improving the quality of border services will tend to result in higher costs for import and export operations.

Table 1.1. Selected studies reporting estimates of trade transaction costs

Study	Country/ region	Import/ export	Direct costs		Indirect costs		Note
			Scope	Costs (%)*	Scope	Costs (%)**	
US-NCITD (1971)	United States	Average of import and export costs	Documentation; finance & insurance; carrier; and forward/broker	7.5%			Based on business survey
SWEPRO (1985)	Sweden	Average of import and export costs	Documentation costs	4%			Estimated figures based on information from customs and business
Ernst & Whinney (1987a,b)	Intra-EC	Import and export costs combined	Customs compliance costs	1.5%	Delays for road haulers and lost business	1-3%	Reservations have been expressed on the survey on lost business and road haulers. Indirect costs calculated by OECD
EC (1989)	Intra-EC	Import and export costs combined	Documentation costs	3.5-15%			Methodology unclear
UNCTAD (1994)	World		Costs for finance, customs; business information; transport & telecom	7-10%			Uses US-NCITD (1971), EC (1998) and other information sources. Coverage of direct and indirect costs
METI (1998)	Japan	Import costs only	Costs for border procedures	0.5-2.4%			Based on a survey of Japanese manufacturing and trade companies
Haralambides & Londoño-Kent (2002)	Between United States & Mexico	Import and export costs combined	Costs for handling, inspection, etc. for a) southbound, b) northbound	a) 0.8-2.1% b) 0.6-1.1%	Time delay	a) 1.6-4.0% b) 0.1-0.5%	Costs of time delay calculated based on Hummels (2001)
JETRO (2002)	Japan	Import costs only	Costs for import and port-related procedures a) EDI-use; b) non-EDI-use	a) 0.5-0.8% b) 1.2%			Figures calculated by OECD.

* Owing to differences in methodology as well as the different time periods of the studies, the estimates are not directly comparable. In particular, TTCs have been reduced over time in many countries as a result of trade facilitation efforts and technological progress, so that comparisons of TTCs across time tend to be misleading. The purpose of the table is to report on different approaches used and not to evaluate particular studies and compare their findings.

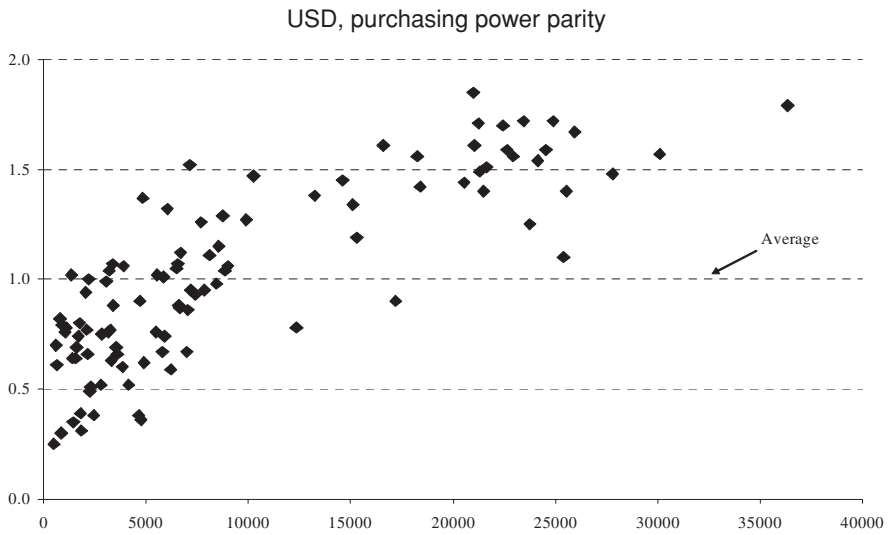
** Percentage in terms of the value of the traded goods.

Unfortunately, truly comparable information on direct TTCs is not available for a broad range of countries. In order nevertheless to try to estimate the economic and trade impacts of TTCs and trade facilitation across countries, analysts have recently used indicators of different aspects of the quality of border processes derived from questionnaires as proxies for actual cost figures. For example, Wilson, Mann and Otsuki (2003) describe the extent and quality of trade facilitation efforts of countries in the APEC region by using survey information on port efficiency, customs environment, regulatory environment and e-business practices. Several indicators characterise each of these aspects. For example, the quality of the customs environment is captured through indicators of the magnitude of import fees, transparency of import barriers and perception of corruption. The indicators are normalised and then averaged to yield a proxy value for the quality of the customs environment across APEC countries.

This indicator-based methodology can easily be generalised and applied to countries worldwide. Such a generalisation is used in this chapter for a broad set of border procedures (see Annex 1.A1 for details on the construction of the "border-process quality indicator"). The resulting estimates of border-process quality are subjective to some extent, owing to the nature of the underlying information sources, and are only indicative of the direct TTCs incurred by importing and exporting firms. But as discussed below, the potential to improve border procedures through trade facilitation measures depends largely on the quality of existing border services, so that an estimate of the qualitative diversity of border procedures is necessary to assess the benefits from trade facilitation appropriately.

Differences in border-process quality across the 102 countries for which indicator data are derived tend to be related to income levels (Figure 1.1). Countries with higher per capita income generally score better on border-process quality than those whose inhabitants are less well off. However, a number of relatively poor countries score quite well, while the performance of several relatively rich countries is only mediocre on the aggregate indicator of border-process quality. In other words, higher per capita income and the availability of public financial resources explain differences in border process quality across countries to some extent, but the data suggest that low-income countries do not necessarily have to wait to become rich before adopting good border practices.

Figure 1.1. Countries' indicator of border-process quality related to per capita GDP



Note: A higher indicator value suggests a better border process quality. See Annex 1.A1 for details.

