OECD Trade Policy Studies

Overcoming Border Bottlenecks

THE COSTS AND BENEFITS OF TRADE FACILITATION

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Foreword

Steady increases in trade volumes and complexity in recent years have significantly changed the operating environment for the international trading community. They have also highlighted the negative impact of inefficient border procedures on governments, businesses and ultimately on the customer and the economy as a whole. Governments may face smuggling, national security problems, fraud and unproductive use of public ressources, which drain the public coffers, while businesses pay the price of slow and unpredictable goods delivery, costly customs procedures, and even lost business opportunities. Ultimately these costs make goods more expensive for the consumer and compromise the competitiveness of the domestic economy. WTO members' endeavour to make the whole trading process simpler and smoother by launching negotiations on trade facilitation came as a natural conclusion to thes observations.

This publication seeks to shed light on the economic significance of overcoming border bottlenecks through trade facilitation. It discusses in particular the benefits that can be generated by trade facilitation, as well as the costs and challenges of achieving it, so as to make sure that countries can fully reap the gains of further multilateral trade liberalisation.

The authors of the individual chapters of this volume are, or were at the time of writing, members of the OECD Trade and Agriculture Directorate. The overall project was co-ordinated by Evdokia Moise.

Many individuals and organisations provided data and other information for this publication. The authors would like in particular to acknowledge the contributions and comments of Crown Agents on their experience with reform in Angola and Mozambique; the Customs Administration of Peru; H.E. Ambassador Manzoor Ahmad of the Pakistan Permanent Mission to the WTO and Counsellor Syed Habib Ahmed (now with the Islamic Development Bank); Jan Christiaens from Philips Electronics and Willem-Jan Laan from Unilever Plc; Yann Duval from UN/ESCAP; Irma Keijzer from the Dutch Ministry of Economic Affairs; Toni Matsudaira and Ray McDonagh (both former staff of the WCO Secretariat and now respectively in Japan and Ireland Customs); Kunio Mikuryia (newly elected

Secretary General of the WCO as of 1 January 2009); Mike Parsons, formerly with HM Customs and Excise; Christina Rahlen from the Swedish Ministry of Foreign Affairs. Background country data for Chapter 6 were collected by Joy Abrenica (the Philippines), Florian Alburo (Thailand), Osvaldo Agatiello (Argentina), Ibrahima Diagne (Senegal), Loreli de Dios (Cambodia), Toni Matsudaira of the WCO Secretariat (Barbados, Jamaica, Latvia, Uganda, Zambia), Kennedy Mbekeani (Mauritius, Tanzania) and Bob Struthers from the WCO Secretariat (Morocco). The authors also gratefully acknowledge comments and suggestions from Anthony Kleitz and other colleagues within the OECD.

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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

Executive Summary

Steady increases in trade volumes and complexity in recent years have significantly changed the operating environment for the international trading community. They have also highlighted the negative impact of inefficient border procedures on governments, businesses and ultimately on the customer and the economy as a whole. Governments may face smuggling, national security problems and fraud, which drain the public coffers, while businesses pay the price of slow and unpredictable goods delivery, costly customs procedures, and even lost business opportunities. These "hidden" costs of trade (trade transaction costs, or TTCs) are composed of directly incurred costs, such as expenses relating to supplying information and documents to the concerned authority, and indirectly incurred costs, such as those arising from procedural delays, and may reach as much as 15% of the value of the traded goods in some cases.

WTO members' endeavour to make the whole trading process simpler and smoother by launching negotiations on trade facilitation came as a natural conclusion to these observations. While the core mandate of the negotiations is to clarify and improve GATT Article V (Freedom of Transit), Article VIII (Fees and Formalities connected with Importation and Exportation), and Article X (Publication and Administration of Trade Regulations), the economic significance of trade facilitation has been central to the debates. The negotiating mandate (Annex D of 2004 WTO General Council Decision) explicitly requests Members to "identify … trade facilitation needs and priorities, … and … address the concerns … related to the cost implications of proposed measures". Needs and priorities relate quite clearly to the potential impact of trade facilitation on countries' economic welfare : To what extent and in which ways do the costs of inefficient border processes influence trade and investment flows, productivity, export competitiveness, poverty reduction and regional integration efforts? How do institutional and political factors affect the design and implementation of efficiency-enhancing measures? Are the expected benefits of those measures enough to justify the expenses of putting them in place? And are the expenses within the reach of developing

and least developed countries, especially in light of other development priorities? The six studies in this volume seek to answer those questions.

The volume begins with a quantitative assessment of the benefits of trade facilitation. The analysis aims at better representing empirical characteristics of the border process in model-based analysis, rather than evaluating the economic and trade impact of specific trade facilitation measures or instruments, such as those that might result from a possible future WTO agreement on trade facilitation. In doing so it identifies those features that crucially affect the results and therefore deserve to be further explored in future analysis. The study differs from earlier research in that it takes differing characteristics of import and export procedures into account. Several scenarios of hypothetical, multilateral trade facilitation efforts are evaluated, focusing on the comparison of scenarios rather than the overall welfare gains that might result from trade facilitation. For instance, empirical evidence suggests that TTCs for agro-food products are higher than those for manufactured goods, as agro-food shipments are subject to special border procedures, such as sanitary and phytosanitary controls. Small and medium-sized enterprises face cost disadvantages, linked to their internal structure and to the volumes they trade. Country-specific differences in trade facilitation potential are also reflected in empirical information on border waiting times and survey-based evidence on the quality of border processes. In light of this diversity in TTCs, the potential for the realisation of benefits from trade facilitation varies across countries, sectors and types of traders. In cases where best practices are already applied, further efficiency gains will be difficult to achieve. But if border clearance costs are substantially higher than those encountered under best practices, concerned countries may have substantial room for improvement through suitable trade facilitation measures.

For the purposes of analysis, the study assumed that trade facilitation leads to a reduction in TTCs by a modest 1% of the value of world trade. This was meant to account for macroeconomic adjustment needs, such as redeployment of redundant employees in the logistics sector, so as to provide a more nuanced assessment of the broader impact of trade facilitation and avoid creating inflated expectations concerning the potential benefits from reductions in TTCs. The assumption is maintained across scenarios, in order to make it possible to compare results meaningfully. On this basis, 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. If the impact of trade facilitation on TTCs is more pronounced, welfare benefits will also be higher. If we take into account the fact that reductions in TTCs are not flat but differ across countries, sectors and traders, developing countries reap the

larger share of global benefits from trade facilitation (up to two-thirds of total gains). Developing countries are also the prime beneficiaries of trade facilitation if the facilitation-generated welfare gains are related to GDP, as they tend to have considerable potential for reductions in TTCs and a relatively high trade-to-GDP ratio, so that reductions in the costs of importing and exporting affect them more than many OECD countries.

The following chapter seeks to estimate the effects of customs and administrative procedures on trade flows. Although customs and administrative procedures are necessary for the smooth application of trade and other policies, they can "thicken" the borders between trading partners if those procedures are more stringent than necessary or are inefficient. The thickness of borders is measured with respect to a number of agro-food and textile products, such as coffee, tea, cocoa, spices and manufactures thereof; textile yarn, fabrics, made-up articles; and articles of apparel and clothing accessories. Focusing on the customs and administrative procedures of the importing country, expressed as documentation requirements, formalities and delays/time, the analysis seeks to investigate how they affect third country exports and to estimate how much those procedures need to be reformed in order to increase trade flows for the products concerned. The estimates show that all countries can benefit from more efficient customs and administrative procedures, with the greatest benefits accruing to those with the least efficient customs and administrative procedures. To gain the greatest benefit from improving customs and administrative procedures, both trade partners need to make efforts, even if these efforts are not equivalent. The study confirms the intuitive conclusion that the reductions in border time necessary to increase trade by 10% are relatively smaller for time-sensitive products, which indicates that to reap the greatest benefits, reductions should be based on the products which are most sensitive to non-tariff measures.

The third chapter examines the link between trade facilitation and trade flows, government revenue and foreign direct investment. It reviews recent quantitative work conducted on border-related TTCs and presents the experiences of a large number of countries that have implemented customs modernisation programmes over the last 15 years, as well as information from business surveys and corporate case studies. Business surveys and modelling exercises indicate that even modest reductions of TTCs may have a positive impact on trade in both developed and developing countries, while unilateral action to improve customs efficiency has the potential to benefit both the importing country and its trade partners. They also suggest that border procedures pose more of a challenge to traders in developing countries and that these countries have relatively more to gain from modernising their customs procedures. Experience from various countries

shows that effective implementation of customs modernisation programmes can have a marked positive effect on the collection of trade taxes. Several countries have more than doubled their customs revenue after successfully introducing such comprehensive programmes. However, the experiences presented also indicate that customs modernisation programmes can be challenging and time-consuming. Technical and financial assistance seem to play a key role in customs reform in developing countries.

Corporate case studies were used to demonstrate the positive effect that trade facilitation may have on the attractiveness of a country's production industry to international investors. The case studies illustrate how inefficient border procedures give rise to TTCs which reduce a country's competitiveness in benchmark and standard cost-benefit calculations. Inefficient border procedures thus negatively affect a country's ability to attract foreign direct investment because of the resulting costs and risks of doing business. Moreover, the case studies indicate that inefficient border procedures are more of a concern to small and medium-sized enterprises than to multinationals. Finally, the analysis shows that simplified and improved customs procedures have helped to create new trade and investment opportunities in many developing countries. Customs modernisation is clearly one initiative which would help to include more developing countries in the international supply chain, especially in industries producing intermediate industrial components and time-sensitive goods and products. These are exactly the areas in which many developing countries have a comparative advantage.

Developing country experiences with customs operations and customs reform are also the focus of Chapter 4, which reviews the key problems that such reforms have sought to overcome, the approaches that concerned countries have adopted to address them, and the results of reforms. The discussion is supported by illustrative country case studies, exploring in further detail the rationale, the methods and the results of reform. A series of pressing symptoms of malfunction have given concerned countries strong incentives to evolve. These were mainly unsatisfactory revenue collection and smuggling problems; corruption problems; heavy transaction costs for business; poor export competitiveness and investment attractiveness; and difficulties in implementing trade policy. Revenue enhancement appears as the strongest incentive for customs reform, as revenue loss in some countries was estimated to exceed 5% of GDP. Furthermore, transaction costs imposed on businesses by inefficient customs operations were found to offset the competitive advantage of some countries due to their low labour costs.

The principal areas of reform were legislation, information management and the introduction of information technology (IT), human resource policies, organisational and institutional structure and enforcement procedures. The review, simplification and consolidation of the regulatory framework, together with the rethinking of the institutional framework, are essential prerequisites for modernising the operation of customs and other border agencies and introducing a stronger facilitation focus. On the other hand, human resource policies are critical for ensuring the sustainability of reforms. Information technology can be a significant efficiency-enhancing factor, but must be carefully considered and preceded by a streamlining of the underlying procedures and practices. Reform programmes have been more successful in some cases than in others. Successful reform endeavours in developing countries have produced some impressive results in terms of enhanced revenue collection and reduced operating costs, which often pay back quite quickly the investments in modernisation. Equally importantly, many of the internal efficiency-enhancing measures have a very clear trade-facilitating effect. Properly identifying problem areas and coherently designing reform programmes seem the essential factors for ensuring success. A holistic approach to customs reform can yield more sustainable results than a piecemeal approach in terms of trade facilitation.

Chapter 5 explores a particular area of reform, customs automation, one of the most powerful tools for increasing border process efficiency. It focuses in particular on the benefits and implementation costs of automation. Automation is not a requirement under existing WTO disciplines and its role in relation to any future disciplines is still the subject of negotiations in Geneva. Some countries have argued that most trade facilitation measures could be undertaken without automation while others have argued that measures related to automation would be among the most essential for ensuring a useful outcome to the negotiations. Country experiences suggest that automation is a powerful tool to facilitate trade but it is not an objective in itself, nor a panacea: automation only makes sense if used as a tool to support implementation of modern customs management practices. Several trade facilitation measures do not require automation, some of which are already included in the current GATT framework.

Automation entails costs for both businesses and governments and the chapter reviews cost estimates in customs-related lending projects. These figures are usually substantial, including continuous operating and maintenance costs. However, it appears that the very great majority of WTO members already have implemented automated customs systems and in many cases the financial benefits have exceeded the costs over time. The opportunity cost due to a lack of automation may thus be significant. At the same time experience gained from such projects shows that commitment and

financial sustainability are prerequisites for successful customs modernisation involving automation.

The final chapter discusses the cost implications of trade facilitation measures, one of the central issues in the WTO negotiations on trade facilitation, based on a series of country case studies of the costs of introducing and implementing these measures. The aim was not to generate hard and fast figures about how much each country is or should be spending for promoting trade facilitation but to provide indications as to the relative complexity of trade facilitation measures, the major challenges that such measures present and approaches for overcoming them. Fifteen countries that have just introduced or are in the process of introducing trade facilitation measures accepted to participate in the study and to provide available figures on their implementation expenses. They represent Africa, Asia, Europe and the Americas and six are least developed countries. Eleven areas of trade facilitation, each of particular importance in the provision of efficient and effective procedures for international trade, were selected for examination among the various proposals made by WTO members during the negotiations. Information technology systems were not examined separately, as they serve a wide range of official purposes and are not devoted solely to trade facilitation. However, in assessing the costs of introducing and implementing the selected measures, the study did take into account costs related to IT used in support of the measures. On the other hand, the study did not attempt to evaluate the costs of infrastructure development, which may, depending on the country, be required in order to implement certain trade facilitation measures, but which are too specific to each country's circumstances to lend themselves to generalisation.

The study outcomes strongly point to the importance of coherence between various trade facilitation measures and the need to factor in linkages between measures that cannot be implemented in isolation. They also stress the significance of the time factor: in order to get an accurate picture of a measure's cost implications, its costs and its benefits need to be assessed on a comparable time scale. Finally, they highlight the difficulty of identifying cost elements: very few measures can be precisely isolated from related tasks or from broader endeavours. The very task of identifying technical assistance and capacity building needs with respect to future trade facilitation commitments may in itself require technical assistance in some countries. In the countries reviewed, most facilitation measures were not the prime objective of reforms but were part of larger efficiency-enhancing endeavours. They have helped introduce new approaches for achieving traditional mandates, including ways for making border agencies more efficient and effective by rationalising resource use, whether or not additional resources for facilitation were available. The studies also strongly

highlight the close link between efficiency enhancement and trade facilitation: improved revenue collection due to good governance has generated resources that can be partly devoted to adopting more business-friendly procedures. While this clearly meant that countries which had already in place relatively trade-friendly procedures found it easier to make progress with a minimum of change and expense, even more modest efforts in other countries brought significant improvements both for the administration and for the trading community.

Not surprisingly, among the measures selected for review the most complex changes were in the most technically demanding procedural areas of risk assessment, audit-based controls and special procedures for authorised persons. Costs incurred in these areas were primarily related to recruitment and training of specialised staff and for equipment, while the time necessary for satisfactory implementation of the measures should be counted as an additional challenge. Advance lodgement and processing of data also appears challenging for some countries because of its requirements in information and communication technology. Those costs were by no means large in the overall context, however, with the probable exception of IT costs, the scope of which far exceeds trade facilitation. Current developments would suggest that costs are more than offset by staff savings at the border and by enhanced control and revenue collection. For obvious reasons only time will show the financial and procedural benefits derived from these control techniques.

Overall, the analysis contained in this volume shows that the TTCs that trade facilitation measures seek to overcome will vary depending on the efficiency and integrity of interacting businesses and administrations, the characteristics or kind of goods, and the size and type of businesses. Trade and customs procedures and practices will not only affect the price of traded goods, but also the ability of governments to collect border-related trade taxes and the geographical location of supply chains. As a result, the prospective gains from reducing TTCs arising directly and indirectly from such procedures are substantial while the opportunity cost of maintaining inefficient customs procedures is equally high. Reductions in TTCs through trade facilitation measures may bring welfare gains as significant as tariff liberalisation.

Trade facilitation is particularly important for developing countries, as studies show they stand to gain the most from more efficient trade procedures, although it may be more challenging for these economies than for the developed world. Customs administrations in a number of developing countries have undertaken important reforms as part of significant changes in their operating environment in recent years. The need to maintain revenue yield, to improve government performance and to

respond to budgetary constraints has fuelled a number of ambitious programmes to rethink the customs function. The costs incurred for introducing and implementing those measures do not appear large in the overall context, with reforms often absorbed in normal operational budgets of the administration. However, there exist resource-intensive areas that would need to be addressed through appropriate technical assistance and capacity building. On the other hand, trade facilitation would not be possible without political momentum to champion and sustain efforts and prevent backsliding.

Chapter 1

Quantitative Assessment of the Benefits of Trade Facilitation

by

Peter Walkenhorst and Tadashi Yasui

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.

OVERCOMING BORDER BOTTLENECKS: THE COSTS AND BENEFITS OF TRADE FACILITATION – ISBN 978-92-64-05694-7 © OECD 2009

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.

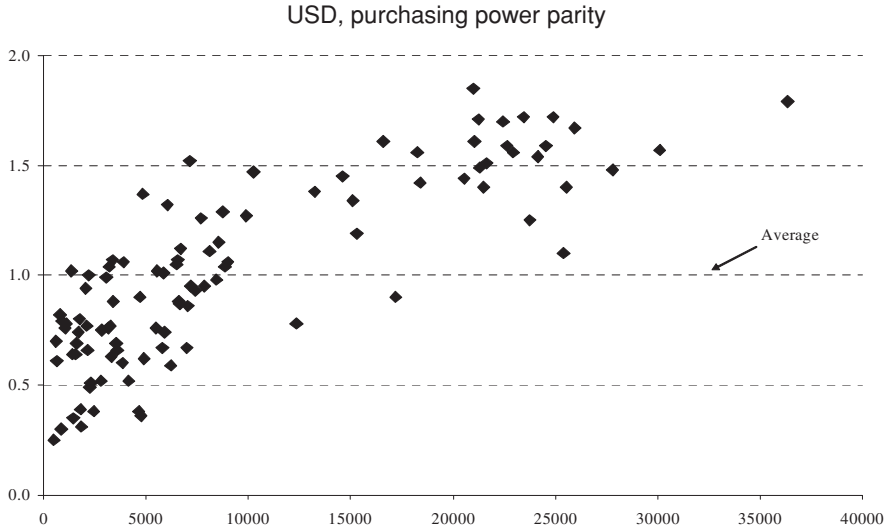
** Percentage in terms of the value of the traded goods.

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.