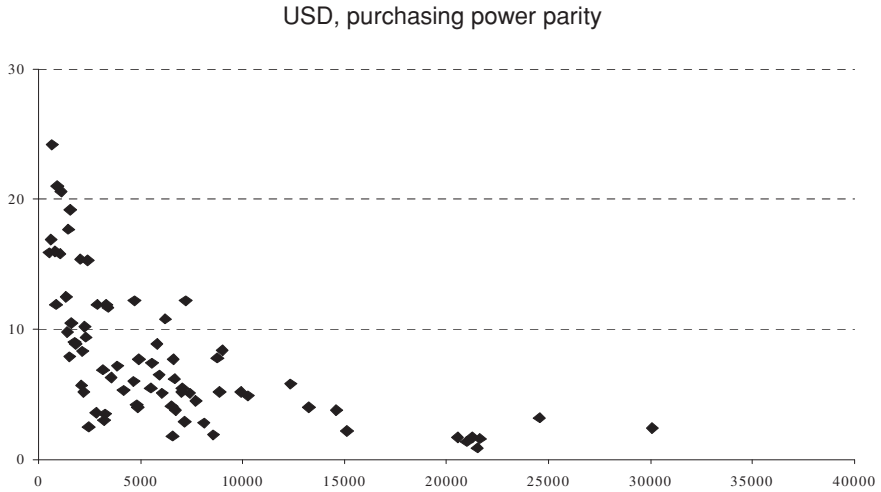
While the indicator of border-process quality might be seen as inversely related to direct TTCs, border clearance times might serve as a proxy for indirect TTCs. Figure 1.2 shows the relationship between waiting times, as reported in Batra *et al.* (2003), and per capita incomes. Higher per capita incomes are generally associated with shorter border waiting times, but there is considerable variation in waiting times, and by implication in indirect TTCs, particularly for countries with per capita income of less than USD 9 000.

Sector-specific diversity

In addition to differences in the integrity, transparency and efficiency of border procedures across countries, TTCs also depend on the type of goods imported and exported. In particular, for goods that are perishable by nature, such as agro-food products, delays and other problems at the border can prove very costly. Moreover, agriculture and food products, fish, and forest and wood products are generally subject to additional border procedures and have to undergo documentary and physical inspection to ensure compliance with sanitary and phytosanitary (SPS) requirements. The need for physical inspection, in particular, can lead to a considerable increase in border process fees and clearance times per consignment. Other goods undergo

physical examination only according to prevailing risk management practices, so that only a small fraction of containers may be checked. Hence, border clearance costs of these goods tend on average to be significantly lower than those of agro-food and like products.

Figure 1.2. Countries' average number of days of import clearance time related to per capita GDP



A recent study by the Japan External Trade Organization (JETRO) measured direct costs and time for a "typical" container ship entering Japan (Table 1.2). The direct costs and waiting time vary depending on whether the border procedures are paper-based or handled via electronic data interchange (EDI). Even though only about 20% of the containers on a "typical" ship are subject to mandatory SPS controls, 37-44% of the direct costs and 18-22% of the time from entry to release of an "average" container are due to "special" procedures applicable to agriculture and food products.[3] If the direct costs and waiting time for agro-food products represent on average roughly a third of the total costs of a shipment, TTCs for agro-food products are 50% higher than those for manufactured products.[4]

3. Similarly, according to a survey by Japan's Customs Tariff Bureau on the time required for release of imports (CTB, 2001), imported sea cargo subject to controlling agencies other than customs stays at borders about 38% longer than other goods (about 94 hours rather than about 68 hours).

4. The extra cost ratio for agro-food products equals the total costs over the TTCs for manufactured products, *i.e.* 100%/(100%-33.3%) = 1.5.

Table 1.2. Direct costs and time required from port entry to release in Japan

	Costs (JPY and percentage)		Time (hours and percentage)	
	Paper-based	EDI-based	Paper-based	EDI-based
Common procedures for all goods	16 706 (63%)	10 197 (56%)	19.1 (82%)	12.8 (78%)
Special procedures for agro-food products*	9 864 (37%)	7 884 (44%)	4.2 (18%)	3.7 (22%)
Total	26 570 (100%)	18 081 (100%)	23.2 (100%)	16.5 (100%)

* Including animal/plant quarantine and food sanitary procedures.

Source: Based on JETRO (2002).

Trader-specific diversity

Trade transactions costs can vary also according to the trader's characteristics, such as firm size. Smaller firms which engage less frequently than bigger competitors in cross-border transactions have several disadvantages: *i)* they tend to have fewer specialised personnel and may have to devote relatively more resources to acquiring knowledge on trade formalities and administering cross-border procedures; *ii)* they may have weaker capital reserves, so that unforeseen delays at the border, tying up a part of their working capital, can affect their liquidity and force them to seek expensive interim financing; and *iii)* small firms might not have a sufficient track record with customs authorities and may be classified in a higher risk category and thus more frequently subjected to costly documentary and physical cargo checks (OECD, 2002; SWEPRO, 2003).

Yet, based on analysis of about 650 survey responses from Dutch firms, Verwaal and Donkers (2001) concluded that it is not firm size *per se*, but the size of international trade activities of firms that determines the level of TTCs. Hence, small firms that focus on international markets are often able to reap the benefits of economies of scale in border procedures. Moreover, small firms are often able to outsource customs-related activities to trading partners, logistical service providers or specialised international trade intermediaries to avoid size-related disadvantages they might otherwise face.

Nevertheless, in a study of EU customs procedures, Ernst & Whinney (1987a) found that firms with fewer than 250 employees incur TTCs that are

30-45% higher per consignment than those faced by bigger firms. One of the main reasons for the higher costs is that because of their infrequent transactions, SMEs are generally unable to participate in the "simplified procedures" which, according to Ernst & Whinney, reduce TTCs by 50%. Similarly, the ability to participate in the Swedish "Stairways®" system is reported to have reduced TTCs of large-scale traders by up to 55% (SWEPRO, 2002).

Anecdotal evidence on benefits of trade facilitation

Trade transaction costs cannot be entirely eliminated. Checks by customs and other controlling agencies are necessary to ensure that domestic regulations are implemented. Increasing the efficiency of border procedures can help to lower TTCs, however, and shrink the gap between domestic and international prices to the benefit of consumers and producers. Estimates of the potential medium-term income gains from trade facilitation have centred around 2-3% of the total value of traded goods (UNCTAD, 1994; APEC, 1999), even though much larger benefits might be reaped in particular countries or regions (APEC, 2002). In some cases, a simple reorganisation of tasks and procedures might already make it possible to reap substantial benefits, while in others successful trade facilitation might require investments in physical infrastructure and human resources (Box 1.2).

Obviously, the potential for realising benefits from trade facilitation varies across countries, sectors and characteristics of traders. In cases where best practices are already applied, further efficiency gains will be difficult to achieve. Where TTCs are substantially above those encountered under best practices, room for improvement through suitable measures of trade facilitation tends to exist.

Even though it is difficult to generalise from available information, the largest potential for improvements from trade facilitation seems to exist in developing countries. For example, a business survey conducted in the APEC region found that traders expected the largest benefits from hypothetical trade facilitation measures that would reduce transactions costs by 50% to appear in the lower-income countries of the region (Table 1.3). The median responses to the questionnaire suggest that trade facilitation efforts would yield reductions in total TTCs of 10.7% in industrialising APEC economies, compared with 7.8% in newly industrialised economies and 5.2% in industrialised economies. These results reflect to some extent the findings that less developed countries tend to have less efficient customs services and, hence, more room for improvement.

Box 1.2. Costs to implement trade facilitation measures

Reducing TTCs through trade facilitation will in many cases involve upfront investments and higher operational expenses for governments and businesses. Because customs services play a vital role in the functioning of border procedures, their modernisation and reform is often important for trade facilitation, but other government services may also need to be improved. The magnitude of the implementation costs will vary according to the size of government services, the existing infrastructure and the available human resources. Moreover the general economic environment will play an important role.

Many developing countries have received assistance from bilateral and multilateral agencies to help them improve their customs services. In 1999, the World Bank extended 15 adjustment loans with components addressing customs reform (Wilson, 2001). For example, USD 78 million was devoted to customs improvements in six south-eastern European countries and USD 35 million went towards export development in Tunisia. A five-year project for customs modernisation in Bolivia has been financed from several sources, with about USD 38 million since 1999, of which about USD 25 million is being spent for institutional improvements and USD 9 million for computerised systems (Gutierrez, 2001).

Once an improved border procedures system is running, operating expenses are passed on to traders in the form of higher user fees in some countries, while in other countries the higher costs are financed from government budgets. Moreover, systems have to be updated from time to time to reflect technological developments. The costs for updates can be of a magnitude similar to the initial investment in a new system. For example, Chinese Taipei updated its air cargo clearance system in 2000 at a cost of USD 5 million, while, updating the existing automated system in the Philippines from a DOS- to a Windows-based platform cost about 40% of the original installation (Bhatnagar, 2001).

Table 1.3. Estimates of the reduction in trade transaction costs through customs-related trade facilitation

Weighted average of responses, %

APEC country group	Minimum estimate	Maximum estimate	Median estimate
Industrialised APEC economies	2.9	7.4	5.2
Newly industrialised APEC economies	5.3	10.7	7.8
Industrialising APEC economies	6.6	14.8	10.7

Source: APEC (2002).

The impact of trade facilitation measures on TTCs is likely to differ according to products and size of transactions. These differential effects were highlighted in a recent study by the Australian Department of Foreign Affairs and Trade (DFAT, 2001) which investigated the potential for cost savings for businesses of changing from a paper-based to a paperless customs administration system. The savings estimates for the interviewed traders ranged from 1.5% for bulk sea shipments of coal to 15% for air shipments of fresh asparagus (Table 1.4). The differences seem partly due to the fixed costs of completing paperwork requirements manually, which are estimated to amount to USD 75-125 per transaction, irrespective of transaction size.

Table 1.4. Estimate of savings when switching to paperless customs system

Product and transport mode	Typical volume	Cif value of cargo	Estimate of savings	
		USD	USD	%
Coal – bulk by sea	10 000 tons	520 000	7 800	1.5
Rice – bulk by sea	1 500 tons	810 000	17 820	2.2
Machine parts – by sea	20-foot container	175 000	5 425	3.1
Sugar – bagged by sea	1 500 tons	273 000	12 012	4.4
Fresh asparagus – by air	45 kg	1 370	206	15.0

Source: DFAT (2001).

Several countries have experienced significant reductions in import clearance times following the implementation of trade facilitation measures. For example, significant reductions in the lead time from entry to release have been realised over the past decade in Japan. For air cargo, average processing time fell from 53 hours in 1991 to 26 hours in 2001, while for sea cargo the lead time was reduced from 168 hours to 74 hours over the same period (CTB, 2001). Similar progress is reported for customs clearance time, an important element in overall border procedures. In New Zealand, the institution of a multimedia electronic paperless clearance system has, over a four-year period, reduced customs processing times from ten days to an average of 12 minutes (WTO, 2003). Similarly, in Costa Rica, the switch to single-window warehouse clearing, electronic customs declaration and risk management with automated methods of selection made it possible to reduce customs clearance times from an average of six days in 1994 to 12 minutes

(115 minutes in the case of physical inspection) in 2000 (WTO, 2001). In Peru, different types of trade facilitation measures were pursued, with emphasis on staff training, the introduction of a code of conduct and penalties for lack of integrity of customs officers. Through these initiatives, customs release times were shortened from 15-30 days to 2-48 hours (Lane, 2001).

Overview of available quantitative studies on the benefits of trade facilitation

Several studies have tried to quantify the potential impact of trade facilitation on trade flows and income levels. Some researchers have based their analysis on the UNCTAD estimate that trade facilitation could result in savings equivalent to 2-3% of the value of traded goods (UNCTAD, 1994). Relating these savings to the value of international trade, the reduction in TTCs is estimated to amount to about USD 1 billion a year for the former Soviet Union (Molnar and Ojala, 2003) and about USD 60 billion annually for the APEC region (DFAT, 2001). As the savings are seen as reductions in previously existing inefficiencies that did not benefit the public or private sector, they are taken to represent income gains for traders and consumers. Furthermore, it might be expected that the reduced gap between domestic and international prices will stimulate additional trade, further specialisation according to comparative advantage and dynamic adjustments, so that the economic welfare gains will tend to be higher than those derived using existing trade flows as the basis of the calculations (SWEPRO, 2002).