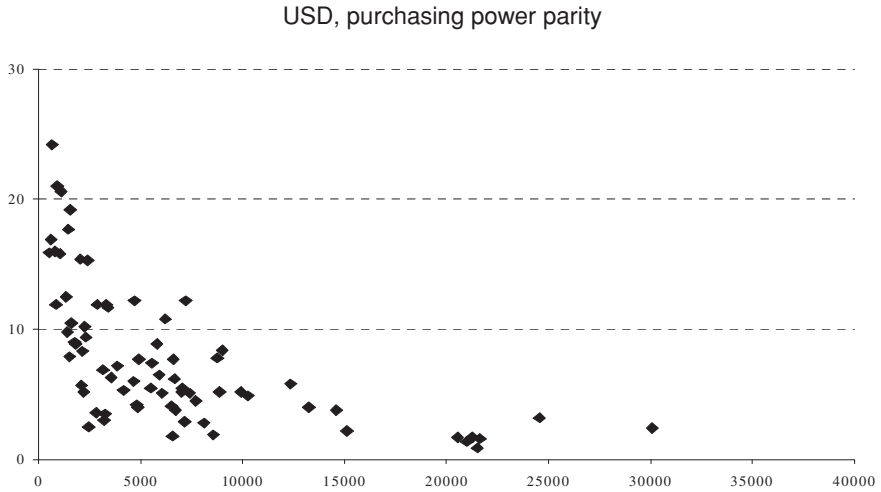
While the indicator of border-process quality might be seen as inversely related to direct TTCs, border clearance times might serve as a proxy for indirect TTCs. Figure 1.2 shows the relationship between waiting times, as reported in Batra *et al*. (2003), and per capita incomes. Higher per capita incomes 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	Imperfect	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	Imperfect	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

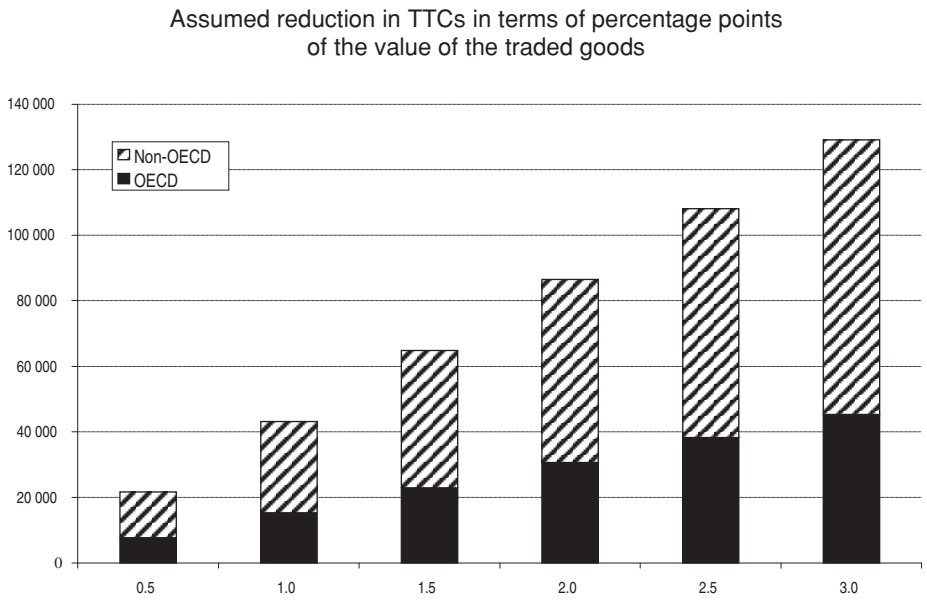
	Uniformity	Country diversity	Country and sector diversity	Country, sector and trader diversity	OECD only
World-wide income gains	**0.13%**	**0.14%**	**0.15%**	**0.15%**	**0.05%**
- due to direct cost reduction	*0.02%*	*0.03%*	*0.03%*	*0.03%*	*0.01%*
- due to indirect cost reduction	*0.11%*	*0.12%*	*0.12%*	*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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Chapter 2

Examining the Effect of Certain Customs and Administrative Procedures on Trade

by

Norbert Wilson

Recent OECD research provides new evidence that customs and administrative procedures have substantial effects on trade flows. Metrics for customs and administrative procedures from the World Bank's "Doing Business" survey (2005) use gravity models to estimate the effects of customs and administrative procedures on trade flows between bilateral trade partners. The results show that all countries can benefit from more efficient customs and administrative procedures, with the greatest benefits accruing to countries with the least efficient customs and administrative procedures. To gain the greatest benefit from improving customs and administrative procedures, both trade partners need to make efforts, even if these efforts are not equivalent.

Originally published as OECD Trade Policy Working Paper No. 42

Introduction

The Trade Directorate has extensively analysed non-tariff measures (NTMs). Much of this work has looked at specific NTMs, such as custom fees and charges, quantitative restrictions, etc. Some studies have provided a broader perspective, *e.g.* by assessing NTMs of concern to developing countries. Much of this work has been qualitative, although some quantitative research has been undertaken using available business surveys. All of this research provides insight into the nature and function of NTMs (see OECD, 2005b).

In spite of their recognised importance as trade barriers today, NTMs have not so far played a significant role on the Doha Development Agenda (DDA). The main exception is trade facilitation, which addresses a particular type of NTM and figures prominently in the DDA negotiations. Nevertheless, in future rounds of trade negotiations, NTMs will very likely play a greater role. Negotiations, now and then, will benefit from a better understanding of the trade and economic effects of NTMs.

In general, efforts to understand the quantitative effects of NTMs have so far been relatively unsuccessful. A review of these efforts (OECD, 2005c) examined "the state of the art" for assessing the quantitative effects of NTBs, in order to serve as a point of departure for possible further efforts to deepen understanding in this area. The OECD later proposed to follow this up with efforts to improve understanding in particular areas (*i.e.* through the "handicraft" method of analysis), starting with certain aspects of customs and administrative procedures.

In a study of non-tariff barriers of concern to developing countries, the OECD identified customs and administrative procedures as particularly problematic (OECD, 2004a) . Their cumbersomeness has been a challenge for developing countries exporting to developed countries but also to other developing countries. However, developed countries also find customs and administrative producers cumbersome (OECD, 2005b, Chapter 1). Understanding better the trade effects of customs and administrative procedures is important to many developing countries. The current research provides quantitative evidence that excessive customs and administrative procedures are inhibitors to trade.

One way to consider the effect of customs and administrative procedures is to say that they "thicken" countries' borders. Customs and administrative procedures are necessary, but requirements beyond what is necessary to move a product through the border in a manner consistent with local policy objectives may unnecessarily hinder trade by "thickening" the border. The

metrics discussed below serve to measure the thickness of borders. If this thickness matters to trade, reducing it will increase trade flows.

The following analysis uses metrics produced by the World Bank of customs and administrative procedures to compare regions of the world and show that developing countries have relatively thicker borders than developed countries. The metrics are then used in statistical models. The results are used to run simulations to indicate how much customs and administrative procedures need to be reformed to increase trade flows.

Effects of customs and administrative procedures on trade

This study uses metrics derived from the World Bank survey "Doing Business: Benchmarking Business Regulations." In the 2005 survey, a new section was added called "Trading across Borders," which looks at "procedural requirements for exporting and importing a standardised cargo of goods" (World Bank, 2005). The goods considered are coffee, tea, cocoa, spices and manufactures thereof; textile yarn, fabrics, made-up articles; and articles of apparel and clothing accessories The survey asked local freight forwarders, shipping lines, customs brokers and port officials about the necessary documents, signatures and time to cross the border.

For both exports and imports, three types of metrics are available from the World Bank survey: The documentation measure (*Number of Documents*) is the number of documents needed to cross the border. They include port filing documents, customs declaration and clearance documents and official documents exchanged between the concerned parties. The signature metric (*Number of Signatures*) represents the total number of signatures, stamps or other approvals necessary to satisfy one or more formal procedures. The time metric (*Days at the Border*) is the number of calendar days needed for a product to cross the border.

The survey generates a metric for the burdensomeness of customs and administrative procedure for the 156 countries that responded to the survey. Figures 2.1 and 2.2 and Table 2.1 provide summary statistics for the major regions of the world. The ranking of the metrics for imports and exports is similar across metrics. OECD countries have the least number of restrictions in terms of number of documents, number of signatures and days at the border, while Sub-Saharan Africa has the most. This result indicates that countries in Sub-Saharan Africa have the thickest borders according to these metrics.

The differences between Sub-Saharan Africa and OECD countries are large. The coefficients of variation[1] (CV) for the different metrics show that the greatest dispersion is in the number of signatures and the least is in the number of documents. An implication of the large CVs for *Number of Signatures*$_{Export}$ and *Number of Signatures*$_{Import}$ is that there is greater space for improvement relative to other metrics.

These metrics are highly correlated. The correlation coefficients for *Number of Signatures*$_{Export}$ and *Number of Signatures*$_{Import}$ (0.94) and *Days at the Border*$_{Export}$ and *Days at the Border*$_{Import}$ (0.95) suggest that countries tend to treat imports and exports similarly, even though the metrics are statistically different for exporters and importers. An interesting result is that the number of signatures and days at the border are highly correlated with the lowest coefficient (0.78) for *Number of Signatures*$_{Import}$ and *Days at the Border*$_{Export}$. The correlation suggests that days or signatures tend to be similar.[2] The *Number of Documents*$_{Export}$ and *Number of Documents*$_{Import}$ are less correlated with each other and with the other metrics than the other metrics. Overall, the large coefficients of correlation suggest that countries with thick borders typically have large values for all metrics for both exports and imports.

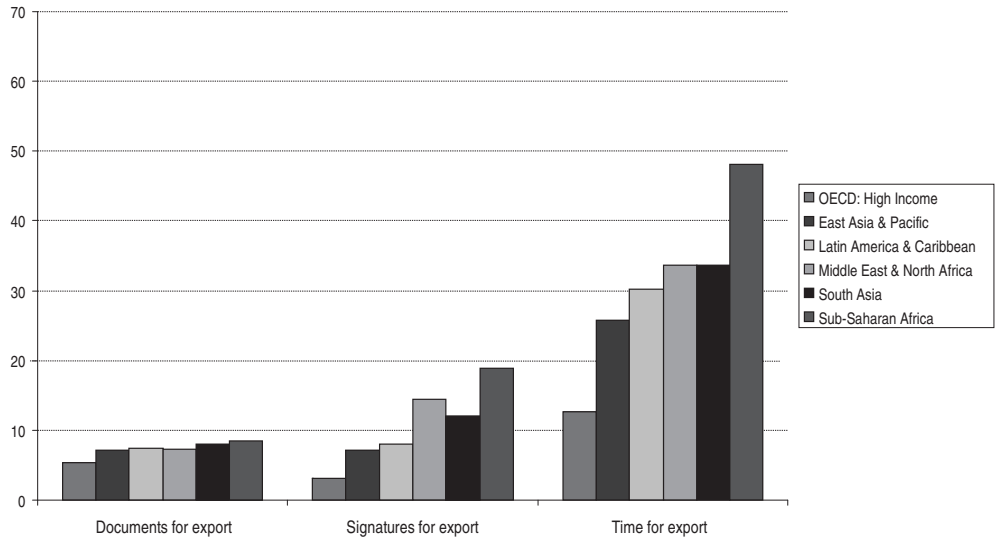
These metrics are used in a gravity model to estimate the effect of the corresponding customs and administrative procedures on trade. The method is influenced by the work of Hausman *et al*. (2005). The gravity model is a commonly used for trade analysis, and a number of OECD studies show its usefulness (*e.g*. Nicoletti *et al*., 2003; OECD, 2004c; OECD, 2005d). This analysis is particularly relevant for understanding the effects of non-tariff barriers on trade in goods; it uses an approach similar to that used for the analysis of logistics services (see OECD, 2006).[3]

1. The coefficient of variation is a standardised, unit-less measure of dispersion. It is the standard deviation divided by the mean.

2. Since the data are not time series, it is not possible to assert that a change in one metric tends to generate a similar change in the other metrics.

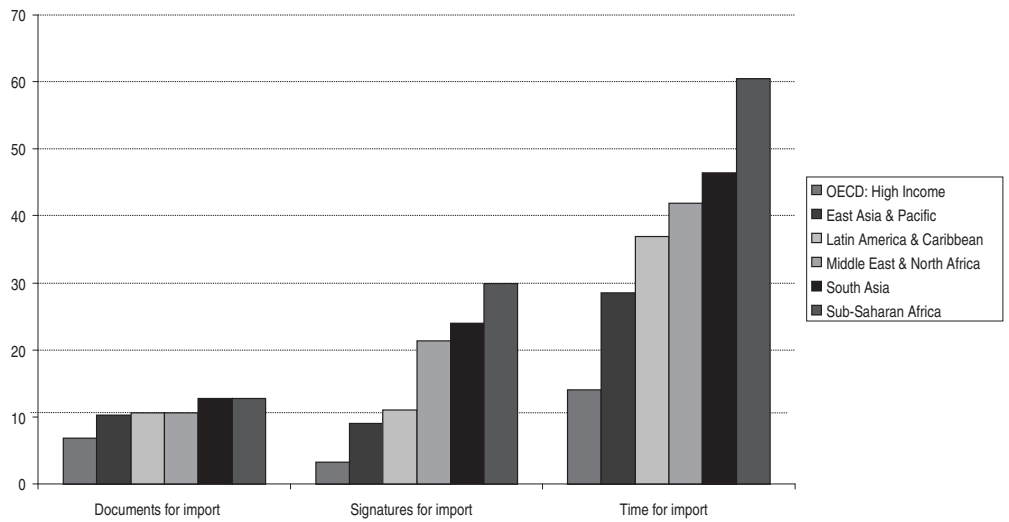
3. In fact, that project and the current project share the same database. However, OECD (2006) uses a probit model to determine the likelihood of trading given the time it takes for products to cross the border, whereas the present study looks only at trade flows and not the probability of trading.

Figure 2.1. Regional averages of trading across borders metrics for exports



Source: World Bank (2005).

Figure 2.2. Regional averages of trading across borders metrics for imports



Source: World Bank (2005).

Table 2.1. Regional averages of trading across borders metrics

Region or economy	Number of documents$_{Export}$	Number of signatures$_{Export}$	Days at the border$_{Export}$	Number of documents$_{Import}$	Number of signatures$_{Import}$	Days at the border$_{Import}$
Regional averages						
East Asia & Pacific	7.1	7.2	25.8	10.3	9.0	28.6
Latin America & Caribbean	7.5	8.0	30.3	10.6	11.0	37.0
Middle East & North Africa	7.3	14.5	33.6	10.6	21.3	41.9
OECD: high income	5.3	3.2	12.6	6.9	3.3	14.0
South Asia	8.1	12.1	33.7	12.8	24.0	46.5
Sub-Saharan Africa	8.5	18.9	48.1	12.8	29.9	60.5
World summary statistics						
Average	7.4	11.0	31.6	10.8	16.4	39.8
Standard deviation	2.2	10.4	19.9	3.9	16.5	26.8
Coefficient of variation	0.3	1.0	0.6	0.4	1.0	0.7

Source: World Bank (2005).

Table 2.2. Correlations of metrics for customs and administrative procedures

	Number of documents$_{Export}$	Number of signatures$_{Export}$	Days at the border$_{Export}$	Number of documents$_{Import}$	Number of signatures$_{Import}$	Days at the border$_{Import}$
Number of documents$_{Export}$	1.00					
Number of signatures$_{Export}$	0.52	1.00				
Days at the border$_{Export}$	0.61	0.80	1.00			
Number of documents$_{Import}$	0.68	0.56	0.61	1.00		
Number of signatures$_{Import}$	0.52	0.94	0.78	0.55	1.00	
Days at the border$_{Import}$	0.61	0.81	0.95	0.64	0.81	1.00

Source: Author's calculations.

A preliminary analysis uses the metrics described above in the context of a gravity model. The preliminary models regress the 2004 exports of the three product categories[4] of the World Bank survey on the typical gravity model variables (GDP for each country, distance, membership in a regional trade agreement (RTA) or preferential trade agreement (PTA), common language, and colonial ties) and the customs metrics. This preliminary analysis focuses on the customs and administrative procedures of the importing country in order to investigate how they affect third country exports: it seeks to demonstrate that those procedures have a negative effect on exports. The analysis also seeks to demonstrate that the gravity model variables follow the typical pattern. That is, the variables for GDP, language and colonial ties should have a positive effect on trade flows. Some if not all of the indicator variables for regional (or preferential) trade agreements RTAs (or PTAs) should also be positive. The distance variable and the dummy variables for landlocked exporter and importer countries should be negative. More details of the model are available in Annex 2.A1.

The estimated elasticities, from the preliminary regressions, of each metric to trade flows (see Table 2.3) indicate the effect of a percentage change in the metric on trade flows. For example, a 10% reduction in the importer's time at the border may increase trade by a hypothetical 6.3%. A 10% reduction in the number of signatures required by the importer may increase trade by 9.9%, while a 10% reduction in the number of documents required by the importer may generate an 11.1% increase in trade.

Table 2.3. Estimated elasticities of metrics on trade flows

	Estimated elasticity	Increase in trade flows from a 10% decrease in the metric
$\text{Days at the border}_{\text{Imports}}$	-0.63	6.3%
$\text{Number of signatures}_{\text{Imports}}$	-0.99	9.9%
$\text{Number of document}_{\text{Imports}}$	-1.11	11.1%

Source: Author's estimates.

4. These are, according to their SITC code, 07 (coffee, tea, cocoa, spices and manufactures thereof), 65 (textile yarn, fabrics, made-up articles) and 84 (articles of apparel and clothing accessories).

Table 2.1 presents the regional averages for the metrics. As was pointed out, several regions of mostly developing countries have above-average metrics. The significance of this can be understood by considering how great a percentage reduction in the metric is necessary to take the region to the world average, and then considering the trade increase that would follow from such a reduction. The reduction in the metric would represent improvements in the customs and administrative procedures in the importing region. For example, for Sub-Saharan Africa to reduce the average number of signatures to the world average, the reduction would have to be a substantial 82.48% and would lead to an equally substantial 81.48% increase in trade flows (Table 2.4).[5]

Table 2.4. Change in trade flows with improvement in import metrics

	Days at the $border_{Import}$	Number of $signatures_{Import}$	Number of $documents_{Imports}$
***Percentage reduction to world average*[1]**			
East Asia & Pacific			
Latin America & Caribbean			
Middle East & North Africa	-5.41	-30.00	
OECD: high income			
South Asia	-16.98	-46.48	-18.71
Sub-Saharan Africa	-52.20	-82.49	-18.71
***Percentage increase in imports if regional average fell to world average*[2]**			
East Asia & Pacific			
Latin America & Caribbean			
Middle East & North Africa	3.40	29.63	
OECD: high income			
South Asia	10.67	45.91	20.66
Sub-Saharan Africa	32.80	81.48	20.66

1. Empty cells indicate averages that are below the world average.
2. An implicit assumption is that the elasticities hold everywhere, not just at the average. Additionally, elasticities are typically considered for small changes. At such large changes as those suggested in this table, substantial bias could exist in the estimate of the trade effect.
Source: Author's estimates.

5. Estimated elasticities are believed to hold for small changes around the mean. Therefore, the large changes presented here need to be interpreted cautiously.

Trade effects of time-adjusted distance

In the traditional gravity model, the distance between countries, typically measured as the distance between the capitals or major cities, is used as a proxy for travel costs. As the distance between countries increases, one would expect travel costs to increase similarly. However, it is reasonable to assume travel costs over the same distance between two developed countries or two developing counties would not be the same. In the case of the bilateral trade partners presented in Table 2.5, the distance between Greece and Ethiopia, which ranks second in terms of shortest distance, is similar to the distance between Portugal and Finland, which ranks third. However, there is a difference of 63 days in these two cases in the time necessary for a product to leave the exporting country and enter into the importing country. For time-sensitive products like apparel and clothing accessories, such a difference may exclude the product from a market (OECD, 2006). Costs of storage or refrigeration could also substantially raise travel costs. Therefore, the time metric was incorporated into the distance metric to construct a new distance metric, *Distance weighted*.[6] This new metric ranks distances differently: the trading partners Portugal and Finland are now the closest partners in Table 2.4, while Greece and Ethiopia are now the farthest apart in Table 2.5.

The time-weighted distance metric needs to be used with caution. The adjusted distance is limited to the three products categories and the year for which the time metrics were derived, and the time at the border may vary even within the products considered and destination. The metrics for time may actually overestimate time because there could be time savings for trade of larger cargoes or frequently traded products. For these reasons, the new, adjusted distance metric does not obviate the use of the simple distance; however, for this application, the adjusted distance may help to develop better estimates of the cost of customs and other administrative procedures.

With this adjusted distance variable, we estimate similar equations to those in the preliminary models (see Table 2.A2.2 in Annex 2.A2). The changes include the new time-adjusted distance. For each metric, the product of the metric is used for both the importer and the exporter, where previously, it was only used for the importer. This new version makes it possible to see separately how changes in the metric affect exporters and importers.

6. A measure for the export country's remoteness is discussed in Annex 6.B.

Table 2.5. Distances and times for selected bilateral trade partners

Exporter	Importer	Distance[1] (in km)	Ranked by distance[2]	Rank by distance adjusted for days at the border and remoteness[3]	Number of days at the border$_{Export}$[2]	Number of days at the border$_{mport}$[2]
Brazil	Bolivia	2 381	1	2	39	49
Brazil	Peru	3 455	5	3	39	31
Bulgaria	Uzbekistan	3 756	6	8	26	139
Canada	Kyrgyzstan	10 058	9	4	12	127
Greece	Ethiopia	3 560	2	9	29	57
Kenya	Nigeria	3 806	7	6	45	53
Portugal	Finland	3 363	3	1	18	7
Russia	Afghanistan	3 368	4	7	29	97
Singapore	Denmark	9 978	8	5	6	5

1. The distance variable comes from CEPII (see Gaulier *et al.*, 2004).

2. The distances are ranked from the shortest to the longest distance.

3. The adjusted distance is the distance multiplied by the natural log of the product of the numbers of days to export and import divided by the measure of remoteness. Remoteness is the inverse of the sum of the distance between the exporter and all its importing partners divided by the GDP of the importer.

Source: *Doing Business* (World Bank, 2005).

The new regressions give new elasticities for the metrics (see Annex 2.A2 for the calculation of the new elasticities). The new estimates are presented in Table 2.6. The new elasticities are smaller than the previous ones. Therefore, the new estimates suggest that trading partners are less responsive to changes in the metrics, *i.e.* that they have to undertake greater reforms to get the same level of benefit. The new elasticities are close to the previous estimates and indicate the robustness of the results. Before considering specific trading partners, it is worth looking at the regional effects of efforts to reduce the time at the border, and. in particular, the reduction in importers' and exporters' total number of days at the border that is sufficient to generate a 10% increase in trade flows based on the regional averages given in Table 2.1.

Table 2.6. Elasticities for the metrics under different measures of distance

	Estimated elasticity (simple distance)	Estimated elasticity (time-adjusted distance)
Days at the border$_{Imports}$	-0.63	-0.60
Number of signatures$_{Imports}$	-0.99	-0.88
Number of documents$_{Imports}$	-1.11	-0.96

Source: Author's calculations.

Table 2.7 presents the elasticity of bilateral trade between trading regions and the number of days at the border. This elasticity is generally more responsive for exports from the OECD area (row in bold) and imports into the OECD (column in bold). The greater responsiveness of OECD countries is the result of shorter times at the border for both exports and imports. By the same token, Sub-Saharan Africa is the least responsive to changes in trade because of long times at the border for both exports and imports. The relatively less elastic response indicates that greater efforts to reduce the number of days at the border are necessary to achieve the same increase in trade. It is interesting to note the different elasticities across the regional pairs. When Sub-Saharan Africa exports to the OECD, the elasticity is -0.62. However, when Sub-Saharan Africa exports to itself, the elasticity is smaller -0.59. This difference indicates the differential amounts of adjustment needed by pairs of trading partners to generate similar percentage improvements in trade.

Table 2.7. Estimated elasticities for days at the border

Importing country / Exporting country	East Asia & Pacific	Latin America & Caribbean	Middle East & North Africa	OECD	South Asia	Sub-Saharan Africa
East Asia & Pacific	-0.61	-0.61	-0.60	**-0.64**	-0.60	-0.60
Latin America & Caribbean	-0.61	-0.60	-0.60	**-0.63**	-0.60	-0.60
Middle East & North Africa	-0.61	-0.60	-0.60	**-0.63**	-0.60	-0.59
OECD	**-0.64**	**-0.63**	**-0.63**	**-0.67**	**-0.63**	**-0.62**
South Asia	-0.61	-0.60	-0.60	**-0.63**	-0.60	-0.59
Sub-Saharan Africa	-0.60	-0.59	-0.59	**-0.62**	-0.59	-0.59

Source: Author's estimations.

Table 2.8 shows the necessary reductions in the number of days to increase trade by 10%. Using OECD as a benchmark, to increase trade by 10% for exports from one OECD country to another, the number of days at the border would have to be reduced by 1.08 at the export side. Likewise, to increase imports from one OECD country to another, the days at the border would need to be reduced by 1.20 at the import side. However, to increase exports from Sub-Saharan Africa to the Middle East and North Africa by 10%, Sub-Sahara African exporting countries would have to reduce the days at the border by 4.74, while the Middle Eastern and North African importing countries would have reduce the number of days at their border by 4.13.

Table 2.8. Necessary reduction in the days at the border to achieve a 10% increase in trade

	East Asia & Pacific	Latin America & Caribbean	Middle East & North Africa	OECD	South Asia	Sub-Saharan Africa
			For exporting countries[1]			
East Asia & Pacific	2.42	2.46	2.47	**2.32**	2.46	2.48
Latin America & Caribbean	2.87	2.91	2.92	**2.76**	2.92	2.94
Middle East & North Africa	3.20	3.24	3.26	**3.08**	3.25	3.27
OECD	**1.14**	**1.15**	**1.16**	**1.08**	**1.16**	**1.17**
South Asia	3.21	3.25	3.27	**3.09**	3.26	3.28
Sub-Saharan Africa	4.66	4.71	4.74	**4.50**	4.73	4.76
			For importing countries[2]			
East Asia & Pacific	2.69	3.52	4.01	**1.26**	3.82	4.47
Latin America & Caribbean	2.71	3.55	4.04	**1.27**	3.85	4.51
Middle East & North Africa	2.72	3.57	4.06	**1.28**	3.87	4.53
OECD	**2.58**	**3.39**	**3.86**	**1.20**	**3.68**	**4.31**
South Asia	2.72	3.57	4.06	**1.28**	3.87	4.53
Sub-Saharan Africa	2.77	3.62	4.13	**1.31**	3.93	4.60

1. The reduction in export times is read for export regions on the far left column to import regions across the top row.
2. The reduction in import times is read for import regions across the top row to export regions on the far left column.

Source: Author's estimation.

These results indicate nothing of the costs of implementing reductions in time at the border. Assuming diminishing marginal returns, a reduction of 1.08 days at the border of most OECD countries would be more costly given their relatively efficient customs and administrative procedures, than the cost of a reduction of 4.74 days for Sub-Saharan Africa.[7]

Effect for bilateral pairs

Bilateral country pairs help to understand better the effect of reductions in the days at the export and import border on trade between partners. Based on the results in Table 2.A2.2, Table 2.10 presents aggregate trade across the three products for a select group of trading partners to see the reduction in the number of days needed to achieve a 10% increase in trade and a reduction in the metrics to achieve a 10% increase in trade. Table 2.9 presents the number of days at the border, the number of signatures and the number of documents for a product moving out of an exporting country and entering an importing country.

Table 2.9. Days at the border and number of signatures for trade

Exporting country	Importing country	Days at the border	Number of documents	Number of signatures	Days at the border	Number of documents	Number of signatures
		For the exporting country[1]			For the importing country[1]		
Brazil	Bolivia	39	7	8	49	9	16
Brazil	Peru	39	7	6	31	13	13
Bulgaria	Uzbekistan	26	7	5	139	18	32
Canada	Kyrgyzstan	12	6	2	127	18	27
Greece	Ethiopia	29	7	6	57	13	45
Kenya	Nigeria	45	8	14	53	3	71
Portugal	Finland	18	6	4	7	13	1
Russia	Afghanistan	29	8	8	97	10	57
Singapore	Denmark	6	5	2	5	3	1

1. Each represents averages across all countries. These metrics do not represent the bilateral relationships.

Source: *Doing Business* (2005).

7. For more on the cost of implementing trade facilitation, see OECD, 2004b.

Table 2.10 shows the necessary reduction in the number of days to increase trade by 10% between bilateral trade partners. Each partner is assumed to reduce the number of days by the same percentage (see Annex 2.A2). The disaggregation, by trade partners, highlights the significant differences among the countries covered. For example if Brazil had reduced the export time by nearly four days and Bolivia had reduced the import time by nearly five days on average, Brazil could have seen a USD 2.7 million increase in trade to Bolivia. If, at the same time, Peru had reduced the import time by nearly three days on average, Brazil could have earned an extra USD 4.05 million in exports to Peru, for a total of USD 6.76 million. Table 2.11 considers the necessary reduction in the number of signatures to spur a 10% increase in trade. Considering the same country pairs, had Brazil, Bolivia and Peru reduced the number of signatures or documents by one, Brazil would have exported an additional USD 6.76 million to its two trading partners.

Another pair of countries to consider is Portugal and Finland. For the three products, exports from Portugal and Finland in 2004 totalled over USD 64.77 million. For Portugal to have exported an extra USD 6.48 million to Finland, Portugal would have had to reduce export time by nearly 1.5 days, while Finland reduced the import time by 0.58 days (13.9 hours). In terms of the number of signatures, Portugal would have had to cut one signature and Finland would have had to cut one signature.

Table 2.10. The necessary reduction in the number of days at the border to increase trade by 10%

Exporting country	Importing country	Total exports (USD thousands)[0]	Elasticity for days at the border	Reduction in days at the $border_{Exporter}$	Reduction in days at the $border_{Importer}$
Brazil	Bolivia	27 166.64	-0.59	3.83	4.81
Brazil	Peru	40 527.61	-0.60	3.75	2.98
Bulgaria	Uzbekistan	0.70	-0.57	2.62	14.01
Canada	Kyrgyzstan	4.98	-0.59	1.17	12.36
Greece	Ethiopia	1 044.75	-0.59	2.83	5.57
Kenya	Nigeria	33.68	-0.59	4.46	5.26
Portugal	Finland	64 768.45	-0.69	1.50	0.58
Russia	Afghanistan	1 462.39	-0.58	2.89	9.68
Singapore	Denmark	51 910.47	-0.81	0.42	0.35

Note: Total exports include trade of coffee, tea, spices, etc.; textile yarn and fabrics, and apparel and accessories for 2004. Some country pairs do not trade all three products.

Source: Author's calculations.

These results point to the benefits for all countries of improving customs and administrative procedures. In the above example had only Brazil decreased export time, it would have earned only USD 3.88 million, or just over half of the increase in trade generated if all partners reduced the time to trade. Results are similar for other country pairs.

Table 2.11. Necessary reduction in the number of signatures to increase trade by 10%

Exporting country	Importing country	Elasticity for number of signatures	Reduction in signatures for export.country[0]	Reduction in signatures for import.country[0]	Elasticity for number of documents	Reduction in documents for export.country[0]	Reduction in documents for import.country[0]
Brazil	Bolivia	-0.88	1	1	-0.96	1	1
Brazil	Peru	-0.88	1	1	-0.96	1	1
Bulgaria	Uzbekistan	-0.88	1	2	-0.96	1	1
Canada	Kyrgyzstan	-0.88	1	2	-0.96	1	1
Greece	Ethiopia	-0.88	1	3	-0.96	1	1
Kenya	Nigeria	-0.88	1	5	-0.96	1	1
Portugal	Finland	-0.88	1	1	-0.96	1	1
Russia	Afghanistan	-0.88	1	4	-0.96	1	1
Singapore	Denmark	-0.88	1	1	-0.96	1	1

a. The value was rounded up to one if the value was greater than zero.

Source: Author's calculations.

Effect for products

These results are assumed to hold across all three product groups in the data set. However, some products may be more sensitive to customs and administrative procedures than others. In the final model specification, the effect of each customs metric is disaggregated for each product in the data set. The model results can be seen in Table 2.A2.3 in Annex 2.A2. All three products are sensitive to customs and administrative procedures (statistically significant results). However, some products are more sensitive than others.A particular case can be seen by looking at the days at the border and the effect on the trade of the three product groups between Brazil and Bolivia, Brazil and Peru, Kenya and Nigeria, and Portugal and Finland. Textile yarn, fabrics and made-up products appear to be the least sensitive to time for both partners because of the relatively larger reductions in border time necessary to increase trade by 10% for this product group. For trade between Brazil and Peru, a reduction in the number of days by 2.86 and 2.27 would increase trade of coffee, tea and spices by 10%, but trade in textile yarn, fabrics and made-up articles (which had a larger export value to

Brazil), would need a greater reduction in days at the border (4.04 and 3.21) in order to achieve a 10% increase in trade. A similar result holds for Kenyan exports to Nigeria. This disaggregation shows that to reap the greatest benefits, reductions should be based on the products which are most sensitive to NTMs.

Table 2.12. The necessary reductions in the days at the border to increase trade by 10%

Exporting country	Importing country	Total exports (USD thousands)	Elasticity for days at the border	Reduction in days at the $border_{Exporter}$	Reduction in days at the $border_{Importer}$
			Coffee, tea and spices		
Brazil	Bolivia	4 599.85	-0.70	2.90	3.65
Brazil	Peru	735.28	-0.71	2.86	2.27
Kenya	Nigeria	1 901.66	-0.69	3.38	3.98
			Textile yarn, fabrics and made-up articles		
Brazil	Bolivia	22 675.71	-0.50	4.14	5.20
Brazil	Peru	38 956.38	-0.51	4.04	3.21
Kenya	Nigeria	27.99	-0.49	4.83	5.69
Portugal	Finland	30 491.19	-0.60	1.58	0.61
			Clothing and accessories		
Brazil	Bolivia	4 490.93	-0.62	3.30	4.14
Brazil	Peru	835.95	-0.63	3.24	2.57
Kenya	Nigeria	4 490.93	-0.61	3.84	4.52
Portugal	Finland	34 277.26	-0.72	1.44	0.56

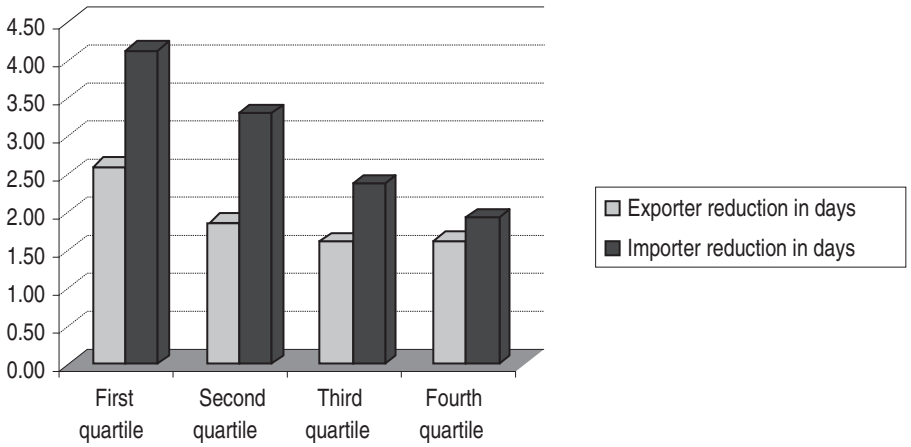
Source: Author's calculations.

Effect by income quartile

Another perspective to consider is how these different metrics affect trade flows by income quartiles. Higher-income trading partners would be expected to need smaller reductions in the number of days at the border than lower-income trading partners. Trading partners (pairs of countries) are divided into quartiles from lower to higher income partners based on per capita income. The regressions, described in more detail in Annex 2.A2, offer evidence in support of this hypothesis: higher-income partners require smaller reductions in the number of days to attain a 10% increase in trade compared to lower-income partners (Figure 2.3).

Figure 2.3. The necessary reduction in the number of days at the border to achieve 10% increase in trade

By per capita income quartiles[a]



Note: The per capita income quartiles represent the distribution of the per capita income for the sum of the square of the logarithm of the per capita income for exporting and importing countries. The first quartile represents the lowest quartile, and the fourth quartile represents the highest income quartile.

Source: Author's estimations.

Conclusions

These results raise a series of questions: What does it mean for a country to eliminate one document or one signature? Does removing a signature reduce the amount of waiting time at the border? Does one fewer document hamper the ability of customs authorities to process a product? Would one less signature increase the risk of importing dangerous goods? How much control does a government have over the number of days at the border if private firms are involved in some part of customs clearance? These questions prompt a cautious interpretation of the results, which must be considered as indicative of the direction and relative importance of different customs and administrative procedures on trade. The results do not provide evidence of the actual amount to be gained from improved border procedures.

Nevertheless, there is evidence that improving the efficiency of NTMs such as customs and administrative procedures can facilitate trade. The statistical models, with their attendant simulations, show that all countries can benefit from more efficient customs and administrative procedures, with

the greatest benefits accruing to countries that seem to have less efficient customs and administrative procedures. To gain the greatest benefit from improving customs and administrative procedures, both trade partners need to make efforts, even if these efforts are not equivalent. Greater reductions are needed from partners with less efficient customs and administrative procedures. The Brazilian examples provide evidence to support these claims. Lower-income trading partners require greater reductions in the number of days to attain similar percentage increases in exports. The greatest benefits from improved procedures accrue in relation to products that are most sensitive to cumbersome and long customs and administrative procedures. In the examples for Portugal and Finland, reducing export and import time by 11.58 and 0.61 days would have generated the greatest gains. Additionally, depending on the cost of reduction, it would seem that reducing the number of required documents or signatures generates greater benefits than similar reductions in the numbers of days. The results and questions presented here suggest the need for further research, especially research that links these benefits to the cost of reducing the different metrics.

Annex 2.A1
Details of the World Bank Survey *Doing Business*

For the sake of comparable data, several assumptions were made in the World Bank survey about the business and the traded goods:

- The business
  - Has 100 or more employees.
  - Is located in the country's most populous city.
  - Is a private, limited liability company, formally registered and operating under commercial laws and regulations of the country. It does not operate within an export processing zone or an industrial estate with special export or import privileges.
  - Is domestically owned with no foreign ownership.
  - Exports more than 10% of its sales to international markets.
- The traded goods travel in a dry-cargo, 20-foot, full container load. The product:
  - Is not hazardous nor does it include military arms or equipment.
  - Does not require refrigeration or any other special environment.
  - Does not require any special phytosanitary or environmental safety standards other than accepted international standards. The following Standard International Trade Classification (SITC) Revision 3 categories are considered by the respondents:

    SITC 07: coffee, tea, cocoa, spices and manufactures thereof.

    SITC 65: textile yarn, fabrics, made-up articles.

    SITC 84: articles of apparel and clothing accessories.

Source: World Bank (2005).

Annex 2.A2
The Model Specifications

The preliminary model

The preliminary models use the basic gravity model. The gravity model is broadly based on Newton's equation for gravity. The economic analogue is that the economic mass of the two countries, as measured by GDP, is hypothesised to have a positive influence on the bilateral trade between the countries. The distance between the countries, which represents travel costs, is hypothesised to have a negative effect on trade. From there, economists have added a number of other policy variables to explain further trade flows. Indicator variables are included in the preliminary model: *Common Language*; *Shared Colonial Link*, which indicates a shared coloniser; *Colonial History*, which indicates a coloniser and former colony; *Shared Border*; $Landlocked_{Exporter}$; $Landlocked_{Importer}$; and RTA indicators. The concern is the effect of different aspects of customs and administrative procedures on trade flows, so that the variables: $Days\ at\ the\ Border_{Importer}$, $Number\ of\ Signatures_{Importer}$ and $Number\ of\ Documents_{Importer}$ are incorporated. Because of the high correlation among these variables, separate equations are estimated for each of these variables. It should be noted that these variables are not bilateral; that is, the number of days for an importing country to receive products from a particular exporting country is not known. The variables representing customs and administrative producers are averages over all exporting countries. They serve, at best, as proxies for actual values.

The dependant variable used in these equations and those that follow are bilateral trade of coffee, tea, cocoa, spices and manufactures thereof (SITC 07); textile yarn, fabrics, made-up articles (SITC 65); and articles of apparel and clothing accessories (SITC 84). These products were chosen because the metrics of customs and administrative procedures were based on these products. As the survey was conducted in 2004 only data for that trade year are used. Even though only one year of data is available, the data are still in panels because of the different exporters, importers and products. Therefore, estimation techniques are used to manage panels. Following previous OECD studies (2005a, 2005d) and the work of Anderson and van Wincoop (2004),

a fixed effects model is used. It has indicator variables for exports, importers and products. The presentation of these variables is omitted in Table 2.A2.1.