Model-based analysis makes it possible to investigate the impacts of trade facilitation in more detail. Gravity model analysis, for example, has related trade flows among APEC economies to indicators of port efficiency, customs environment, regulatory environment and e-business (Wilson, Mann and Otsuki, 2003). Assuming that trade facilitation would lead countries with below-average indicator values to improve their performance half-way to the average of all APEC members, intra-APEC trade would increase annually by USD 254 billion, *i.e.* 21%. Using estimates of the effect of trade on per capita GDP (Dollar and Kraay, 2001), the facilitation-related expansion of trade suggests an increase in APEC average per capita GDP of 4.3%. This scenario analysis of improvements in trade facilitation capacity that result in increases in performance halfway to the average has recently been extended beyond the APEC region. A study published in the World Bank's *Global Economic Prospects Report* suggests that such improvement in port efficiency, customs environment, regulatory environment and trade-related services would increase trade among the 75 countries covered in the analysis by USD 377 billion, *i.e.* an increase of 9.7% of trade (Wilson, Bagai and Fink, 2003).

Another line of analysis has used computable general equilibrium (CGE) models to quantify the benefits from trade facilitation on a regional or worldwide basis. In these models, trade facilitation is generally represented as technical progress in trading activities, following the approach of Hertel *et al.* (2001). For example, when using a dynamic version of the GTAP model, APEC (1999) found that a reduction in TTCs of 1% in industrialised countries and 2% in developing countries would result in welfare gains of USD 46 billion for the APEC region. On a worldwide basis, Francois *et al.* (2003), using a modified version of the GTAP model that allows for imperfect competition in the manufacturing sector and assuming a uniform 1.5% reduction in TTCs, estimate the benefits of trade facilitation to amount to USD 72 billion. A roughly comparable figure was obtained in OECD (2003), when evaluating a uniform 1% reduction in TTCs with the standard GTAP model under the assumption of perfect competition. Table 1.5 provides an overview of relevant CGE studies. Most of these investigations use flat reductions in TTCs across countries (or large groups of countries) and do not differentiate the trade facilitation effects by sector or type of trader. Moreover, the assumption of trade facilitation as technical progress ignores any adjustment costs relating to employees who are no longer needed to process border documentation and, hence, tends to overestimate the benefits of trade facilitation. The analysis below uses a different set of assumptions concerning the potential for trade facilitation across countries, sectors and traders and the adjustment costs involved and aims to contribute to the refinement of quantitative assessments of trade facilitation.

Model-based assessment of the benefits of trade facilitation

As discussed above, trade facilitation can reduce TTCs considerably, but the extent of the improvements depends, of course, on the measures and instruments implemented. As it is still too early to tell how WTO negotiations on trade facilitation may shape domestic policies, it is not possible to forecast the impact a trade facilitation agreement might have on world trade and income. The following assessment aims instead to better represent the empirical characteristics of the border process in model-based analysis and to identify those features that crucially affect the results and that, therefore, deserve to be further explored in future research. In other words, the focus will be more on the distribution of gains among groups of countries and on the comparison of results with those of existing studies than on the determination of the possible income gains from trade facilitation in absolute terms.

Table 1.5. CGE-based studies of the benefits of trade facilitation

Study	Base year	Model characteristics		Scenario specification			Annual income gains *	
		Compe-tition	Dynamics	Regional coverage	Sector coverage	Reduction in trade value	USD billions	% of GDP **
Dee (1998)	1992	Imperfec t	Dynamic	APEC	All goods and transport services	Uniform a) 5% b) 10%	a) 216 b) 442	a) 1.1 b) 2.3
APEC (1999)	1996	Perfect	Dynamic	APEC	All goods	By country group a) 1% & 2% b) 2% & 3%	a) 45.8 b) 64	a) 0.25 b) 0.4
Hertel *et al.* (2001)	1995-2020	Perfect	Dynamic	Japan and Singapore	All goods	By goods sector 0.21-3.5%	6.6 (Japan) 0.17 (Sing-apore)	0.16 (Japan) & 0.29 (Sing-apore)
UNCTAD (2001)	1997	Perfect	Static	Developed countries	a) Trade services b) Air & sea transport c) All services	Uniform 1%	a) 47.9 b) 6.1 c) 117.9	a) 0.22 b) 0.04 c) 0.54
APEC (2002)	1997	Perfect	Static	Intra-APEC trade	All goods	a) 5% *** (uniform) b) 2.9-7.7% *** (by country group)	a) 154.0, b) 100.9-203.5	a) 0.98 b) 0.64-1.30
Fox *et al.* (2003)	1997	Perfect	Static	Bilateral US & Mexican trade	Goods shipped by truck	1% (northbound) 5% (southbound)	1.4 (US) 1.8 (Mex)	0.02 (US) 0.47 (Mex)
Francois *et al.* (2003)	1997	Imperfec t	Dynamic	World	All goods	Uniform a) 1.5% b) 3%	a) 72.3 b) 150.9	a) 0.25 b) 0.52
OECD (2003)	1997	Perfect	Static	World	All goods and services	Uniform 1%	76.4	0.26

* Due to methodological differences, the estimates are not directly comparable. See the individual studies for details.

** Calculated from GDP data if not available in the particular study.

*** Reduction in trade transaction costs.

The modelling approach

The analysis is carried out using the well-established GTAP database and model, which is a static, multi-region, CGE model that operates under assumptions of perfect competition and constant returns to scale. The model reflects bilateral trade flows, international transport margins and country- and sector-specific rates of import protection. GTAP makes it possible to determine changes in production, consumption, trade and economic welfare owing to particular trade-related external shocks, such as changes in TTCs. A full description of the model can be found in Hertel (1997).

The model does not include a representation of customs activities or costs of border procedures. Earlier GTAP research on the impact of changes in border procedures mostly assumed that trade facilitation takes the form of technical progress in trading activities, which can be incorporated in the model. Thus, trade facilitation makes it possible for traders to lose less of the value of the traded goods in transit, so that the goods can be sold to consumers at the destination at lower prices (and/or generate higher returns for producers). This "iceberg-type" representation of TTCs seems appropriate for indirect cost components, *i.e.* border clearance times. If goods are in transit for a long time, a large part of their value melts away. Shortening the border clearance time through trade facilitation efforts therefore results in "more" of the product reaching its final destination.

However, the iceberg analogy appears to be less useful for direct TTCs, like wage costs for providing the necessary documentation. Trading firms have to pay internal or external service providers for these services. If trade facilitation reduces the need to fill out forms, trading firms' TTCs will be lower. At the same time, service providers that fill out the forms will experience a decline in demand for their services and corresponding adjustment costs. The latter are not appropriately captured through an iceberg-type representation of TTCs.

These shortcomings are recognised, and Fox *et al.* (2003), for example, split the effects of TTCs into an iceberg and a tax component when investigating the impact of trade facilitation at the US-Mexican border. The tax component is thought to represent firms' direct costs due to border procedures. Traders are assumed to buy "logistics services" from public-sector providers which correspond to an amount equal to the direct TTCs.[5]

The present analysis follows the approach of Fox *et al*. by representing direct and indirect TTCs differently in the model. The indirect costs are

5. In practice, border procedures in general do not generate revenues for the government budget and logistics services are provided by private-sector firms.

modelled according to the iceberg approach, while the direct costs are reflected in "logistics duties". The latter are split into charges applying on the export side and representing the direct TTCs in the exporting country and levies that correspond to the direct TTCs in the importing country. These additional duties are incorporated into the analysis by using the "Altertax" option, which makes it possible to change parameters in the model database. The procedure is designed to integrate additional information on policy variables into existing GTAP data aggregations (Malcolm, 1998).[6] Trade facilitation in the form of reduced direct TTCs is then modelled as a cut in export and import charges, which reduces TTCs but also triggers adjustments in the government sector, owing to the loss of revenue from logistics duties. These adjustments are associated with economic costs. For example, employees that previously worked in documentation processing but are no longer needed in this function might need to be retrained and moved to other jobs.

For presentational and computational purposes, a data aggregation of nine regions and three sectors is used. The regions are OECD Asia-Pacific, OECD Europe, OECD North America, Former Soviet Union, Latin America and Caribbean, Middle East and North Africa, Non-OECD Asia-Pacific, Sub-Saharan Africa, and a Rest of the World aggregate.[7] The sectors are agro-food, manufacturing and services. Here, trade facilitation is investigated in the context of agro-food and manufacturing trade, the focus of current WTO work.

Scenario analysis

A number of observations in earlier sections of this chapter are reflected in the modelling analysis:

- Indirect and direct TTCs show a similar range of magnitude (1-15% of the value of traded goods).
- Indirect transactions costs have an "iceberg" character, while direct transactions costs can be seen as traders' expenditure on logistics services.

6. Technically, the additional duties are incorporated in the database by applying appropriately sized "shocks" to tax variables at the export (parameter "txs") and the import (parameter "tms") side.

7. The latter is composed of countries such as Cambodia, Malta and Papua New Guinea which are not represented by country-specific social accounting matrices in the GTAP database.

- TTCs vary considerably across countries, as suggested by empirical information on border waiting times and indicators of the quality of border processes.
- Trade facilitation measures tend to result in larger reductions of TTCs in countries where the costs are currently higher than in those that are already closer to best practices.
- TTCs are higher for agro-food products than for manufactured products.
- SMEs are confronted with higher TTCs than large companies.

Several scenarios are evaluated. In all cases, a recalibrated version of the GTAP database is used which reflects direct TTCs in the form of additional logistics duties. As no consistent empirical information on these costs is available across countries, direct TTCs are taken to be inversely proportional to the value of the indicator of border-process quality discussed above. In particular, the country with the highest border-process quality is associated with the low end of the range of direct TTCs, *i.e.* 1% of the value of the traded goods. Conversely, the country that showed the poorest performance with respect to the indicator of border-process quality is assigned the highest observed TTCs, *i.e.* 15% of the value of traded goods. Countries with intermediary performance are proportionally associated with intermediary cost estimates. Trade facilitation concerning direct TTCs is then represented as a reduction in logistics duties.

Trade facilitation with respect to indirect TTCs is modelled on the iceberg approach. Indirect TTCs across countries are assumed to be proportional to the border waiting times established in the World Bank survey discussed above.[8] Trade facilitation is assumed to shorten the waiting times and, hence, reduce associated costs.

Several assessments of hypothetical, multilateral trade facilitation efforts are undertaken; they focus on comparing scenarios rather than on the overall welfare gains that might result from trade facilitation. A first set of experiments with the model addresses the extent to which the empirical features listed above influence the modelling results. For this purpose, it is assumed that trade facilitation leads to a reduction in TTCs of 1% of the value of world trade, of which half is taken to occur through savings in direct TTCs and half through reductions in indirect TTCs. The assumption

8. The World Bank survey did not report border waiting times for any of the OECD countries in the Asia-Pacific region. To nevertheless cover these countries in the analysis, it was assumed that the border waiting times for Australia, Japan, Korea and New Zealand equal the average of the border waiting times in the OECD Europe and the OECD North America regions.

of a 1% reduction in global trade value is similar to that made in earlier quantitative research on the impact of trade facilitation.

In a baseline scenario (the "uniformity scenario"), TTCs for all countries, sectors and types of traders are assumed to fall by 1 percentage point of the value of traded goods. In other words, for a country with rather efficient procedures and total TTCs (before the implementation of the assumed trade facilitation measures) of, for example, 3%, the post-facilitation TTCs would amount to 2%. For a country with less efficient border services and, for example, pre-facilitation TTCs of 13%, the assumed trade facilitation efforts would bring border costs down to 12% of the value of the traded goods.

In the scenarios that reflect country and/or sector and trader diversity, the implementation of the hypothetical trade facilitation measures is assumed to result in a "closing of the gap" towards best practices by a percentage common to all countries, sectors and types of traders. In cases where good practices are already applied, the assumed trade facilitation would result in reductions of TTCs of less than 1%, while the cuts in border costs would exceed 1% in cases where the currently existing TTCs are above average. For example, with a best practice of costs of 1% of the value of traded goods and a "convergence" factor of 20%, a country with pre-facilitation TTCs of 3% would see a reduction in border costs of 0.4 percentage points to 2.6% (20% of the gap between 1% and 3% of the value of traded goods). A country with pre-facilitation costs of 13% would experience a drop in TTCs of 2.4 percentage points to 10.6% (20% of the gap between 1% and 13% of the value of traded goods). In other words, the implementation of the hypothetical trade facilitation measures would, in this example, result in reductions of TTCs that are six times higher in low-efficiency than in high-efficiency countries.