The results of the preliminary regressions indicate that two of the three variables representing customs and administrative procedures are the right sign and statistically significant (*Days at the Border*$_{Importer}$ and *Number of Signatures*$_{Importer}$). In a random effects model, *Number of Documents*$_{Importer}$ was the right sign and statistically significant. Nevertheless because of the statistically insignificant coefficient in all of the fixed effects equations in Table 2.A2.1 and those that follow, *Number of Documents* are excluded from further discussions.

Distance adjusted for time

As discussed, a new variable was constructed for the distance because time at the border may have a substantial effect on the travel cost of products and substantially affect trade costs. The new distance variable is the following:

$$\begin{aligned} Distance\,Weighted_{Exporter,\,Importer} &= Distance_{Exporter,\,Importer} \\ &* \ln(Days\ at\ Border_{Exporter} * Days\ at\ Border_{Importer}) \\ &* Remoteness_{Exporter,\,Importer}. \end{aligned}$$

The distance is "the geodesic distances following the great circle formula, which uses latitudes and longitudes of the most important cities/agglomerations, in terms of population" (Gaulier et al., 2004, p. 3). Additionally, we adjusted the distance by the remoteness, which Anderson and van Wincoop (2004) argue helps reduce bias in the estimation. The remoteness adjustment is based in part on Head (2003).

$$Remoteness_{Exporter,\,Importer} = \frac{1}{\frac{Distance_{Exporter,\,Importer1}}{GDP_{Importer1}} + \frac{Distance_{Exporter,\,Importer2}}{GDP_{Importer2}} + \ldots \frac{Distance_{Exporter,\,Importerj}}{GDP_{Importerj}}}$$

In the three equations in Table 2.A2.2, a different measure of the customs and administrative procedure variables is included: the natural logarithm of the product of the variables for the importer (country) and the exporter (country). For *Number of Signatures*$_{Exporter}$* *Number of Signatures*$_{Importer}$ and *Number of Document*$_{Exporter}$* *Number of Documentss*$_{Importer}$, the elasticity is simply the coefficient from the regression. The elasticities are the same for the exporter country and the

importer country. Because of the interaction between the variables for the distance and days at the border, the elasticity for *Days at the Border*$_{Exporter}$**Days at the Border*$_{Importer}$ $\left(\varepsilon_{Days\ at\ Border,\ Exports}\right)$ for exporter and importer country is the following:

$$\varepsilon_{Days\ at\ Border,\ Exports} = \frac{Coefficient\ of\ \ln(Distance\ Weighted)}{\ln\left(Days\ at\ Border_{Exporter} * Days\ at\ Border_{Importer}\right)} + Coefficient\ of\ \ln(Days\ at\ Border_{Exporter} * Days\ at\ Border_{Importer})$$

The estimated elasticity is used to calculate the necessary reduction in the number of days to achieve a 10% increase in trade. The percentage change in the number of days $\left(\hat{T}\right)$ to achieve the 10% increase in trade is $\hat{T} = \frac{-0.1}{\varepsilon_{Days\ at\ Border,\ Exports}}$. The $Days\ at\ Border$ is the product of *Days at the Border*$_{Exporter}$ and *Days at the Border*$_{Importer}$. To attain the necessary reduction in the product of the days at the border, we assume that both factors are reduced by *z*, so that

$$\overline{Days\ at\ Border} = \left(Days\ at\ Border_{Exporter}\, z\right) * \left(Days\ at\ Border_{Importer}\, z\right)$$

If *z* equals one, then no reduction occurs. If *z* is between zero and one, then some or an absolute reduction in the number of *Days at the Border* will occur. To obtain the appropriate factor *z*, the following are equated:

$$\overline{Days\ at\ Border} = \left(Days\ at\ Border_{Exporter}\, z\right) * \left(Days\ at\ Border_{Importer}\, z\right) = \left(1+\hat{T}\right) Days\ at\ Border$$

$$= Days\ at\ Border_{Exporter} * Days\ at\ Border_{Importer}\, z^2 = \left(1 - \frac{0.10}{\varepsilon}\right) Days\ at\ Border$$

$$z^2 = \left(1 - \frac{0.10}{\varepsilon}\right)$$

$$z = \sqrt{\left(1 - \frac{0.10}{\varepsilon}\right)}.$$

By product group

In the third specification, the effect of the different measures on each product is considered. Product-specific variables were constructed by multiplying the product indicator variables by the different metrics of customs and administrative procedures. These new variables make it possible to see how the different metrics affect each product differently. As shown in Table 2.A2.3, many of the product-specific variables are statistically significant, suggesting that the products are affected differentially by the different metrics of customs and administrative procedures.

By income quartiles

In the final specification, the sensitivity of levels of per capita income to the three metrics of customs and administrative procedures is considered. A measure of income was created by summing the natural logarithms of the per capita GDPs for the trading pairs. The trading pairs were divided into quartiles. An indicator variable was then created for the quartiles and the indicator variable was multiplied by the different metrics. The results are presented in Table 2.A2.4. All of the interacted metrics are statistically significant. When the elasticities and the number of days necessary to increase trade are calculated, the results show that higher-income partners would require less reform in their customs and administrative procedures.

Table 2.A2.1. Preliminary models of customs administration on trade flows

Dependent / Independent	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects
ln (*Days at the Border*$_{Importer}$)	**-0.63**** **(0.19)**		
ln (*Number of Signatures*$_{Importer}$)		**-0.99***** **(0.19)**	
ln (*Number of Documents*$_{Importer}$)			**1.11***** **(0.26)**
ln (GDP exporter)	0.61** (0.015)	0.61*** (0.015)	0.61*** (0.015)
ln (GDP importer)	0.77*** (0.064)	0.47*** (0.078)	0.52*** (0.10)
*ln (Distance*Remoteness)*	-1.35*** (0.075)	-1.35*** (0.075)	-1.35*** (0.075)
Common Language	0.29** (0.11)	0.29** (0.11)	0.29** (0.11)
Shared Colonial Link	0.83*** (0.17)	0.83*** (0.17)	0.83*** (0.17)
Colonial History	1.00*** (0.14)	1.00*** (0.14)	1.00*** (0.14)
Shared Border	0.41*** (0.15)	0.41*** (0.15)	0.41*** (0.15)
Member of NAFTA	1.019** (0.47)	1.019** (0.47)	1.019** (0.47)
Member of EBA	0.54 (0.36)	0.54 (0.36)	0.54 (0.36)
Member of COMESA	0.48 (0.40)	0.48 (0.40)	0.48 (0.40)
Member of EU	0.67*** (0.18)	0.67*** (0.18)	0.67*** (0.18)
Member of ASEAN	-0.53 (0.40)	-0.53 (0.40)	-0.53 (0.40)
Member of CARICOM	0.59 (0.76)	0.59 (0.76)	0.59 (0.76)
Member of EFTA	0.59 (0.36)	0.59 (0.36)	0.59 (0.36)
Member of ECOWAS	1.076 (0.89)	1.076 (0.89)	1.076 (0.89)
Member of CAN	1.49*** (0.26)	1.49*** (0.26)	1.49*** (0.26)
Member of MERCOSUR	0.71 (0.51)	0.71 (0.51)	0.71 (0.51)
Member of CIS	1.92*** (0.52)	1.92*** (0.52)	1.92*** (0.52)
Member of SADC	1.87*** (0.67)	1.87*** (0.67)	1.87*** (0.67)

Dependent / Independent	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects
Member of GSP EU	-0.031 (0.21)	-0.031 (0.21)	-0.031 (0.21)
Member of EURO MED	-0.13 (0.26)	-0.13 (0.26)	-0.13 (0.26)
Member of AGOA	-1.18** (0.54)	-1.18** (0.54)	-1.18** (0.54)
Constant	-8.56 (2.35)	-1.11 (2.73)	-2.81 (2.98)
R^2	0.58	0.58	0.58
n	16 662	16 662	16 662

N.B: Significance at 1% alpha level=***, at 5% alpha level=*** and at 10% alpha level=*. The standard errors are in parentheses below the estimated coefficient.

Table 2.A2.2. Models of customs administration on trade flows
With distance adjusted by time at the borders

Dependent / Independent	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects
ln (*Days at the Border$_{Exporter}$*Days at the Border$_{Importer}$*)	-0.41** (0.19)		
ln (*Number of Signatures$_{Exporter}$* Number of Signatures$_{Importer}$*)		-0.88*** (0.19)	
ln (*Number of Document$_{Exporter}$* Number of Documentss$_{Importer}$*)			-0.96** (0.38)
ln (*GDP exporter*)	0.50** (0.038)	0.38*** (0.044)	0.54*** (0.017)
ln (*GDP importer*)	0.77*** (0.063)	0.47*** (0.078)	0.48*** (0.12)
ln (*Distance Weighted*)	-1.35*** (0.076)	-1.35*** (0.076)	-1.35*** (0.076)
Common Language	0.29** (0.12)	0.29** (0.12)	0.29** (0.12)
Shared Colonial Link	0.84*** (0.18)	0.84*** (0.18)	0.84*** (0.18)
Colonial History	1.014*** (0.15)	1.014*** (0.15)	1.014*** (0.15)
Shared Border	0.41*** (0.15)	0.41*** (0.15)	0.41*** (0.15)
Constant	-2.82 (3.33)	8.68** (3.89)	3.45 (4.29)
R^2	0.58	0.58	0.58
n	16 424	16 424	16 424

N.B: Significance at 1% alpha level=***, at 5% alpha level=*** and at 10% alpha level=*. The standard errors are in parentheses below the estimated coefficient.

Table 2.A2.3. Models of customs administration on trade flows

Distance weighted by time variables and product-specific effects

Dependent / Independent	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects
ln (*Days at the Border for Coffee, Tea and Spices*)	-0.52*** (0.19)		
ln (*Days at the Border for Yarn and Fabric*)	-0.32* (0.19)		
ln (*Days at the Border for Clothing and Accessories*)	-0.44** (0.19)		
ln (*Number of Signatures for Coffee, Tea and Spices*)		-1.034*** (0.20)	
ln (*Number of Signatures for Yarn and Fabric*)		-0.74*** (0.19)	
ln (*Number of Signatures for Clothing and Accessories*)		-0.94*** (0.19)	
ln (*Number of Documents for Coffee, Tea and Spices*)			-1.14*** (0.38)
ln (*Number of Documents for Yarn and Fabric*)			-0.83** (0.38)
ln (*Number of Documents for Clothing and Accessories*)			-1.013*** (0.38)
ln (*GDP exporter*)	0.49*** (0.038)	0.38*** (0.044)	0.54*** (0.017)
ln (*GDP importer*)	0.77*** (0.064)	0.47*** (0.076)	0.47*** (0.12)
ln (*Distance Weighted*)	-1.34*** (0.075)	-1.34*** (0.075)	-1.34*** (0.075)
Common Language	0.29** (0.12)	0.29** (0.11)	0.29** (0.12)
Shared Colonial Link	0.83*** (0.18)	0.82*** (0.18)	0.83*** (0.18)
Colonial History	1.0091*** (0.15)	1.0074*** (0.15)	1.011*** (0.15)
Shared Border	0.42*** (0.15)	0.42*** (0.15)	0.41*** (0.15)
Constant	-2.025 (3.25)	9.44** (3.79)	4.38 (4.28)
R^2	0.58	0.58	0.58
N	16 424	16 424	16 424

N.B: Significance at 1% alpha level=***, at 5% alpha level=*** and at 10% alpha level=*. The standard errors are in parentheses below the estimated coefficient.

Table 2.A2.4 Modes of customs administration on trade flows

With income quartiles and distance adjusted by time at the borders

Dependent / Independent	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects	ln(*Exports*) Fixed effects
ln (*Days at the Border*$_{Exporter}$* Days at the Border*$_{Importer}$)*Income1	-0.40** (0.18)		
ln (*Days at the Border*$_{Exporter}$* Days at the Border*$_{Importer}$)*Income2	-0.42** (0.19)		
ln (*Days at the Border*$_{Exporter}$* Days at the Border*$_{Importer}$)*Income3	-0.40** (0.19)		
ln (*Days at the Border*$_{Exporter}$* Days at the Border*$_{Importer}$)*Income4	-0.40** (0.19)		
ln (*Number of Signatures*$_{Exporter}$* Number of *Signatures*$_{Importer}$)*Income1		-0.87*** (0.19)	
ln (*Number of Signatures*$_{Exporter}$* Number of *Signatures*$_{Importer}$)*Income2		-0.91*** (0.19)	
ln (*Number of Signatures*$_{Exporter}$* Number of *Signatures*$_{Importer}$)*Income3		-0.90*** (0.19)	
ln (*Number of Signatures*$_{Exporter}$* Number of *Signatures*$_{Importer}$)*Income4		-0.91** (0.19)	
ln (*Number of Document*$_{Exporter}$* Number of *Documentss*$_{Importer}$)*Income1			-0.93** (0.38)
ln (*Number of Document*$_{Exporter}$* Number of *Documentss*$_{Importer}$)*Income2			-0.95** (0.37)
ln (*Number of Document*$_{Exporter}$* Number of *Documentss*$_{Importer}$)*Income3			-0.92** (0.38)
ln (*Number of Document*$_{Exporter}$* Number of *Documentss*$_{Importer}$)*Income4			-0.91** (0.38)
ln (*GDP exporter*)	0.50*** (0.041)	0.39*** (0.045)	0.53*** (0.022)
ln (*GDP importer*)	0.77*** (0.063)	0.46*** (0.077)	0.47*** (0.12)
ln (*Distance Weighted*)	-1.35*** (0.075)	-1.35*** (0.075)	-1.35*** (0.076)
Common Language	0.29** (0.12)	0.30** (0.11)	0.30*** (0.11)
Shared Colonial Link	0.84*** (0.18)	0.83*** (0.18)	0.82*** (0.18)
Colonial History	1.014*** (0.15)	1.015*** (0.15)	1.018*** (0.15)
Shared Border	0.41*** (0.15)	0.40*** (0.15)	0.41*** (0.15)
Constant	-2.84 (3.33)	8.63** (3.87)	3.74 (4.29)
R^2	0.58	0.58	0.58
n	16 424	16 424	16 424

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Chapter 3

The Economic Impact of Trade Facilitation

by

Michael Engman

This chapter examines the economic impact of trade facilitation and in particular the link between trade facilitation and trade flows, government revenue and foreign direct investment. It finds that improved and simplified customs procedures would have a significant positive impact on trade flows. It further shows that a large number of mostly developing countries have managed to boost government revenue by implementing customs modernisation programmes that result in more efficient collection of trade taxes. In addition, the chapter demonstrates that facilitated cross-border movement of goods would have a positive effect on countries' ability to attract foreign direct investment and better participate in international production supply chains.

Originally published as OECD Trade Policy Working Paper No. 21

Introduction

This chapter studies the effect that trade facilitation and related reductions in trade transaction costs (TTCs) may have on: *i)* trade flows; *ii)* government revenue; and *iii)* foreign direct investment (FDI). It draws on empirical data from country experiences and recent quantitative estimates of the economic impact of improvements in border procedures. It complements other OECD work on trade facilitation (see Chapter 1 in this volume) and its benefits for business (OECD 2001), automation (see Chapter 5), costs of customs reform (see Chapter 6) and developing country experiences (see Chapter 4 and OECD, 2005a). The OECD's work on trade facilitation aims to increase awareness of customs issues and the importance of border procedures among customs administrators and trade policy analysts. This chapter also aims to provide background material to the Negotiating Group on Trade Facilitation (NGTF) and feed into the negotiations on trade facilitation launched in July 2004 under the Doha Development Agenda (DDA).

The International Chamber of Commerce (1999) argues that efficient customs administration is essential for companies that compete in international markets. This chapter examines available evidence on how efficiency in border procedures affects economic performance. The losses that companies suffer through delays at borders, lack of transparency and predictability, complicated documentation requirements and other outdated customs procedures are estimated to exceed in many cases the costs of tariffs. Indeed, governments have much to gain from customs modernisation because efficient customs operations have the potential not only to increase trade but also to facilitate tax collection. This is of importance to many developing economies that partly finance their public administrations with trade taxes. In addition, small and medium-sized enterprises (SMEs) create most new jobs in both low-income and high-income countries, and surveys have shown that these companies are more negatively affected by inefficient customs procedures than multinationals.

Several trends are increasingly putting pressure on countries to increase capacity and improve their customs operations. First, the growth of international trade has exceeded GDP growth for decades: trade liberalisation and the integration of markets coupled with fragmentation of value chains have led to rapid growth in international commerce since the mid-20th century.[1] Some of this growth is attributed to increasing trade flows

1. Keen (2003) states that between 1980 and 1999, the volume (in value) of all merchandise exports grew by 250% (280%). At the same time, world GDP grew by 164%.

within multinationals, resulting in the heightened visibility of unnecessary trade transaction costs (TTCs). Second, reductions in transport costs and the development of complex logistics systems have led to leaner companies holding lower levels of stock. Lean production has made companies dependent on frequent delivery of small batches of intermediary inputs. Third, customs are under pressure to enforce various security and import restrictions, in particular those concerning environmental and sanitary and phytosanitary (SPS) matters. Rules of origin attached to preferential trading arrangements also impose new demands on customs resources.

In the following discussion, "trade facilitation" is used in accordance with the WTO definition, which refers to "the simplification and harmonisation of international trade procedures". Trade procedures are here the "activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade".[2] This definition implies that trade facilitation is affected by GATT Articles V, VII, VIII and X as well as the Agreements on Customs Valuation, Import Licensing, Preshipment Inspection, Rules of Origin, Technical Barriers to Trade, and the Agreement on the Application of Sanitary and Phytosanitary Measures.[3] However, the Doha ministerial declaration limits the trade facilitation agenda to GATT 1994 Article V (freedom of transit), Article VIII (fees and formalities connected with importation and exportation) and Article X (publication and administration of trade regulations). This chapter focuses on measures that are covered by these three GATT articles. However, the following analysis draws heavily on surveys and of earlier work that were not restricted to such a narrow definition; the empirical and quantitative review therefore thus addresses border procedures in general, including customs procedures. Port services are occasionally mentioned as well.

Port services are not necessarily covered by the DDA mandate and a more detailed definition of "customs procedures" is seldom, if ever, provided in the reference material. Moreover, the cited studies do not necessarily provide data that are strictly relevant to the NGTF negotiations. The broader picture of border procedures is nevertheless useful in discussions of trade facilitation. Significant inefficiencies are due to poor customs practices and weak administrative capacity at borders, but poor infrastructure and capacity at seaports and airports are sometimes an even greater problem for traders. Inadequate road and transport infrastructure also

2. www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm. See also WTO (1998) G/L/244.

3. www.wto.org/english/tratop_e/tradfa_e/tradfa_overview_e.htm.

often add substantial costs for traders, but these types of inefficiencies are not addressed here.

The first section of this chapter surveys some studies and empirical evidence relating to TTCs and attempts to distinguish factors that affect customs performance. It also reviews some country surveys that have examined traders' views on the impact of customs on business performance and refers to some estimates of the global welfare effects of adopting trade facilitation measures. The second section takes a closer look at the empirical and quantitative evidence of links between customs efficiency and trade flows, government revenue and foreign direct investment (FDI). A final section draws some conclusions.

The overall relevance of trade facilitation

The studies surveyed in OECD (2001) and in Chapter 1 of this volume suggest that TTCs involved in import and export procedures range between 1% and 15% of the trade transaction value. This discrepancy is mainly attributed to differences in the efficiency of different countries' customs administrations and to the definitions used for trade facilitation (and thus the scope of the relevant TTCs).[4] Most estimates are in the low or middle range. While the upper end of the range likely concerns the world's more inefficient customs administrations, developed countries generally operate capable customs administrations and gains from customs modernisation are likely to be found at the lower end.

In addition to direct costs for complying with border procedures, TTCs often include indirect costs which may be particularly difficult to express in monetary terms. Long delays before customs inspection can result in loss of business opportunities and also impose depreciation costs (*e.g.* for perishable goods) and inventory-holding costs (including high opportunity costs) (see Chapter 1).

Subramanian and Arnold (2001) examined the transport and logistics networks in South Asia and found that the main problems for traders were related to the time, reliability and safety of logistics services. Direct customs clearance procedures accounted for less than 0.5% of cargo value for most examined routes but border crossings were still a major cause of high TTCs and long delivery time. Customs clearance procedures caused unnecessary delays and indirect costs. For example, the costs for intermediate handling, including port handling costs other than loading and unloading vessels, were

4. This chapter examines the impact of procedures at the border. Several studies use a wider definition of trade facilitation including standards and other behind-the-border measures (*e.g.* Messerlin and Zarouk, 2000; Wilson *et al.*, 2004).

about 20-25% of total costs. Problems included limited working hours at customs, lack of customs officers, shortage of gates for receiving cargo, and insufficiently transparent procedures for inspection and valuation. The authors also concluded that customs efficiency often varies greatly between customs points in the same country and that the economic impact differs depending on the type of product. Agricultural produce was found to be especially sensitive, a finding that is confirmed by the findings in Chapter 1.

Several studies have tried to estimate the potential welfare gains to be realised from trade facilitation. Most use computable general equilibrium (CGE) modelling to estimate the welfare effect of marginal reductions in TTCs. Table 3.1 presents the results of some recent exercises which concur in finding that lower TTCs – for instance from faster and more efficient border crossings of goods – would significantly increase global welfare. An (Wilson *et al*., 2002) study concluded that cutting TTCs by 5% in the APEC region would add around USD 154 billion to member economies. An APEC study conducted in 1997 estimated that the average gains from trade facilitation in the Asia-Pacific region were almost twice the potential gains from tariff liberalisation.

Table 3.1. Welfare effects from trade facilitation measures

	Key findings
Francois *et al.* (2005)	Based on a CGE model exercise, the authors estimate that world annual income will increase by USD 72 billion (USD 151 billion) following a 1.5% (3.0%) reduction in TTCs for goods trade. In proportion to national income, most of these gains would benefit developing countries. All regions or major trading nations would benefit except China in the 1.5% reduction scenario. All countries/regions would benefit in the 3.0%, or "full liberalisation", scenario.
OECD[1]	Based on a CGE (GTAP – Global Trade Analysis Project) model exercise, the authors estimate that a 1% reduction in TTCs for goods trade will bring annual gains of about USD 40 billion on a world basis. Most of these gains will benefit developing countries in relative terms. There are no losers. Estimates as share of GDP reveals that Middle East and North Africa (0.27%), non-OECD Asia Pacific (0.25%), OECD Europe (0.19%) and Sub-Saharan Africa (0.18%) would be particularly well off.
Wilson *et al.* (2002)	Based on a CGE model exercise for APEC economies, the authors estimate that a 5% reduction in TTCs for goods trade will raise APEC's GDP by USD 154 billion, or 0.9%.
Commonwealth of Australia (2002)	In terms of annual increases in real incomes measured in 1997 prices, gains from reforms of customs procedures are estimated to be USD 0.4 billion in the Philippines, USD 2.3 billion in Singapore and USD 1.2 billion in Thailand.
UNCTAD (2001)	A 1% reduction in the cost of maritime and air transport services in developing countries could increase global GDP by USD 7 billion (1997 value).

1. See Chapter 1 in this volume.

The comparative advantage of quick and predictable delivery

Most large manufacturers are heavily dependent on frequent and timely delivery of raw material and intermediary goods for their production processes.[5] Inefficient customs services add to costs and delivery times; this in turn lowers the competitiveness of a country's producers. Hummels (2000) estimated that the average *ad valorem* equivalent of a one-day delay for manufactured goods is around 0.5%. This approximation is frequently used in quantitative exercises even if Hummels (2001) later raised this estimate to 0.8%.

OECD (2004) cites a 2002 study by Verma which estimates that Indian companies suffer a 37% cost disadvantage when shipping containers of clothing products from Mumbai/Chennai to the east coast of the United States, relative to similar shipments originating from Shanghai. This cost disadvantage is due to delays and inefficiencies in Indian ports. This study also shows that competitive labour costs are important in the labour-intensive production of textiles and clothing, but efficient customs procedures can partly make up for labour-cost disadvantages. It highlights the importance of efficient port infrastructure, reliable and competitive modes of transport and efficient customs procedures for maintaining an edge in competitive, time-sensitive and fashion-oriented textile and clothing markets.

Table 3.2 compares logistical and dutiable costs for shipping textile and clothing products to the US market from seven exporting countries under various trade arrangements. While the cost calculations do not only concern border procedures, they show the extreme disadvantages suffered by countries with inefficient customs operations and inadequate port services and logistics systems. The table also highlights the new business opportunities enjoyed by countries that modernise their customs operations and port infrastructure. It shows for example the considerable disadvantage experienced by Kenyan garment producers which are hampered by long delays in customs clearance and poor linkages to international transport networks. The time disadvantage is even more pronounced when one considers that many textile and clothing producers depend on foreign inputs

5. Customs clearance time can be reduced through appropriate use of information and communication technology (ICT), inter-agency co-operation both between customs and other border agencies and between the customs authorities of trading nations, single-window environments, risk assessment with related procedures, etc. While this chapter does not examine the various tools and strategies that can be used, Chapters 4, 5 and 6 and OECD, 2005a provide further information on the topic.

which have to be transported to, and clear customs in, the country of production.

Table 3.2. Transit, freight and duty costs on US imports of textiles and clothing

	Outbound from United States [days]	Inbound for United States [days]	Transit days [days]	Time factor 0.5%/day[1]	Freight cost[1]	Customs duty[1]	Total cost[1]	Relative to China[1]
Mexico								
Two-way shipment	2	2	4	2.0%	1.2%	0.0%	3.2%	20.9%
One-way shipment		2	2	1.0%	0.6%	0.0%	1.6%	22.5%
Canada								
Two-way shipment	2	2	4	2.0%	1.8%	0.0%	3.8%	20.3%
One-way shipment		2	2	1.0%	0.9%	0.0%	1.9%	22.2%
Dominican Rep.								
Two-way shipment	5	5	10	5.0%	3.4%	0.0%	8.4%	15.7%
MFN shipment		5	5	2.5%	1.7%	12.3%	16.5%	7.6%
Colombia								
Two-way shipment	9	10	19	9.5%	3.4%	0.0%	12.9%	11.2%
MFN shipment		10	10	5.0%	1.7%	12.3%	19.0%	5.1%
China								
MFN shipment by sea		12	12	6.0%	5.8%	12.3%	24.1%	-
MFN shipment by air		2	2	1.0%	14.5%	12.3%	27.8%	-
South Africa								
Two-way shipment	34	25	59	29.5%	10.0%	0.0%	39.5%	-15.4%
MFN shipment		25	25	12.5%	5.0%	12.3%	29.8%	-5.7%
Kenya								
Two-way shipment	62	61	123	61.5%	9.8%	0.0%	71.3%	-47.2%
One-way shipment		61	61	30.5%	4.9%	0.0%	35.4%	-11.3%
MFN shipment		61	61	30.5%	4.9%	12.3%	47.7%	-23.6%

1. In percentage of import value.

Source: OECD (2004).

The Asian Development Bank (2003) refers to estimates indicating that Bangladesh's garment exports could earn 30% more if port inefficiencies were removed.[6] Filmer (2003) provides the example of Fiji's garment and footwear producers, which are unable to compete with exporters in low-cost countries on a price basis because of their labour costs. However, Fiji still successfully competes because of its ability to provide quick deliveries of high-quality garments. Fijian producers enjoy a reputation as reliable suppliers able to meet orders, particularly small one-off orders, in a way that many lower-cost competitors cannot.

Cadot and Nasir (2001) describe a Malagasy garment exporter whose prospective gains from reducing port clearance time to one day would equal a saving in labour costs of 20-30% for producing a long-sleeved shirt. The World Bank has estimated that the average time required for customs clearance of sea cargo in Africa is 10.1 days, compared to 2.1 days in OECD countries (World Bank, 2003a). According to Hummels (2001), this represents an additional cost of approximately 8.1% and 1.6%, respectively, of the total transaction value. The World Bank (2004a) also refers to two country reports which conclude that average firm-level productivity could increase by 18% by halving the number of days required to clear customs in Ethiopia. In Nigeria, fraud, corruption and poor security at customs are estimated to increase the cost of imports by approximately 45%.

Potential cost savings from cutting customs clearance times are small in countries like Canada where the standard clearance time was 0.75 hour in 2000. In Australia, 98% of electronically lodged import entries were processed within 0.25 hour in 2000-01. Low customs clearance times are also reported for Spain (4 hours), Greece (0.5 hour) and France (0.23 hour) (see Chapter 5). Some developing countries have managed to reduce customs clearance times for most goods to less than 24 hours (see Chapter 4). Japan's experience also shows that large trading nations can also realise substantial gains. Nomura Research Institute (2004) estimates that Japanese trade facilitation measures cut average lead time for cargo by 56% between 1991 and 2001.[7] This saved cargo owners, shipping companies, terminal operators and customs brokers an estimated JPY 39 billion.

Table 3.3 provides estimates of customs clearance times for imports and exports in a number of countries. It reveals that border barriers are

6. Port inefficiencies may be related to poor management, corruption and restricted port capacity in terms both of numbers and of types of vessels that can be handled.

7. Here, average lead time means average requisite time from port entry to permit issuance.

significant for exporters even before their products reach their target markets. While the time to clear imports is 1-2 weeks in most of the countries, time to clear exports at the sending country' border reduces the competitiveness of its export industry. The average clearance time is eight days for imports (median) and 4.5 days for exports.

Table 3.3. Customs clearance times in selected developing countries

Country	Days to clear imports (median)	Days to clear exports (median)
Bolivia	7	2
China	5	3
Eritrea	7	2
Ethiopia	14	4
India	7	3
Kenya	7	4
Morocco	2	1
Mozambique	12	17
Nigeria	18	7-10
Uganda	4	3
Zambia	5	2

Source: Eifert and Ramachandran (2004).

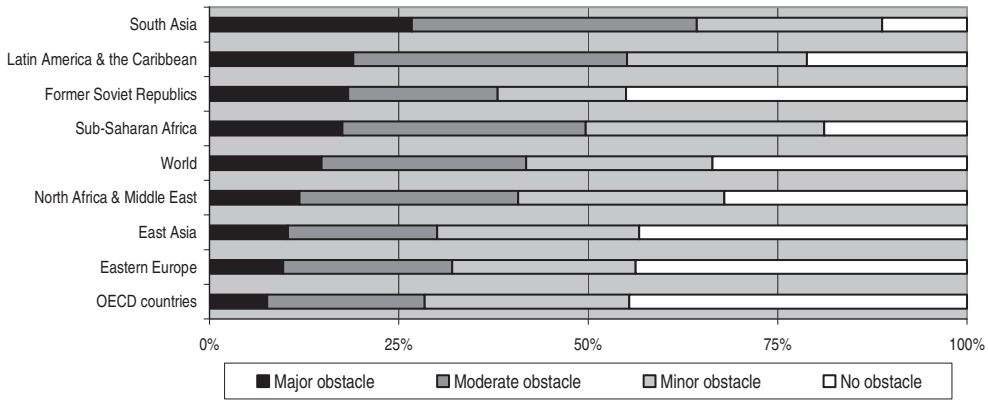
Traders' complaints about border procedures

A survey conducted by the World Bank in 1999-2000 and involving more than 10 000 companies in 80 countries found that companies in many parts of the world still find customs (and foreign trade regulations) a major or moderate obstacle to trade.[8] Figure 3.1 shows that companies in mostly developing countries perceive these procedures as a serious impediment to growth. The operations of companies in South Asia and Latin America and the Caribbean were worst affected: two-thirds of companies in South Asia perceived customs and foreign trade regulations to be a major or moderate obstacle for their businesses. Besides, SMEs were much more likely to find customs and foreign trade regulations difficult to comply with. This finding

8. The bundling together of customs procedures and trade regulations reflects the wide definition of "trade facilitation" often used by the World Bank, which includes both at-the-border and behind-the-border measures.

may not be surprising given that SMEs can least afford a specialised customs and transit department.

Figure 3.1. How problematic are customs/foreign trade regulations for the operation and the growth of businesses?



Source: World Bank (2000).

Another survey conducted by The Asia Pacific Foundation of Canada (APFC) in 2000 of 461 companies in the Asia-Pacific region found customs procedures to be the single most serious trade impediment, ahead of restrictive administrative regulations and tariffs. 53% of respondents described customs procedures as a serious or very serious problem and 69% of developing country respondents were particularly concerned (39% in developed countries). Among the issues specifically concerning customs procedures, complexity of customs regulations (52%); lack of information on customs laws, regulations, administrative guidelines and rulings (49%); and problems with the mechanism of appealing customs decisions (43%) received the largest share of "serious" or "very serious" replies. Table 3.4 shows the customs issues ranked in descending order of seriousness for developed and developing countries.

The replies from developed countries and developing countries were similar but the former group did not perceive goods classification to be as serious a problem as the latter group. Lack of transparency was the most serious concern for companies in developed countries while the complexity of customs regulations was the biggest concern for developing-country exporters. Increased transparency and information sharing, better training of customs officers and more streamlined customs regulations thus seem to be

high priorities. A year after the study, APEC members agreed in the Shanghai Accord 2001 to work to reduce transaction costs in the region by 5% between 2001 and 2006.

Table 3.4. Ranking of customs issues in the APEC region

Overall	Developed countries*	Developing countries**	Type of customs issues
1	2	1	Customs regulations too complex
2	1	2	Lack of information on customs laws, regulations, administrative guidelines and rulings
3	3	4	Problems with mechanism for appealing customs decisions
4	7	3	Problems associated with classification of goods
5	4	5	Customs authorities failing to protect IPRs at borders
6	5	6	Customs procedures not harmonised with those of partner countries
7	8	7	Problems associated with valuation of goods
8	6	8	Problems with temporary importation of goods

* Replies from companies in Australia, Canada, Chinese Taipei, Hong Kong (China), Japan, Korea, New Zealand, Singapore and the United States.

** Replies from companies in Brunei Darussalam, Chile, China, Indonesia, Malaysia, Mexico, Papua New Guinea, Peru, Philippines, Russia, Thailand and Vietnam.

Source: APFC (2000).

The economic impact of trade facilitation

Tariffs and many non-tariff border barriers (such as quantitative restrictions) have been reduced or eliminated over successive rounds of trade negotiations. As conventional trade barriers are lowered, transaction costs related to customs procedures are increasingly important.

TTCs can be analysed as *ad valorem* tariff equivalents. Economic analysis describes two main types of effects of such tariffs: price and efficiency effects. *Price effects* can be either direct, as in payments of customs fees, port fees, rents to corrupt officials, etc., or indirect, as in costs

resulting from delays and unreliability of customs clearance. Price effects increase the price of traded products over what they would otherwise be, with a generally dampening effect on the level of trade and a potentially positive effect on domestic production. *Efficiency effects* arise from distortions in the allocation of resources in the economy, which may be reflected in FDI flows, for example. The effect on FDI flows is somewhat ambiguous however. TTCs decrease efficiency-seeking FDI but they may also increase market-seeking FDI for tariff-jumping purposes in large markets. A large share of FDI today is for establishing production capacity for export markets and higher TTCs are thus very likely to have a negative effect on FDI. Both price and efficiency effects generate welfare losses for consumers and producers in both importing and exporting countries.

The nature and magnitude of the effects may differ depending on the products traded. For highly perishable products, delays of goods at the border can generate product losses or increased costs for refrigeration, chemicals, etc. If the product has a limited shelf life, then prolonged stays at the border could push the product out of the market. If the delay or costs of bringing production inputs into a market cannot be anticipated, investors may find the market less attractive.

While TTCs may be analysed as *ad valorem* tariffs, it should be noted that they result in little, if any, government revenue. Only the direct fees paid for border services benefit the government. Customs modernisation programmes may raise customs productivity and reduce smuggling and corruption, and the effect of trade facilitation on government revenue will be positive if savings from increased customs productivity and revenue from an increased tax base exceed the costs of the modernisation programme and the reductions in direct customs fees.

One of the challenges in quantifying the effect of customs modernisation on trade flows is to determine the causal link between them. Increased trade and FDI flows are likely to lead to greater pressure on customs administrations to provide efficient services (see Wilson *et al*., 2003). Another challenge from an empirical point of view is that customs reform is usually implemented in steps over a long period of time. In some of the country cases presented in Table 3.7 below, reform measures were introduced over a ten-year period.

The impact of trade facilitation on trade flows

Table 3.5 presents the main findings of nine recent quantitative estimates and surveys that explore the link between trade facilitation and trade flows. Most use either gravity models (four cases) or CGE models (three cases) to estimate the effect on trade of more efficient customs procedures and ports. Four studies model the outcome of trade facilitation in the APEC region; although the region only includes 21 countries, it still represents around half of world trade and includes a number of both developed and developing countries.[9]

Wilson *et al*. (2003, 2004) assume in their calculations that countries that are below average in border infrastructure (customs and ports) will be able to raise their efficiency half-way to the APEC average. Other studies assume a fixed across-the-board reduction in TTCs (APEC, 1999) or other types of increased customs efficiency (Kim *et al*., 2004; APEC, 2004a). The studies do not engage in cost-benefit analysis but some indicate that customs reform, while often costly and difficult to implement, may be less costly than the investments needed in port infrastructure.

Five key conclusions can be drawn from the findings presented in Table 3.5:

- All the studies indicate that there is a positive link between trade facilitation and trade. This translates into significantly increased trade for even modest reductions in trade transaction costs.
- The studies also indicate that trade in both rich and poor countries stands to gain from trade facilitation. In relative terms, trade gains would be higher in developing countries than in developed countries, as their customs administrations and ports are comparatively less efficient.
- Both the country improving its customs procedures and the countries exporting to this country stand to benefit from efficiency measures. The country that improves its border procedures benefits most. This underscores the value of unilateral action.
- The potential gain from increasing port efficiency is considerably larger than for increasing the efficiency of customs procedures. Still, improved customs procedures would significantly increase trade flows.

9. The APEC region's share of world trade was 48.8%, and growing, in 2000 (APEC, 2004b).

- The quantitative results echo the results from business surveys: inefficient movement of goods across borders is a serious impediment to trade and growth.

These key conclusions are further supported by the country case studies presented below, which show that customs reform has often led to considerable increases in trade flows. Some quantitative studies show that trade effects from trade facilitation can vary widely among product categories. For example sectors characterised by constraints related to seasonality, perishability or just-in-time production are likely to be more sensitive to inefficient customs procedures. This includes textiles and clothing, for which seasonality and the need for quick deliver heighten the value of efficient border procedures and access to transport networks, as the above-mentioned case of Fijian garment producers illustrates. For agricultural produce, perishability is of utmost importance; Kenya's successful export experiences with cut flowers and Mali's experience with mangoes show that improved border procedures and logistics systems can open up new business opportunities for developing countries (World Bank, 2003a; 2004b).