The diversity in TTCs across sectors is reflected by the assumption that border costs for agro-food products are 50% higher than those for manufacturing products. Similarly, it is assumed that SMEs face 50% higher TTCs than big enterprises. As the GTAP model does not distinguish between enterprises according to size, the higher costs of SMEs are integrated into the country averages of TTCs, implying that countries with a higher share of SMEs in international trade face correspondingly higher TTCs. Information from APEC suggests that the share of SMEs in trading operations of non-OECD countries, such as China and Chinese Taipei, is 50-56%, while the corresponding share in OECD countries, such as Australia, Japan and the United States, is 10-29% (APEC, 1994). Based on this information, a differential of 25 percentage points in the share of SMEs is assumed to prevail between all OECD and non-OECD countries. In combination with the finding that SMEs face 50% higher TTCs, non-OECD

countries are, *ceteris paribus*, assumed to have TTCs that are 12.5% higher than those in OECD countries.

In addition to the "uniformity" scenario, three diversity scenarios are considered. A first model set-up reflects country diversity but no sector or trader diversity ("country diversity scenario"), a second scenario also incorporates sector diversity ("country and sector diversity scenario"), and a third deals with the full diversity across countries, sectors and traders ("country, sector and trader diversity scenario"). In all three, the convergence in TTCs following trade facilitation, *i.e.* the degree to which a "closing of the gap" to best practice is achieved, is adjusted such that the global reduction in trade transactions costs amounts to 1% of the value of traded goods. This makes it possible to compare the uniformity and the three diversity scenarios directly.

A further scenario ("OECD only scenario") is closely related to the full diversity setting, but assumes that trade facilitation efforts are only undertaken in OECD countries. For OECD countries, the modelled reductions in TTCs are identical to those in the "country, sector and trader diversity scenario", while no reduction is assumed to occur in non-OECD countries. The total reduction is, therefore, less than 1 percentage point of world trade value. Table 1.6 summarises the assumptions of the modelling scenarios.

Table 1.6. Main scenario assumptions

	Uniformity	Country diversity	Country and sector diversity	Country, sector and trader diversity	OECD only
Overall reduction of TTCs by 1% of the value of world trade	Yes	Yes	Yes	Yes	No
Reduction in TTCs differs across countries	No	Yes	Yes	Yes	Yes
Higher TTCs for agriculture and food products	No	No	Yes	Yes	Yes
Higher TTCs for small and medium-sized enterprises	No	No	No	Yes	Yes

Finally, a set of experiments with the full diversity setting is pursued which relax the assumption that trade facilitation leads to reductions in TTCs that correspond to 1 percentage point of the value of traded goods. A range of reductions amounting to 0.5-3% of the value of the traded goods is explored to evaluate the link between the assumed change in TTCs and overall welfare gains.

Table 1.7. Scenario results on income effects of trade facilitation

USD millions and % of total

	Uniformity	Country diversity	Country and sector diversity	Country, sector and trader diversity	OECD only
Worldwide income gains	**38 454**	**41 844**	**42 247**	**43 259**	**14 053**
- due to direct cost reduction	6 041	7 689	8 119	8 250	2 650
- due to indirect cost reduction	32 413	34 155	34 128	35 009	11 402
OECD	**69%**	**37%**	**37%**	**35%**	**103%**
- OECD Asia-Pacific	8%	7%	7%	7%	22%
- OECD Europe	43%	17%	17%	17%	45%
- OECD North America	18%	13%	12%	11%	36%
Non-OECD	**31%**	**63%**	**63%**	**65%**	**-3%**
- Former Soviet Union	2%	7%	7%	7%	-1%
- Middle East & North Africa	5%	11%	11%	11%	0%
- Latin America & Caribbean	5%	13%	13%	13%	-1%
- Non-OECD Asia-Pacific	16%	24%	24%	24%	-1%
- Sub-Saharan Africa	2%	7%	7%	7%	0%
- Rest of World	1%	1%	1%	1%	0%

Scenario results

The results from the modelling analysis indicate that the world income gains from a 1% reduction in TTCs would be considerable and amount to about USD 40 billion with no losers (Table 1.7). However, this estimate is substantially below those in earlier studies. This is partly due to a focus that is narrower than OECD (2003), for example, which also considered reductions in TTCs for services. A second important factor that leads to the

lower estimate is adjustment costs in the logistics sector owing to government revenue losses for the provision of logistics services. Indeed, less than 20% of the overall gains are due to reductions in direct TTCs related to trade facilitation, which are modelled as cuts in logistics duties, while more than 80% of the benefits derive from reductions in indirect TTCs, for which trade facilitation is represented as a pure efficiency gain in trading activities. If the characterisation of direct and indirect TTCs is appropriate, this finding suggests that trade facilitation measures that focus on reducing border waiting times might have a more marked impact on economic welfare than measures that aim at reducing documentation requirements and related direct TTCs.

Another result concerns the distribution of income gains among regions. These differ fundamentally between the uniformity and the three diversity scenarios. Under the assumption that trade facilitation leads to a uniform reduction of TTCs by 1 percentage point of the value of traded goods, about 69% of the total gains accrue to OECD countries. However, the incorporation of country, sector and trader diversity leads to a marked shift of the benefits from trade facilitation towards non-OECD countries. This is because developing countries have, in general, less efficient border procedures and, hence, greater potential improvement from trade facilitation; a larger part of trade in agro-food products; and a larger share of traders are SMEs. If the full diversity is considered, non-OECD countries obtain almost two-thirds of the global benefits from trade facilitation. This finding highlights the importance of incorporating the empirically observed diversity, and in particular diversity in the potential for improvements in border procedures across countries, into quantitative assessments of trade facilitation.

The large gains that developing countries could obtain from trade facilitation are further illustrated by linking the welfare gains to regional GDP (Table 1.8). In the "uniformity scenario", the gains from trade facilitation in developing countries already exceed those in OECD countries in relative terms, as imports and exports account for a relatively large share of the economy in many developing countries, so that reductions in TTCs have a strong impact. If in addition the large potential for improvement through trade facilitation in non-OECD countries is considered, as in the diversity scenarios, the relatively larger impact on the economies of these countries becomes even more pronounced. Sub-Saharan Africa is the most striking example, with welfare gains in the full diversity scenario of more than 0.9% of GDP, *i.e.* more than twelve times the OECD average in relative terms.