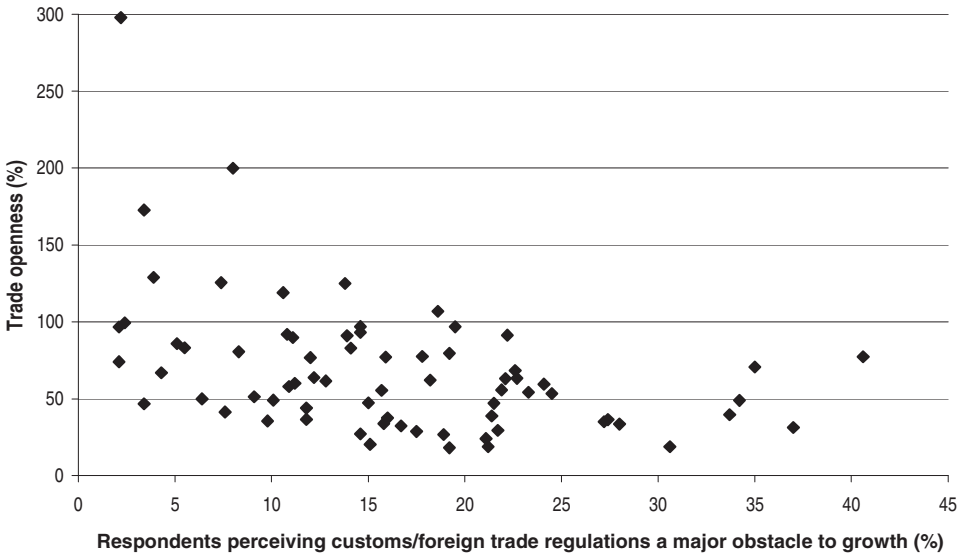
Clarke (2005) has studied factors that affect the export performance of manufacturing enterprises in African countries. He finds that manufacturing enterprises are less likely to export in countries with poor customs administrations and restrictive trade and customs regulations. For instance, a reduction in trade and customs regulations from the level observed in Tanzania, the second most restrictive country in his sample, to the level in Zambia, the second least restrictive, would increase exports as a share of production by approximately 4% for an average enterprise. This represents an increase of one-third in overall exports since most production is for domestic consumption.

Table 3.5. The impact of trade facilitation on trade flows

Author (year)	Key findings
APEC (2004a)	Based on a gravity model exercise for APEC economies, the authors find that a 10% improvement in trade facilitation boosts intra-APEC imports by a minimum of 0.5% in the area of customs procedures.
Dollar *et al.* (2004)	Based on survey results from 7 302 companies in eight developing economies (including Brazil, China and India), the authors find that "customs clearance times … are key determinants of … export status." Maximum likelihood estimates show that customs clearance times for both imports and exports have a significant negative effect on exportation.
Kim *et al.* (2004)	Based on a gravity model exercise for APEC economies, the authors conclude that a 50% improvement in customs procedures performance would increase imports by 1.7-3.4% in industrialised APEC economies, 2.0-4.5% in newly industrialised APEC economies, and 7.7-13.5% in industrialising APEC economies.
Wilson *et al.* (2004)	Based on a gravity model exercise for 75 countries, the authors find that improving port efficiency and customs administration half-way to the global average in countries with below-average efficiency would increase trade flows by USD 107 billion and USD 33 billion, respectively. Improvements in customs administration would benefit all regions but in particular developing country importers. Port efficiency improvements would also greatly benefit developing countries.
Batra *et al.* (2003)	Based on survey results from 8 560 companies in some 80 countries, "customs/foreign trade regulations" were identified as the second most serious "tax and regulatory constraint" on operations and business growth/trade in Latin America, Africa, Developing East Asia and the Middle East. In 44% of non-OECD countries, half or more of the companies reported that "customs/foreign trade regulations" were moderate or major obstacles to operations and business growth/trade. SMEs were particularly affected.
Fox *et al.* (2003)	Based on GTAP model estimates, the authors conclude that a removal of the frictions (delays) in border crossings between Mexico and the United States would lead to a USD 7 billion rise in trade, with southbound trade estimated to increase by USD 6 billion and northbound trade by USD 1 billion. Welfare would increase by USD 1.8 billion in Mexico and by USD 1.4 billion in the United States.
Wilson *et al.* (2003)	Based on a gravity model exercise for APEC economies, the authors find that enhanced port efficiency has a large and positive effect on trade. Improvements in customs significantly expand trade but to a lesser degree than port improvements. If port efficiency and the customs environment in below--average APEC members were brought half-way to the initial APEC average, intra-APEC trade is estimated to increase by 11.5%. A 9.7% gain (USD 117 billion) is expected from increased port efficiency and 1.8% (USD 22 billion) from an improved customs environment.
Hummels (2001)	The author estimates that each additional day spent in transport reduces the probability that the United States will source from the country by 1–1.5% for manufactured goods. No effect is found for commodities. Each day saved in shipping time is worth 0.8% *ad valorem* for manufactured goods.
APEC (1999)	Based on CGE analysis, the authors find that a 1% reduction in import prices (from reduced TTCs) for the industrial and newly industrialising economies of Korea, Chinese Taipei and Singapore, and a 2% reduction for the other developing economies yield an increase in APEC merchandise trade of 3.3%.

Figure 3.2 shows data for trade openness in 2000 (the sum of exports and imports of goods as a percentage of GDP) in relation to respondents in some 71 non-OECD countries that perceived customs and foreign trade regulations to be a major (or "very severe") obstacle to growth (based on the World Bank's 2000 survey of more than 10 000 companies). The figure indicates a negative link between trade and burdensome border procedures. A few countries whose private sectors perceive customs to be a major obstacle to growth also have a relatively high degree of trade openness. These are mainly oil-producing nations like Nigeria and Venezuela.

Figure 3.2. Trade facilitation and trade openness



Source: OECD calculations, based on World Bank (2004), *World Development Indicators*.

Table 3.6, based on the gravity model exercise of Wilson *et al*. (2003), provides a breakdown of country-specific gains of trade.[10] The authors calculated the trade effect for countries that bring port and customs efficiency half-way to the APEC average. The magnitude of the results is related to the efficiency of each country's initial port and customs operations and the exercise is arguably a good indicator of the realistic outcome of modernisation. Under this scenario, more efficient customs procedures would increase trade flows by as much as 30% in Russia and 22% in Indonesia. Chile's customs administration would not be affected because its customs administration is already above the APEC average, but the country's imports would increase owing to more efficient export procedures in other APEC countries. The table also distinguishes the trade effect from more efficient customs procedures and more efficient port management. The effect of port improvement translates into an average 64% increase in the nine countries; the average effect of customs improvement is 12%.

Table 3.6. Trade facilitation and trade flows

Country	Customs environment scenario			Port efficiency scenario		
	Δ exports (%)	Δ imports (%)	Total (%)	Δ exports (%)	Δ imports (%)	Total (%)
Chile	..	2	2	21	20	41
China	9	1	10	74	2	76
Indonesia	21	1	22	51	9	60
Korea	3	2	5	15	14	29
Mexico	8	0	8	37	1	38
Peru	5	1	6	98	5	103
Philippines	13	1	14	100	3	103
Russia	25	5	30	73	36	109
Thailand	8	1	9	15	5	20

Source: Wilson *et al.* (2003).

10. The basic version of the gravity model relates the volume of bilateral trade flows to the economic size of trading countries as well as to measures of distance that serve as a proxy for trade costs. The attractiveness of gravity models stems from their consistency with both the classical and new trade theories as well as their relatively high empirical explanatory power (see OECD, 2005b, for further discussion).

The impact of trade facilitation on government revenue

In addition to the potential cost savings that trade facilitation can bring to traders, benefits may also accrue from more efficient and reliable tax collection, which is particularly important for many developing country governments that depend on trade taxes for financing their public administrations.[11] Weaknesses in domestic institutions often render taxation of consumption difficult, or indeed unmanageable, and the collection of tariff payments and other trade taxes may sometimes be easier to enforce in developing countries. OECD (2005c) has estimated that taxes on international trade and transactions make up more than a third of government revenue in countries like Côte d'Ivoire (41%), Lesotho (39%), Madagascar (36%) and Vanuatu (34%). Raising the efficiency of weak customs administrations is thus likely to have a positive impact on revenue collection.

Traders benefit from reductions in costs and delays at borders and from increased predictability and transparency of customs clearance procedures. Customs modernisation programmes in developing countries often aim both to reduce customs clearance times and to increase government revenue. "Actual revenue" can be much lower than "potential revenue" because of corrupt and incompetent customs officials or because of inadequate and outmoded customs procedures. Smuggling is another big problem in countries with porous borders and severe border barriers. Customs modernisation in countries that suffer from high levels of smuggling may significantly reduce informal trade flows and thereby increase their tax base. The case studies on Angola, Mozambique and the Philippines describe dramatic increases in trade flows due to reductions in smuggling. Like any monopoly, customs administrations may have limited incentives to improve their productivity. Introducing effective reform programmes requires time, resources and commitment at all levels, and these are seldom readily available.

Despite some countries' cautious approach to the trade facilitation negotiations in Geneva, trade facilitation is largely considered to be a win-win solution for traders in developed and developing countries alike. Countries that are sceptical about new trade facilitation initiatives generally do not question the objectives but rather worry about the costs of customs modernisation and question whether new commitments should be binding or not.

11. OECD (2005c) analyses the impact of tariff reductions on developing countries' government revenue. It also offers a discussion of tax reform policies that could accompany tariff reform, including references to past experience with trade-related fiscal adjustment.

While costs may have exceeded the benefits in some cases, the studies summarised in Table 3.7 prove that the benefits have often exceeded the costs by a wide margin. "Trade facilitation is not about impeding or diminishing individual government's power and sovereign right to protect their borders…[but rather]…a way of making the necessary work of customs and other authorities cheaper and more efficient." (SWEPRO, 2003)

As Chapter 4 in this volume points out, revenue enhancement appears to be a principal incentive for customs reform. Revenue losses from inefficient border procedures have been estimated to exceed 5% of GDP in some cases. In addition, high TTCs have been found to offset some countries' competitive advantage in terms of their labour costs. Staples (2002) reports that arguably the main reason why more than 40 governments are using pre-shipment inspection (PSI) is because they need to deal with inefficient and corrupt customs authorities. Revenue collection shortfalls of up to 50% are reported to have occurred in some countries.

Several countries' experiences show that trade facilitation has a net positive effect on customs revenue collection. Table 3.7 describes the fiscal outcome of various types of customs modernisation programmes in 12 countries. From moderate action plans implementing single-window automation systems (including Singapore) to the complete overhaul of the customs administrations (Angola, Bolivia or the Philippines), trade facilitation shows that the potential gains are substantial.

Developing countries with weak customs administrations have in many instances managed to increase customs revenue by a factor of two – and sometimes by more – over a relatively short period of time. The countries with the largest potential to increase customs revenue are often the very countries with the least capacity to implement a comprehensive long-term customs reform programme. As Table 3.7 indicates, technical assistance has played an important role. Most countries received some form or combination of technical assistance from the World Bank or the World Customs Organization (WCO), financial assistance from external aid agencies, or have engaged in public-private partnerships.

Table 3.7 only takes into account revenue collected at the border. Perhaps as important is the related efficiency-enhancement effect that arises from increased trade and more efficient employment of production factors. These effects are likely to be evident only in the medium and long term. Several of the countries described are still in the process of implementing their customs reform programme. Design and implementation of ICT networks, training of customs staff and the use of effective tools – such as risk assessment which is dependent on trade statistics – take considerable

time. Any reform programme – no matter how comprehensive from the start – requires incremental improvements of which the results are often only seen in the long run.

Table 3.7. Trade facilitation and government revenue: country experiences

Angola OECD (2005a)	Following years of civil war and a poorly operating customs administration, Angola adopted a customs expansion and modernisation programme in 2000. Crown Agents were hired to help design and introduce a thorough reform programme. The reforms focused on institutional weaknesses of the customs authority and six priority areas were identified. These included a reorganisation of the customs authority, the design and introduction of a new customs legislation framework, investments in HR management and training, the introduction of new customs procedures, financial management practices and the implementation of new IT equipment. Half-way through the five-year programme, revenue receipts had increased by 150% and customs processing time had been reduced to 24 hours for correctly submitted documentation.
Bangladesh Abid Khan (2004) Draper (2000)	In mid-1999, Bangladesh initiated a customs modernisation programme after domestic and international pressure had heightened awareness of the poor state of the customs administration. The first wave of reform saw the implementation of ASYCUDA++, a simplified tariff schedule, the introduction of PSI and strengthening of training and competence building. Despite some significant operating problems, six months after the start of the programme customs revenue was up by 14% year-on-year and Draper concludes that the scheme was at least in part responsible for this increase in import tax revenue. Customs clearance times were reduced to 1-3 days for imports and 3-8 hours for exports.
Bolivia Escobar (2004) Gutiérrez (2001)	In 1997, Bolivia introduced a customs reform project aimed at a total reengineering of the customs organisation, staffing, and its processes and procedures to restore institutional credibility, improve tax collection, and reduce high levels of corruption. The reform processes included the implementation of a new legislative and regulatory framework, a new organisational structure with previously corrupt customs official made redundant, and replacement of around 80% of staff. Wages were significantly raised and ASYCUDA++ was implemented. Despite certain setbacks and shortcomings, two years after the reform process was initiated, both corruption and customs clearance times had been substantially reduced. However, following the economic slowdown, there was a reduction in imports and private investment. The drop in imports exceeded the decline in customs revenue. In 2000, customs collection was up by 11% or 25% if account is taken of tariff reductions.
Bulgaria WTO TPR (2003)	Bulgaria has drastically reformed its customs administration since 1998 when it harmonised its customs legislation with that of the European Union. Most restrictions to the importation of goods were removed and in 2001, all specific registration requirements for customs purposes were eliminated. Bulgaria also introduced a single administrative document for customs declaration and a number of other measures to tackle the problems with administrative and operational capacity. The senior management of the Customs Agency was changed in 2002 and a three-year programme of customs reform was initiated with the assistance of Crown Agents. This programme aimed to improve the customs legislation and management practices, train customs officials and improve customs controls and anti-smuggling activities through the deployment of "mobile assurance teams". The World Bank assisted the work with institutional reform and trade facilitation. It also helped to improve the Bulgarian Integrated Customs Information System. Since September 2002, when mobile assurance teams were introduced, there has been a steady increase in customs revenue. In January-May 2003, revenues increased by 158% year-on-year.

Ghana De Wulf (2004)	During the 1990s, Ghana introduced a number of reform initiatives to improve capacity and efficiency at its customs authority and the country also started to implement a more open trade policy agenda. In early 2001, Ghana introduced a customs ICT network based on a model of Singapore's TradeNet. The customs system was initiated as a public-private partnership with a number of stakeholders offering experience and competence while sharing costs and risks. In mid-2003, the network covered 90% of Ghana's total trade flows and government revenue collected from airport traffic had increased by approximately 30% on a yearly basis when checked for currency changes and an increase in imports. In addition, customs clearing times were significantly reduced. For example, at the main international airport, average customs clearance time was down from three days to four hours.
Jamaica Staples (2002) UNPAN (2002)	In 1993, Jamaica's government initiated a reform programme following complaints about widespread corruption and poor administrative practices. The reform programme included the implementation of a single-point clearance mechanism, the introduction of risk assessment procedures and the publication of a customs manual of procedures setting out all customs rights and responsibilities in export clearance. A customs automation service was later introduced and Crown Agents was contracted to implement software components for risk analysis, intelligence collection and data processing for valuation purposes. As a result of these initiatives, there was a steady and significant increase in revenue collection despite little or no economic growth in the country. Between 1998 and 2001, customs revenue increased by 110%.
Morocco Steenlandt and De Wulf (2004)	In 1996, Morocco's customs administration was highly inefficient: in the main port of Casablanca, releasing a container took on average 18-20 days. A reform process was initiated and covered all aspects of customs operations, including an overhaul of the customs code, the implementation of the Customs Valuation Agreement of the WTO, new staff incentives and training, and focus on ICT. The results were impressive. Imports (other than for home consumption) increased by 48% between 1996-2002 while customs revenue increased by 8% despite progressive tariff reductions. Customs clearance times were reduced to an average of 1-2 hours in 2001-03.
Mozambique OECD (2005a) Mwangi (2004)	In 1997, Mozambique introduced a new customs programme – including a PSI scheme – which thoroughly reformed the customs administration. The reforms focused on improving the customs legislation, systems and procedures, HR management, organisation, IT and financial management. Crown Agents had also been hired in 1996 to help manage the customs authority. During the first two years of the programme, imports increased by 4% while customs revenue increased by 58% despite significant duty rate reductions. There was also a marked reduction in the clearance time of goods at the country's principal points of entry: in the capital Maputo, 80% of road imports and 62% of imports by sea are cleared by customs within 24 hours of correctly submitted documentation. Initial investments in the customs administration were recovered within 14 months from additional revenue receipts.
Peru Goorman (2004)	Following an economic crisis in 1990 and a number of failed attempts at reforming its customs administration, Peru finally managed to implement a customs reform programme in the beginning of the 1990s. It reduced the number of tariff levels from 39 to two, initiated competence-enhancing programmes and brought in automation systems and best practices in line with international standards. Despite a reduction in the average tariff level and the number of staff (from 3 800 to 2 600), customs revenue increased by 105% between 1990 and 1992 (327% in 1990-95) whereas the value of imports increased by 37% over the same period (175% in 1990-95). Customs release time dropped from range of 15-30 days to 2 hours to 2 days.

Philippines Keen (2003) Bhatnagar (2001)	In 1995, the Philippine customs authority decided to implement ASYCUDA++ for payment, risk assessment, clearance processing and shipment release from customs control. This was a response to fraud in the customs administration and unduly long clearance times due to highly bureaucratic control procedures. One of the goals was also to raise government revenue. The cost of the project was approximately USD 27 million. The results were positive: customs clearance time was reduced from an average of 8 days before automation to 4 hours to 2 days following its introduction. The Philippine customs authority experienced significant problems during the implementation phase and the Asian financial crisis also affected trade. Nevertheless, the net present value of increased revenue was considerably higher than the expenditure and customs was able to meet revenue targets in three of six years. Between 1990 and 1996 imports grew by 160% while revenue grew by 60%.
Singapore United Nations (2002)	In 1989, Singapore introduced TradeNet, a highly efficient electronic trade document system which cost the country SGD 20 million to develop. The system linked trade parties – including 34 government units – to a single point of transaction for most trade-related activities. These activities cover customs clearance, payments of duties and taxes, processing of import and export permits and certificates of origin, and the collection of trade statistics. Studies suggest that the new system reduced trade documentation processing costs by 20-35% for traders. Singapore is the largest trader in the world when trade flows are measured in relation to GDP and government revenue is not linked to trade taxes. Nevertheless, Singapore claims that properly applied trade facilitation is saving it in excess of 1% of GDP each year.
Uganda De Wulf (2004)	Uganda undertook a comprehensive reform programme in the 1990s which aimed at trade liberalisation and customs modernisation. The initiatives included the establishment of an independent revenue agency to improve revenue collection. Again, as in the case of Angola and Mozambique, the reforms included an overhaul of the entire customs authority including significant changes to the tariff schedule, improvements of the customs legislation, emphasis on HR management, implementation of ICT through ASYCUDA++, and simplification of customs procedures. Revenue of the Uganda Revenue Authority increased from 7.7% to 13.0% of GDP in the ten-year period to 2002.

There are several examples of failed customs reform programmes. The issues and the reasons why some countries have failed are not discussed here, but the challenges and costs involved are acknowledged. The experiences presented in Table 3.7 show that successfully implemented reform programmes can bring impressive results in terms of reduced customs clearance time and increased revenue. It is difficult to estimate the revenue effect of customs modernisation since tariffs in many of the country cases were reduced or tariffs schemes simplified. Tariff reductions along with customs reform result in understating the true revenue effect.

The experiences described in Table 3.7 indicate some general trends:

- Successful implementation of customs reform programmes can bring significant increases in customs revenue in countries with weak customs administrations.

- Even moderate modernisation initiatives can bring quantifiable improvements in customs revenue.
- Some customs reforms show that customs revenue remained stable after significant cuts in tariffs.
- Financial improvements are not necessarily immediate since reform programmes are implemented over time.
- Technical and financial assistance were crucial components in many of the reform programmes in developing countries. Public-private partnerships also helped some countries to address their customs issues.

The impact of trade facilitation on foreign direct investment

Global sourcing, *e.g.* by multinationals locating production capacity in foreign countries, represents a significant share of international investment flows as international production chains increasingly depend on manufacturing in developing and emerging market economies. Manufacturing industries require cheap, quick, transparent and predictable customs services. Countries that wish to attract investment in labour-intensive sectors are thus likely to gain from modern and efficient border procedures. Inefficient border procedures give rise to TTCs that are included in the cost-benefit calculations used by companies to evaluate alternative locations. Inefficient border procedures can thus generate potentially high opportunity costs. This is underscored by empirical evidence provided by Radelet and Sachs (1998) who show that countries with lower TTCs have experienced higher economic and manufacturing export growth over the last three decades than those with higher TTCs (here equivalent to transport costs). The authors also note that in a sample of 90 developing countries, none of the 15 largest manufacturing exporting countries was landlocked during the period 1965-90.

The positive effect of trade facilitation measures on FDI is largely taken for granted in the economic literature. Little empirical work has attempted to verify this. Earlier studies (*e.g.* Kinoshita and Campos, 2004) have shown, for example, that good governance and open markets have positive impacts on FDI flows. From a business perspective, high predictability and low direct and indirect TTCs are key factors in investment decisions. For a typical investment project, a rough first assessment removes candidates on the basis of a fixed set of performance criteria. Thereafter, a more thorough analysis is made to compare a larger set of variables for candidates that fulfil general criteria. Direct and indirect costs such as the cost and risk associated with a country's border procedures are included in the cost calculations.

Ultimately, the chosen candidate location will be the one that comes out on top in the cost-benefit analysis.

Box 3.1 describes how border procedures affect investment decisions at Philips Electronics and Unilever Plc. and shows how costs related to border procedures are estimated and included in cost calculations used in the evaluation process. Multinationals have a relative advantage compared to SMEs for circumventing some of the inherent inefficiencies at borders. Large companies have dedicated teams which work exclusively on customs clearance and trade procedures and can sometimes negotiate special deals with the customs authorities in countries in which they invest. For example, a European flower company that recently decided to grow and import flowers from Ethiopia negotiated a deal with the Ethiopian customs and airport authorities to have access to and store the flowers in an airport hangar. The deal also allowed the company to clear customs and transport the flowers by air on any day of the week.

Another example is provided by a Dutch company which grows and imports plants and flowers from Kenya and South Africa. In this industry, quick and predictable customs clearance – in addition to efficient transport and logistics services – is key for the survival of the flowers. Only a few hours of extra waiting time at 35 °C as well as slow unloading and handling procedures at cold Dutch airports can seriously damage the shipment. If delivery is late, the products may be difficult to sell, especially in the case of flowers targeting the Christmas and Easter season. In order to minimise prospective losses due to irregular customs clearance, the company has detailed agreements with local cargo companies that guarantee customs clearance and transport. In addition, quick delivery requires co-operation between customs officials and SPS inspection personnel. Dutch investments in the South African and Kenyan plant and flower industry would be less likely without solutions to these border issues.

One of the few studies that has empirically examined the importance of trade facilitation for foreign investment is by Dollar *et al*. (2004). Based on survey results from 7 302 companies in eight developing economies (including Brazil, China and India), the authors conclude that "customs clearance times … are key determinants of foreign investment". Maximum likelihood estimates show that customs clearance times are key determinants of FDI and export status.

Box 3.1. Border procedures and investment decisions at Philips Electronics and Unilever Plc.

Philips Electronics is Europe's largest electronics company. Its 161 000 employees are active in over 60 countries and sales topped EUR 30 billion in 2004. The company operates a fairly decentralised organisation and has a large number of production units located around the world. These units work closely together in a complex global supply chain.

Philips has established a specialised service unit consisting of 150 professionals which assists the movement of goods across borders. The unit handles issues related to border and customs procedures, such as customs declarations, customs invoices, etc. The work of roughly 40 of the professionals concerns the Chinese market, which represents about 25% of production and 20% of sales.

Customs procedures are seldom a major issue in Philips' investment decisions. Customs issues are only high on the agenda when production is outsourced and short lead times are critical and documentation requirements complex. Customs procedures are normally taken into consideration at the end of the investment evaluation process. Potential locations are first identified using a broad set of criteria, and the company only investigates the efficiency of the candidate countries' customs procedures in the final stages of the evaluation process. Customs procedures are less important for investment decisions in major markets. For example in China, Philips enjoys an early-mover advantage and its dedicated service unit for border issues has long since established relations and agreements with local authorities concerning customs clearance. The company's relative market size and importance as a large foreign investor also play an important role in its ability to affect border barriers. For example at the beginning of the 1990s, Philips invested in production facilities in Hungary, and one of its conditions was that the local authorities would agree to cut clearance time, which was a major hurdle at the time. The company managed to negotiate a cut in customs clearance time from an average of 4-5 days to 1-2 days.

Unilever Plc. is one of the world's largest consumer goods companies with 223 000 employees in 150 countries. In 2004, the company had a turnover of EUR 39 billion and sales were generated fairly evenly around the world. Much of Unilever's production in developing and emerging market economies is aimed for the domestic or regional markets. Production for domestic markets and the need for raw material and inputs highlight the relative importance of efficient border procedures in the countries where Unilever has production facilities.

The size and characteristics of local markets matter most in Unilever's evaluation of where to locate production capacity. However, investment decisions in emerging markets also take into account issues such as good governance, transport and logistics systems, and economic and political stability as investment decisions imply long-term commitments. The investment decision is in the end based on a cost-benefit analysis of locations that fulfil general requirements. TTCs stemming from inefficient border procedures are estimated and included in the overall calculations which also include many other variables, such as import duties for the importation of raw and input material, transport and logistics costs, production costs and costs related to SPS regulations and to technical barriers to trade.

Customs clearance time and predictability are of particular concern in the food business. Unilever has production facilities in several Sub-Saharan African countries including Ghana, Kenya and South Africa. Regional agreements covering border procedures are of particular value here, including mutual recognition agreements acknowledging neighbouring countries SPS regulations.

Source: Consultations with Philips Electronics and Unilever.

Dollar *et al*. (2003, 2004) also found considerable variation in customs clearance time from one location to another within countries. The study concluded that the measure for the longest clearance time is useful for measuring predictability. The longest clearance time was in many cases found to be twice the average clearance time. Another study by Eifert and Ramachandran (2004) estimated that if the number of days required to clear customs were halved in Ethiopia, average firm-level productivity would increase by 18%. The authors reckon that since Ethiopia is in the middle range for surveyed least developed countries (LDCs) on customs issues, the returns to effective customs reform in more inefficient countries are substantial and have significant potential to raise investment attractiveness.

Volatile delivery forces companies to keep higher levels of stock. Gausch and Kogan (2001) found inventory holdings in manufacturing to be 200-500% higher in developing countries than in the United States. The authors estimate that halving inventories could reduce unit production costs by 20%. Better transport and logistics systems not only lower the costs of delivery, but make the timing of delivery more reliable. A significant share of FDI in developing economies goes into production facilities which make goods aimed for export markets. Filmer's (2003) study concludes that the importance of customs administration to FDI decisions is not negligible. This also holds for domestic investment. In many developing countries, where capital is scarce and capital costs are high, delays that tie up capital are particularly costly.

The European Round Table of Industrialists recently conducted a survey among its members to examine their views on trade facilitation issues.[12] More than one-fifth of the companies were found to have foregone or abandoned investment opportunities or business activities in developing countries because of inefficient border procedures. More than two-fifths had also done so in transition economies, while none had abandoned investment opportunities in the OECD area because of customs issues. Moreover, four-fifths of the companies stated that substantial improvements in trade facilitation would make them look more favourably at new local investments or added business activities in developing countries. Seven out of ten companies indicated that this was the case for transition economies. Three out of ten also replied that OECD countries would be more attractive FDI locations if they were to improve border procedures.

12. Because the survey targeted multinationals, the shares would likely have been larger if SMEs had been included.

Conclusions

Many countries have inefficient border procedures that make traders suffer from delayed and unreliable delivery, costly customs clearance and missed business opportunities. Successfully implemented trade facilitation programmes may reduce trade transaction costs, increase customs productivity and improve the collection of trade taxes. This chapter has examined the link between trade facilitation and trade flows, government revenue and foreign direct investment.

A review of existing business surveys and quantitative estimates uniformly indicates that there is a significant and positive link between trade facilitation and trade flows. Even fairly modest reductions in trade transaction costs have a positive impact on trade in both developed and developing countries. The trade effect is relatively more pronounced for developing countries than for developed countries, partly because of their generally less efficient border procedures. The quantitative literature typically divides efficiency-enhancing border procedures into improvements in customs procedures and in port standards. Available estimates show that potential gains from increased port efficiency are relatively larger than those for improved customs procedures.

Twelve short case studies of country experiences show that customs modernisation programmes can have a marked positive effect on the collection of trade taxes if effectively implemented. Several countries have more than doubled their customs revenue after the introduction of comprehensive reform programmes. Their experience also indicate that even relatively modest modernisation programmes have brought quantifiable increases in customs revenue. However, the financial return may take some time to appear, since modernisation programmes usually are implemented over an extended period of time.

The study also shows that trade facilitation has a positive effect on investment attractiveness. For businesses, inefficient border procedures give rise to trade transaction costs. These are included in cost-benefit calculations when companies evaluate the attractiveness of different locations. Border procedures are of particular importance in attracting investment in industries that produce time-sensitive or perishable goods. Reduced customs clearance time and improved logistics systems have proved to be critical in attracting FDI and creating certain types of new businesses in developing countries.

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Chapter 4

Trade Facilitation Reform in the Service of Development

by

Evdokia Moise

The aim of this chapter is to deepen understanding of the costs and benefits of trade facilitation for developing countries, as well as the costs of not undertaking trade facilitation. It focuses particularly on customs operations and customs reform undertaken recently in a number of developing countries, reviewing the key problems that such reforms have sought to overcome, the approaches that countries have adopted to address them, and the results. The discussion is supported by illustrative country case studies, to explore in further detail the rationale, the methods and the results of reform.

OVERCOMING BORDER BOTTLENECKS: THE COSTS AND BENEFITS OF TRADE FACILITATION – ISBN 978-92-64-05694-7 © OECD 2009

Introduction

Trade facilitation and the benefits it can bring to the world economy as well as to individual countries have lately been the subject of considerable attention in OECD countries. A number of studies have attempted to produce broad quantitative estimates (OECD, 2001. All these studies look specifically at the effects of trade facilitation on business activity, or, in the case of quantitative estimates, on the wider impact on the world economy. However, the specific situation of developing countries and the impact customs reform in general and trade facilitation endeavours in particular may have on their economic welfare warrants particular consideration. As developing countries seek ways to leverage trade for economic growth, policy tools and reform measures aimed at reducing border barriers to trade may provide a welcome tool for development.

This chapter seeks to deepen understanding of the costs and benefits of trade facilitation as well as the costs of *not* undertaking trade facilitation. It focuses particularly on customs operations and customs reform, although reference is also made to related areas, like port management, phytosanitary controls or logistics.[1] The country information used was assembled from publicly available documents of the relevant administrations and donor agencies, as well as from a number of original country studies commissioned by the OECD to Crown Agents, or made directly available to the Secretariat by the countries concerned.[2]

The chapter first examines the main drivers that have motivated reform endeavours and the key problems that such reforms have sought to overcome. Next are explored the types of institutional and resource-related weaknesses underlying the problems at hand and the approaches that governments have adopted to address them. Then, the results that reforms have produced are reviewed, in terms of improved revenue collection, enhanced management efficiency, reduced clearance times and business

1. The focus here is partly broader, partly narrower than the scope of trade facilitation discussions in the WTO: broader, because the reforms reviewed were not only aimed at facilitating trade but more generally at enhancing state efficiency; narrower, because, while efficient facilitation goes beyond customs reform, the rethinking of other border procedures is insufficiently documented to allow for analysis.

2. Information and data in this study refer to the following countries: Angola, Argentina, Azerbaijan, Bangladesh, Cambodia, Chad, Chile, Colombia, Egypt, Georgia, Ivory Coast, Lebanon, Madagascar, Malawi, Mauritania, Mozambique, Nepal, Peru, Rwanda, Singapore, Tanzania, Uganda, Zaire and Zambia.

burden, as well as investment attractiveness. Finally, some conclusions are presented.

The drivers of reform

Building momentum

Customs is one of the oldest government institutions. Until recently their modes of operation had changed very little over time in both developed and developing countries. In the last decades, however, customs administrations have undertaken important reforms and gradually adopted substantially different modes of operation, and even different operating philosophies. The reason for these recent transformations is a significantly changed operating environment both for government agencies overseeing international trade and for the business community. A number of factors are particularly important:

- Steady increases in trade volumes. These are a consequence of the reduction of tariff and other trade barriers during successive GATT rounds. As a result of trade liberalisation, the volume of international trade has expanded relative to the size of many national economies.
- ***Increases in trade complexity***. Whereas in the past multinational corporations might have sought to identify the most cost-effective location for manufacturing a finished product, the pressures of globalisation are now forcing them to use different locations for the manufacture of sub-components that then enter a final product. Free trade agreements and preferential trade arrangements have also made the trade management process more complex and imposed escalating demands on customs resources because of the proliferation of complicated and burdensome rules of origin for conferring preferential status.
- ***Increased speed of trade***. Modern supply chain management techniques and the rapid spread of new information technologies, the Internet and e-commerce have increased the use of "just-in-time" manufacturing. In this environment, businesses cannot afford to have imported or exported goods tied up for long periods because of unnecessary or overly complicated trade procedures and requirements.

As a result, national customs authorities and other border agencies have to process ever higher trade volumes, and the demands and expectations of the international business community have risen dramatically. In these circumstances, previously satisfactory operating methods have proven largely inadequate and needed to be rethought, while problems attributable to already sub-optimal methods are exacerbated. As levels of international

trade increase, the economic consequences of outdated or excessive border regulations that delay or impede the movement of goods become ever more apparent.

The motivation of change is basically the same across countries. The business community has been a "harmonising" factor and a significant driving force for customs changes. According to a recent World Customs Organization (WCO) survey,[3] some of the most important factors motivating customs reform have been the country's economic integration into free trade agreements or customs unions; international trade liberalisation and the increase in trade volumes; the changing role of the state and the need to improve the efficiency of government agencies; the impetus of structural adjustment programmes to restore fiscal equilibrium; and the implementation of new taxation regimes.

Among developing countries in particular, international trade liberalisation and expanding trade volumes are seen as the essential driver of reform. They also see the need to diversify existing indirect tax regimes in order to maintain revenue yield and the need to improve government performance and respond to budgetary concerns. Given their capacity constraints, increased drug and security threats are also important (if lesser) priorities.

In developing countries, past and current customs and trade facilitation reform is often driven by general economic considerations, based on the recognition that customs and border procedures can play a central role in the country's economic welfare. In Lebanon, customs reform was part of a wider Revenue Enhancement and Fiscal Management Project. The project, undertaken in 1995, aimed to improve the management of the Ministry of Finance, and it targeted domestic taxation and customs with a view to regaining the country's regional trade competitiveness through reforms focused on trade facilitation. The customs component of the project aimed to increase the efficiency of the customs administration and thus to encourage trade, including exports, increase customs revenues, reduce business costs and facilitate the formulation of trade policy.

A closer look at Latin American and Caribbean (LAC) countries shows that since the mid-1980s customs reform has been a central feature of wider, and quite ambitious, structural reform programmes to liberalise and open the economies, redefine the role of the state, enhance competitiveness and democratise the political processes. Trade reform, coupled with renewed capital inflows and increased economic activity, contributed to a boom in imports (prior to the Asian crisis, the value of imports grew at an annual rate

3. www.wcoomd.org/ie/en/topics_issues/customsmodernizationintegrity/surve_e.htm.

of 18%) and a significant shift from the earlier strategy of import substitution. The growth of international trade substantially increased the customs workload in every country of the region, and it became obvious that many were unable to respond as quickly as necessary. This highlighted the need for profound changes in customs operations, so that customs could play a positive role in the overall process of trade liberalisation and attraction of investment. It emphasised the need for a shift in the mentality and attitude of customs staff from their traditional revenue collecting approach to a more service-oriented stance (Rey de Marulanda, 1999).

For instance, in the early 1990s Chile initiated a customs reform programme as part of a larger Plan for Modernising the Public Administration. Customs reform was widely recognised as a high priority in light of a cumulative expansion of foreign trade of 142% in real terms between 1990 and 1998. In addition, during this time frame, Chile concluded a number of free trade agreements, each featuring a unique set of complex rules of origin and calling for significant resources for proper administration and verification. The introduction of trade facilitation measures represented a practical way to relieve the pressure on an overworked bureaucracy.

Development assistance projects promoted by international aid agencies have been another driving force behind customs reform in developing countries. Experience shows that such projects can build momentum for reform, provided that the need is also felt at the national level and concerned administrations assume ownership of the project (see below). In the early 1990s, the adoption by Egyptian customs of information technologies and new logistics, such as just-in-time inventory control, was primarily driven by international organisations in an attempt to exploit the allocated development aid funds. However, owing to the lack of domestic awareness of the potential business impact of such technologies and of domestic demand-driven initiatives, the establishment of value-added service networks in Egypt was delayed (Cox and Ghoneim, 2000).

Finally, in countries where customs reform and trade facilitation have produced significant benefits, the process of change, automation and improvement appears to create its own momentum. This momentum is usually generated not only by expectations of further positive returns but also by the establishment of a culture of excellence among committed individuals and groups, modelled on the example of the entities that initially designed and implemented the reforms. Wide-ranging and successful customs reform and trade facilitation initiatives in Peru enabled the customs administration to obtain ISO Quality Management Certification 9002 in December 1999. This achievement, combined with high levels of existing

automation and transparency, has been critical for the recent launching of second-generation reforms in Peruvian customs (Zaconeta, 2003).

Addressing key symptoms

The changed operating environment created by globalisation and trade liberalisation exacerbates and highlights a number of structural problems in the operations of customs and other border agencies. In countries undertaking reforms, clear evidence of malfunctioning has led to equally clear recognition of the need to evolve. The strongest incentives for reform efforts have been: unsatisfactory revenue collection and smuggling problems; problems of corruption; heavy transaction costs for business; poor export competitiveness and attractiveness for investment; and difficulties in implementing trade policy.

Unsatisfactory revenue collection and smuggling problems

In developing countries customs is often the largest contributor to the state budget. Yet, in some of these countries loss of revenue may be extremely high because of inefficient customs collection mechanisms. In Bangladesh it was calculated that, prior to reform, economic losses from inefficiency in Chittagong Port amounted to as much as 5% of the value of goods passing through the port, a sum that exceeded USD 600 million a year. The revenue loss to government from corruption and inefficiency in the customs and income tax departments was estimated to exceed 5% of GDP, without counting the real costs to the economy arising from discouragement of potential investors (Draper, 2001; Mombarac Ali Mola, 2001). In Zaire a thriving informal economy is estimated to generate fiscal losses of some USD 400 million a year in foregone taxes and customs fees (de Castro, 1996).

A review of past reforms in developing countries, including those discussed later in this chapter, shows that revenue enhancement appears to be the strongest incentive for customs reform. As tariff rates decrease as a result of ongoing trade liberalisation, dealing successfully with the problem of revenue collection may help maintain much needed revenue. In Peru, prior to the reforms initiated in 1990, fiscal revenues from customs represented only 23% of the state's total fiscal revenue (USD 626 million for year 1990), despite duties ranging from 10% to 84% of the value of imported goods. Following the reform, customs contributed 35% to national fiscal revenue thanks to a four-fold increase in customs revenue (USD 2.7 billion in 1996) and despite reductions in duties of between 15% and 25% (Zaconeta, 2003; Lane, 2000). Clearly, earlier revenue collection was far below potential.