Table 1.8. Scenario results on the income effects of a 1% reduction in trade transactions costs

Percentage of gross domestic product

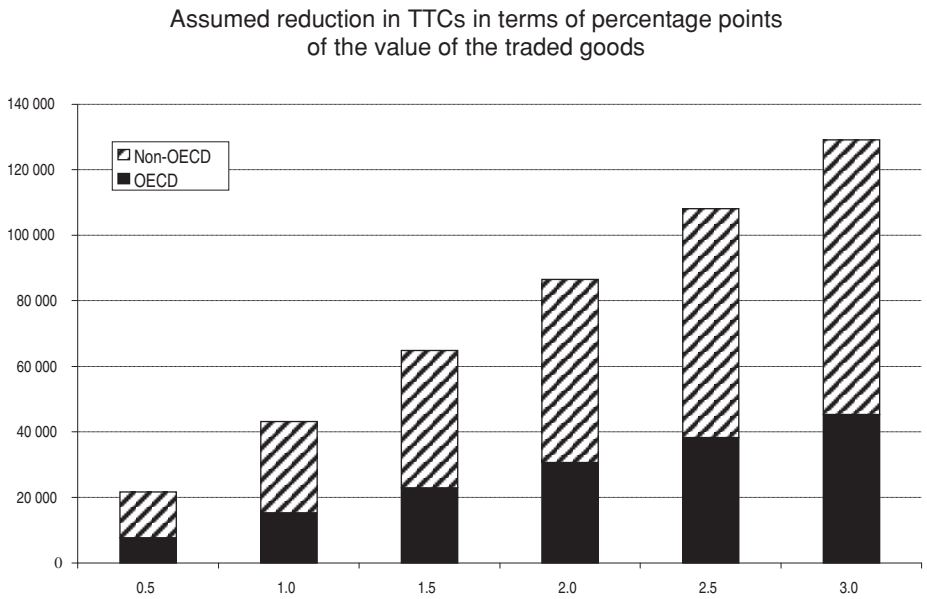
	Uniformity	Country diversity	Country and sector diversity	Country, sector and trader diversity	OECD only
World-wide income gains	**0.13%**	**0.14%**	**0.15%**	**0.15%**	**0.05%**
- due to direct cost reduction	*0.02%*	*0.03%*	*0.03%*	*0.03%*	*0.01%*
- due to indirect cost reduction	*0.11%*	*0.12%*	*0.12%*	*0.12%*	*0.04%*
OECD	**0.12%**	**0.07%**	**0.07%**	**0.07%**	**0.06%**
- OECD Asia-Pacific	*0.06%*	*0.06%*	*0.06%*	*0.06%*	*0.06%*
- OECD Europe	*0.19%*	*0.08%*	*0.08%*	*0.08%*	*0.07%*
- OECD North America	*0.08%*	*0.06%*	*0.06%*	*0.06%*	*0.06%*
Non-OECD	**0.20%**	**0.44%**	**0.44%**	**0.47%**	**-0.01%**
- Former Soviet Union	*0.14%*	*0.48%*	*0.49%*	*0.51%*	*-0.02%*
- Middle East & North Africa	*0.27%*	*0.64%*	*0.64%*	*0.67%*	*0.00%*
- Latin America & Caribbean	*0.12%*	*0.33%*	*0.34%*	*0.36%*	*-0.01%*
- Non-OECD Asia-Pacific	*0.25%*	*0.40%*	*0.40%*	*0.42%*	*0.00%*
- Sub-Saharan Africa	*0.18%*	*0.85%*	*0.88%*	*0.92%*	*-0.02%*
- Rest of World	*0.13%*	*0.21%*	*0.21%*	*0.22%*	*0.00%*

Tables 1.7 and 1.8 also report results from the "OECD only" scenario that assumes full diversity in TTCs, but limits trade facilitation efforts to OECD countries. Non-OECD countries actually lose under these circumstances, as TTCs in the OECD area fall in absolute and relative terms and divert trade away from non-OECD countries. This effect outweighs any better market access that lower TTCs in OECD markets might offer to non-OECD countries. Hence, the benefits of trade facilitation accrue primarily to those countries that actively engage in it.

Concerning the size of the global benefits from trade facilitation in relation to the assumed reduction in TTCs, experiments with the full diversity setting suggest that the welfare gains are roughly proportional to the size of the assumed cut in TTCs (Figure 1.3). Trade facilitation efforts that lead to a reduction in TTCs double to what is assumed in the above

scenario analysis, for example, will result in welfare gains that are about twice the size. However, the magnitude of these benefits has to be seen as an upper boundary of the gains that might actually be achievable, as the investment needed to achieve the assumed reduction in TTCs is not incorporated in the quantitative analysis, owing to the lack of consistent cross-country information. Further analysis of investment needs related to trade facilitation and the means of obtaining the necessary financing seems warranted, possibly in the form of case studies.

Figure 1.3. Welfare gains under alternative assumptions on the extent of trade facilitation



Annex 1.A1

Deriving an indicator of border process quality

The approach for designing an indicator of border-process quality is related to the method used by Wilson, Mann and Otsuki (2003). As no consistent data on direct TTCs are available across countries, they use survey-based information to derive indicators of TTCs. In constructing the indicators, different sources of survey information are used in order to reduce dependence on any one business survey. Unlike Wilson *et al*., the indicator of border-process quality derived in this chapter does not rely exclusively on business perceptions of border transactions, but also incorporates information on government commitments to trade facilitation.

The indicator of border process quality has four components. Three are constructed from survey information on different aspects of the border-process environment, namely customs efficiency, hidden import barriers and administrative integrity, and are obtained from three different sources of information. The fourth component is based on the implementation of the nine trade facilitation instruments listed in the 2001 edition of the UN/CEFACT compendium of trade facilitation recommendations:

- *Customs efficiency*: Survey information on "Customs authorities do [do not] facilitate the efficient transit of goods?" Published in IMD (2002), *World Competitiveness Yearbook*, Lausanne.
- *Hidden import barriers*: Survey information on "In your country, hidden import barriers, *i.e.* barriers other than published tariffs and quotas, are an important problem [not an important problem]?" Published in WEF (2002), *Global Competitiveness Report*, Geneva.
- *Administrative integrity*: Corruption perceptions index, published in Transparency International (2002), *Global Corruption Report*, Berlin.
- *Trade facilitation commitments:* Count of participation in or implementation of "trade facilitation instruments". Listing taken from UN/CEFACT (2001), *Compendium of Trade Facilitation Recommendations*, Geneva.

In the surveys, business representatives were asked to rate the quality of the particular aspect of the border-process environment, with a higher rating indicating greater satisfaction. As the scaling of the survey responses differs, such that survey responses on customs efficiency, for example, range from 1 to 10, while those on hidden import barriers range from 1 to 7, the raw data is normalised by dividing the data value for each individual country by the average of the respective data series. A similar normalisation procedure is used for the indicator component representing trade facilitation commitments. Afterwards, the country-related information in the four components is averaged to yield the indicator for border-process quality.

Owing to differences in the comprehensiveness of the information sources, country-specific data are not always available for all indicator components. To avoid undue influence of any particular indicator component, only those countries for which at least two components of the indicator are available were considered. For the resulting sample of 102 countries, the country-specific indicator of border-process quality is derived as the simple average of the available components data. Table 1.A1.1 shows the correlation between the different components of the indicator.

Table 1.A1.1. Correlation of indicator components* on border-process quality

	Customs efficiency	Hidden import barriers	Administrative integrity	Trade facilitation commitments
Customs efficiency	1.00	0.84	0.86	0.38
Hidden import barriers		1.00	0.86	0.55
Administrative integrity			1.00	0.54
Trade facilitation commitments				1.00

* Normalised values at individual country level.

The GTAP model that is used for the quantitative analysis of the impact of trade facilitation distinguishes among 66 countries/regions (for details on the regional aggregation see www.gtap.agecon.purdue.edu). For the countries that are covered as part of wider regions rather than as individual entities, the regional values of the components of the customs quality indicator are obtained as simple averages of the component values for the

countries within that GTAP region. For example, the component values of Algeria, Egypt, Libya and Tunisia are averaged to yield the component values for the GTAP region "Rest of North Africa".

The value of the border process quality indicator for the 66 GTAP countries/regions ranges from 0.25 to 1.85, implying that the country with the worst indicator value received a score in the rankings that was 75% below average, while the country with the highest value scored 85% higher than the mean. These indicators form the basis for the derivation of worldwide estimates of direct TTCs in the quantitative trade facilitation analysis (see the corresponding section in the main body of the text).

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Acronyms and Abbreviations

ABAC	APEC Business Advisory Council
ACE	Automated Commercial Environment
ADB	Asian Development Bank
AFIP	Federal Administration of Public Revenue (Argentina)
APEC	Asia Pacific Economic Cooperation
APFC	Asia Pacific Foundation of Canada
ASEM	Asia-Europe Meeting
ASYCUDA	Automated System for Customs Data Processing
BDV	Brussels Definition of Value
BSCC	Baltic Sea Customs Conference
CAP	Collective Action Plan
CASE	Customs Automation Services (Jamaica)
CBR	Central Board of Revenue
CCRA	Canada Customs and Revenue Agency
CEMP	Customs Expansion and Modernisation Programme
CGE	Computable general equilibrium
CIS	Commonwealth of Independent States
CRMS	Customs Risk Management System
CTB	Customs and Tariff Bureau
CTG	Council for Trade in Goods (WTO)
DDA	Doha Development Agenda
DFAT	Department of Foreign Affairs and Trade
DFID	Department for International Development (UK, ex ODA)
DI	Destination Inspection
DTRE	Duty and Tax Remission for Exporters

EC	European Commission
EDI	Electronic Data Interchange
ESCAP	Economic and Social Commission for Asia and the Pacific
EU	European Union
FAST	Flexible Anti-Smuggling Team
FDI	Foreign Direct Investment
FoB	Free On Board
FTA	Free Trade Agreement
G7	Group of Seven
GAINDE	Gestion automatisée de l'information douanière et économique)
GATT	General Agreement on Tariffs and Trade
GoP	Government of Pakistan
GSP	Generalised System of Preferences
GTAP	Global Trade Analysis Project
HS	Harmonized System
IADB	Inter-American Development Bank
IAP	Individual Action Plan
ICC	International Chamber of Commerce
ICT	Information and Communication Technology
IDA	International Development Association (World Bank)
IMF	International Monetary Fund
IOC	Input Output Co-Efficient
IOCO	Input Output Co-efficient Organisation
ISIDORA	Internet-Integrated System For Customs Operations and Regulations (Chile)
IT	Information Technology
JETRO	Japan External Trade Organization
JICA	Japan International Co-operation Agency
JSEPA	Japan-Singapore Economic Partnership Agreement
LAC	Latin American and Caribbean countries

LDC	Least Developed Countries
MIS	Management Information System
MOF	Ministry of Finance
MoFP	Ministry of Finance and Planning (Mozambique)
NAFTA	North American Free Trade Agreement
NCTS	New Computerised Transit System (EU)
NGTF	Negotiating Group on Trade Facilitation (WTO)
ODA	Overseas Development Administration (UK, now DFID)
PAT	Port Authority of Thailand
PRINCE	Project Management in Controlled Environments
PSI	Pre-Shipment Inspection
SAD	Single Administrative Declaration
SBE	Single Bill of Entry
SIM	*Sistema Informático María*
SIU	Staff Irregularities Unit
SME	Small and Medium-Sized Enterprise
SOFI	Computer System for International Freight *(Système d'ordinateurs pour le fret international)*
SPS	Sanitary and Phytosanitary
SRC	Survey and Rebate Cell
TEDI	Trade Electronic Data Interchange
TEPI	Trade, Export Promotion and Industry Initiative
TIMS	Trade Information Management System
TPR	Trade Policy Review
TTCs	Trade Transaction Costs
UMA	Angolan Technical Unit for Customs Modernisation
UN	United Nations
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UN/EDIFACT	UN Directories for Electronic Data Interchange for Administration, Commerce and Transport

UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
URA	Uganda Revenue Authority
USTR	United States Trade Representative
UTRA	Mozambique Customs Rehabilitation Unit
VAN	Value-Added Network
VAT	Value-Added Tax
WCO	World Customs Organization
WTO	World Trade Organization

Table of Contents