In both Angola and Mozambique, the explicit goal was to raise revenue collection levels. The countries' civil wars had a disastrous effect on customs' performance, and, as part of the reconstruction effort, the authorities of both countries considered it essential to take drastic measures to boost public revenue.

Lost revenue can be due to understatement of the customs value of consignments, smuggling of goods into the country, especially in the case of high-duty goods, or diversion of collected revenue into corrupt officials' pockets. The lack of efficient detection mechanisms and insufficient sanctions in the rare cases where fraud is detected generate and aggravate opportunities for smuggling and commercial fraud. In a number of developing countries, customs lack anti-smuggling units or there is no co-ordination of anti-smuggling activities among such units, as was earlier the case in Peru. Furthermore, penalties are frequently an insufficient deterrent to fraud, and when formalities are costly, it may be financially more rewarding for traders to evade customs, as in Angola. Such situations may be all the more damaging as they put importers who actively seek to comply with customs requirements at a competitive disadvantage.

A number of developing countries choose to address valuation problems through the use of pre-shipment inspection (PSI). However, PSI may offer little help if it is not matched by more general efficiency-enhancing measures. The introduction of a PSI scheme in Mozambique without parallel enhancing of the technical and institutional capacity of the customs administration did not stop revenue collection from collapsing in 1995. In Cambodia, importers frequently choose to clear dutiable goods directly through customs, despite a PSI circumvention penalty of 7% on the c.i.f. value of the goods. It appears in this case that potential gains from customs fraud are large enough to counterbalance the 7% surcharge of the penalty.

The prevalence of smuggling, despite the attendant risks and costs, frequently reflects high transaction costs in the formal sector. In certain countries with high tariff rates, substantial red tape and inefficient administration, the dimensions of the phenomenon may be alarming. The challenge in such cases is to reduce tariff and non-tariff costs to a level where smuggling is no longer worthwhile. In addition to its impact on state revenue collection, smuggling into a country of goods that are also produced domestically and on which local taxes are paid may strongly discourage investment. Shadow or illegal imports into Georgia are estimated to amount to somewhere between 30% and 70% of total domestic demand for some commodities (The World Bank, 2000). Smuggling of beverages, petroleum and milk products into Cambodia is estimated at approximately USD 35 million of foregone revenue. Comparisons of ship manifests with import declarations suggest that only 25% of the volume of goods shipped to

Cambodia and not subject to PSI are declared to the Customs and Excise Department. It is also believed that up to 80% of the cigarettes imported into Cambodia are smuggled into Vietnam (Integrated Framework Cambodia, 2001).

Corruption problems

In many developing countries, corruption in customs administrations is strongly encouraged by the combination of very low salaries and many opportunities for rent seeking. The Integrated Framework 2001 study for Cambodia indicates that the low average annual civil service salary (only 1.1% of GDP per capita in 2001 and, at USD 0.60 a day, well below private-sector wages even for unskilled workers) creates substantial pressure to engage in additional income-generating activities simply to meet basic household expenditures. Opportunities to raise income offered by customs administration posts, in particular at the border, are reflected in the informal price ("concession fee") required to secure such a post. Some of these posts are bought and sold on the understanding that they provide access to charging for clearance services. The value of the concession fee is rumoured to have increased significantly from USD 2 000 a few years ago to USD 10 000 today; the successful bidder recoups the cost by subjecting traders to informal fees for clearance. Conversely, the successful reform undertaken by Peru is partly attributed to an increase in salary levels coupled with a clear policy of enhancing the corporate identity of customs staff, so as to make them proud of the institution.

The most immediate problems posed by corruption are the significant drain on public revenue and the surcharge imposed on trading businesses. Payments that end directly in customs officials' pockets are believed to represent considerable amounts, although it is not possible to distinguish within revenue collection problems what is due to corruption from what is due to smuggling and general bureaucratic inefficiency. Furthermore, government services relating to the clearance of imports and exports come generally at an additional informal "facilitation" cost, beyond what is normally officially required. According to the Integrated Framework study, informal payments, believed to be around USD 200 to USD 300 per vessel, are necessary to encourage customs and immigration services in the ports of Sihanoukville and Phnom Penh to operate beyond 5 p.m., although both ports are equipped to handle vessels around the clock. Such surcharges usually end up as an additional burden on the importing country's consumers, including the productive sectors that use imported inputs; in the case of exports they severely hamper the country's export competitiveness. In either case they primarily victimise the country's own economic welfare.

However, insufficient revenue collection and additional taxing of trading activities are not the only damaging effects of corrupt practices. In a 1996 joint review, UNCTAD and the World Bank noted that:

> "the key facilitation problem is not the danger to effective controls posed by practices in which irregular payments can move goods through the strictest regulatory systems, nor the extra unofficial charges levied on innocent as well as fraudulent traders, but rather the logical obligation to maintain unnecessary complexities and foster endemic delays for the general run of consignments, so as to justify bribes for exceptional simplifications."

The need to preserve corrupt officials' rent-seeking opportunities creates an incentive for physical inspection of all consignments and a serious disincentive to apply selective risk management techniques. As a result, a number of essential trade-facilitating and efficiency-enhancing measures will stand little chance of implementation, less because of the budget cost of introducing them than because of their lost-profits effect on a constituency that will oppose any change in the *status quo*.

Heavy transaction costs for businesses

Informal "fees" for importing and exporting business, as well as indirect costs for domestic productive activity are further compounded by the direct and indirect transaction costs generated by complex documents, procedural delays and lack of regulatory transparency and predictability (for a detailed discussion of the components of direct and indirect transaction costs for businesses, see OECD, 2001). In the ABAC/APFC Survey on Customs, Standards and Business Mobility (2000), business people identified customs procedures as the most serious trade impediment, with 53% of total respondents describing the issue as a "very serious" or "serious" problem. This was the case for 55% of respondents in the manufacturing sector, 50% in the services sector, 60% in the primary sector and for 69% of respondents in developing economies, but only 39% of respondents in industrialised economies. Among customs issues, the most problematic was the complexity of customs regulations for 52% of respondents, followed by lack of information on customs laws, regulations, administrative guidelines and rulings (49% of respondents) and problems with the mechanism for appealing customs decisions (43% of respondents).

Customs procedures and institutional interference play a considerable part in excessive delays at ports and border posts, although inefficiency is by no means limited to customs. Port management inefficiencies are frequently a significant factor. In India port equipment is reported to remain idle about 20% of the time, while the port of Baku in Azerbaijan is estimated to utilise

only 13% of its total capacity (The World Bank, 2000). Interface points between transport modes and trans-shipment can also be the source of quite lengthy immobilisation of consignments; for example, the normal or standard half-day transit time between the container terminal and the port gate in Abidjan could be as long as 20 days depending on the handling agent (de Castro, 1996).

Excessive physical inspection of consignments slows considerably the movement of goods through customs. Before the reform in Peru, an inspection rate of 70% to 100%, combined with detailed paperwork, resulted in clearance times of 15 to 30 days. In Cambodia, despite an average vessel turnaround time of 10-12 hours, customs clearance still takes about eight days for imports and 10-14 days for exports. Not only does physical inspection at ports, instead of at the point of packing or unpacking containers, significantly slow the movement of goods, it defeats the very purpose of containerisation: the integrity of the container is breached, the contents are more open to damage and theft during inspection and subsequent handling than conventional general cargo because of the lighter packing and protection that is a major advantage of containerised transport. Modern container stuffing methods are so specialised that, once a container is opened and items are extracted for inspection, customs or port/transport staff are often unable to replace all of the contents. In Nepal, where cargo is systematically decontainerised because customs procedures, handling equipment and transport practices are not designed for container trade, potential savings through facilitation of procedures and handling methods are estimated at around 7% for non-containerised and 13% for containerised cargo.

Studies conducted by UNCTAD in the 1990s in a number of developing countries, including Angola, Chad, Colombia, Côte d'Ivoire, Mozambique and Nepal, showed that the cost of immobilisation could account for over 50% of the cost of a foreign trade transaction and that for commodities of average value transaction costs could reach 70% of the cost of the product. In Zaire, the inventory financing costs of immobilisation to the consignee were estimated at 24% of the total transit cost, in addition to 8% for banking charges, 3% for government controls and 1% for informal "facilitating" payments (de Castro, 1996). Lengthy immobilisation was also found to generate losses and damage that were particularly extensive for items in great demand (beverages, fuel, etc.). Recent estimates in Pakistan showed that reducing the immobilisation time of import containers between ship-rail and upcountry cargo delivery from 20-30 days to five days could result in annual savings of USD 200 million in transit costs.

Poor export competitiveness and investment attractiveness

Although excessive transaction costs at a country's border may be a significant market access issue for foreign trading partners, they may be an even more serious obstacle to bringing the country's production to the global marketplace. Transaction cost differentials may be quite significant for developing countries that compete with each other for export markets and for foreign direct investment (FDI) on the basis of similar resource endowments, including advantageous labour costs. The diagnostic study undertaken for Madagascar under the Integrated Framework for Trade Related Technical Assistance (2001) concluded that the constraints imposed by the inefficient functioning of customs largely offset Madagascar's competitive advantage as a manufacturing and export base owing to its low labour costs. It is argued that effective customs reform would help anchor export processing zone companies in Madagascar, integrate their value chains and encourage further FDI.

In the parallel study conducted in Cambodia (Integrated Framework, 2001), surveyed firms rated customs and trade controls as the biggest barrier to exports. Garment exporters incur significant costs, as five different government agencies are involved and undertake at least three different inspections. Fixed informal costs of up to USD 150 per consignment seem modest compared to formal fees paid to obtain certificates of origin. The cost of exporting one ton of rice includes USD 5 in formal fees (for phytosanitary inspection and rice handling) and USD 9 in informal fees paid to each of the six agencies involved (customs, quality control, phytosanitary inspection, economic police, border police and handling workers). To keep the export price of rice at a fixed level, these costs lead to a 10-15% reduction in the farm gate price of a ton of exported paddy.

Difficulties in implementing trade policy

Inefficiencies in customs administration affect not only revenue collection but also customs' ability to collect data and compile external trade statistics. Peru's external trade statistics used to be delayed by an average of ten years because of very poor connectivity and a largely manual system of collecting and transmitting information (Zaconeta, 2003). In Mauritania there are strong discrepancies between national trade data and International Monetary Fund (IMF) and United Nations (UN) data, which indicate values about 50% higher than national statistics for exports and nearly 100% higher for imports (Integrated Framework Mauritania, 2001). Although poor collection of trade information does not have the same economic impact as insufficient revenue collection or excessive transaction costs for business, it may generate serious difficulties for the implementation of trade policy,

trade surveillance and trade monitoring, including for contingency protection and wider macroeconomic planning. The lack of accurate data also severely compromises the introduction of efficiency-enhancing risk management techniques in customs. The lack of accurate statistics is also regretted by the private sector which would find them useful for market analysis and formulation of marketing policy.

Designing efficient reform programmes

In reaction to the indications of malfunctioning described above, reforms in developing countries have aimed mainly at addressing a lack of efficiency, effectiveness and transparency. In most, if not all, cases they targeted the operation of customs as a government institution and not the impact on the private sector. However, successful customs reform quickly leads to broader improvements in the area of trade facilitation. As successful and less successful reform endeavours clearly show, the essential first step is to correctly identify the problem areas to be addressed. It is widely agreed that a common cause of failed reform is inadequate or insufficient initial analysis or diagnosis. For instance, difficulties for cross-border trade often owe less to the applicable regulatory framework than to procedures and methods of implementation that have developed over the years. A fair number of procedural burdens might be lessened without major legislative changes but might call for a rethinking of the human resource policies applied by border agencies.

Operational problems may arise from a number of interrelated causes that must be addressed comprehensively to ensure the success and sustainability of reform operations. Comprehensiveness and coherence are essential to success, but every reform project faces capacity constraints which make this difficult. For instance, investment in infrastructure facilities and equipment will not reduce commercial transaction costs unless operations relating to foreign trade are free from unnecessary institutional or physical interference. If goods movements continue to be subject to a thorough physical inspection or face several weeks of immobilisation for border crossings, transport infrastructure investments may add to a country's debt burden without contributing to cost-effective international trade transactions. Conversely, an improvement in transit procedures will fail to solve landlocked countries' problems if the road and rail network behind the border remains virtually non-existent. It has also been argued that changing the customs valuation process without overall customs reform is unlikely to improve the predictability of the customs process or mitigate significantly the potential impact of the customs process as a non-tariff barrier (Finger and Schuler, 1999).

Consultations with internal and external "focus groups" offer a very promising way to define the requisite changes. Acknowledging this, many reforming countries have established permanent structures for consulting stakeholders. On the other hand, outside experts were used successfully only when the customs administration had a clear understanding of what they wanted them to study. The involvement of economic actors, and in particular the trading community, is essential not only because policy makers can profit from their specific expertise, but especially because it encourages traders to buy into the proposed reforms. It is not uncommon for old, inefficient systems to unintentionally generate privileges and benefits for some traders, who may then hinder the government's reform efforts in order to preserve them. In Pakistan, where the old duty-drawback system effectively provided a "subsidy" to exporters by repaying sums that exceeded the duties collected at import, traders were unwilling to support reforms that would suppress such advantages. The example of Pakistan shows how difficult it is to introduce reforms when there is reluctance, or outright resistance, on the part of the trading community.

To maximise potential benefits, a national strategy needs to take account of the context in which the elaboration of reform policies is undertaken, including the country's particular political and economic goals and constraints, its business culture and sectoral structure, as well as the domestic and international organisational requirements that may influence or be affected by the adoption of the measures. It further needs to factor in infrastructural constraints (including applicable technical requirements and know-how) and the capacity to change. For any reforms driven by international endeavours, including in the WTO, the national strategy needs to instil a sense of ownership among domestic government and business stakeholders and be founded on a clear view of how reforms can best support their development efforts.

Targeting reform areas and the difficulties in the way of change

The main areas in which developing countries have recently undertaken reforms are legislation, information management, human resource policies, organisational structure and enforcement procedures. Some of these are more costly to overhaul than others, but if the reforms are successful, the costs seem to be recouped relatively quickly. This points to the need to think through and plan the reform strategy appropriately in advance. Many of these endeavours clearly require support in the form of technical assistance from donor agencies and countries or private-sector participation (see Box 4.1).

Box 4.1. Some examples of reform costs

***Central and Eastern Europe*:** Total budget allocated for PHARE customs modernisation in the ten candidate countries: ECU 90 million for 1990-97, of which ECU 70 million was contracted (about USD 108 million and USD 84 million). Of these, ECU 42.74 million were used for computerised declaration systems; ECU 6.85 million for anti-smuggling equipment (from x-ray equipment and gas chromatographs to communications equipment); ECU 13.77 million for training; and ECU 2.35 million for management.

***Armenia*:** USD 1.60 million, funded by the World Bank between 1993 and 1997, to draft a new customs law, train staff and automate customs procedures.

***Lebanon*:** USD 3.82 million to train staff, introduce a new tariff classification and automate customs procedures.

***Tunisia*:** USD 16.21 million to automate and simplify customs procedures.

Tanzania (estimated)**:** USD 8-10 million over three years for a comprehensive reform of customs procedures, including computerisation (ASYCUDA, systems for warehouse inventory control and statistical reporting); valuation procedures (adopting the WTO system); speeding up cargo controls; refurbishing customs buildings; administrative reforms (establishment of a new division for valuation and classification, recruitment and training of staff, establishment of an appeals tribunal); legislative reforms (including the implementation of the Harmonized System).

Regulation

Developing country administrations engaged in reform often reported being confronted with archaic legislation, obsolete customs laws that were ill-suited to the new dynamics of international trade, new transport techniques and information technology, or legislative ambiguities that were open to conflicting interpretation. Prior to the reform in Angola there was a colonial legacy of 119 separate customs-related laws, surviving in parallel to more recent legislation, that were outdated, not consolidated and inconsistently applied. Reforming countries often review, consolidate and sometimes repeal existing legislation, aiming through deregulation to replace public interference with market-based commercial practices. In some cases they introduce new customs legislation to reflect new priorities and methods of carrying out the customs function. Regulatory reform often offers an opportunity to introduce provisions that comply with recently undertaken GATT and WTO commitments. The review, simplification and updating of the regulatory framework, together with the rethinking of the institutional framework, are essential prerequisites for modernising the operations of customs and other border agencies and for introducing a stronger focus on facilitation. Legislative reform is the preferred avenue for

expressing the political will for change and sets the stage for the more difficult area of institutional and human resources reform.

One of the first steps to be taken is the simplification of the tariff structure and associated arrangements, including trade preferences and duty exemptions. Many of the reforming countries previously had quite complex tariff regimes, including an important number of different duty levels (39 in Peru, ranging from 10% to 84%, which the new customs law reduced to two tariff levels of 15% and 25%). Large differences in rates on the same goods from different sources also add to administrative problems, including the scope for unofficial payments. The reduction of the number of tariff bands makes daily customs operations much easier and facilitates enforcement. Another important step is the introduction of WTO-compliant customs valuation methods. In some cases, as in Angola, once a proper valuation framework is in place and customs staff has been trained, customs can again take responsibility for valuation and do away with PSI schemes.

Automated customs procedures often require regulatory changes to authorise the use of new processes, such as electronic signatures. Other changes relate to banking and insurance operations. Amendments to exchange control regulations may be needed to cover the use of multimodal transport documents in documentary credits issued and negotiated by national commercial banks. A change in the legal status of freight forwarders may be considered to give national operators easy access to the foreign exchange needed to operate as an international freight forwarder. A change in policies concerning import/export insurance may also be necessary.

Information management

Many developing country reforms included introduction of information technology (IT) to assist customs data management and electronic data interchange (EDI). Many countries adopted ASYCUDA equipment and software, with the assistance of UNCTAD. In Lebanon, the introduction of ASYCUDA to accompany the application of the Harmonized System (HS) and of the Single Administrative Document (SAD), cost USD 2.5 million in 1995. In Cambodia, a similar amount was calculated in the context of the 2001 strategic plan for IT development and implementation in order to purchase and implement ASYCUDA or another off-the-shelf system such as the French SOFI, but this did not include staff training and resources for locally maintaining and upgrading the system. IT implementation costs should of course be viewed against the benefits of IT systems in terms of increased revenue; for ASYCUDA, these were estimated at over USD 215 million in the Philippines and USD 100 million in Sri Lanka.

Box 4.2. Peru: Embracing the digital domain

One of the most important projects implemented in Peru's second-generation reforms has been the creation of a customs portal. Previously, customs information on line was only available to a limited number of approved parties with password-protected access. Other parties had to submit documentation by means that were more administratively burdensome. To overcome this inconsistency and offer better service to all traders, it was decided to "optimise customs services through the Internet, enter into the so-called 'Global Information Society' by massively applying and using information technologies, foster a culture of transparency in the state and the Peruvian society, reduce corruption risks, democratise government decisions through greater and enhanced user participation".

The first version of this initiative, Paperless Customs, was a success and led immediately to two more ambitious versions, Digital Customs and Customs Portal. After introducing several legal changes required by this process, the Customs Portal www.aduanet.gob.pe was officially launched on 26 January 2001. User feedback indicated that the huge volume of information available overwhelmed users, and it was decided to reorganise the data into three general categories:

- *Infoaduanas* provides detailed customs information for traders and agents, customs staff and the general public.
- *Remate de aduanas* provides complete information concerning the auction of unclaimed and abandoned goods.
- *Compras de aduanas* contains public information concerning the procurement of goods and services by customs.

The programme was entirely designed and implemented internally, which substantially reduced its final cost. Peruvian customs are justifiably proud of their achievement, which demonstrated the success of first-generation reform in the area of human resources. Total development costs were USD 557 935, broken down as follows:

Development personnel (7 persons)	9 285
Internet server	6 800
Web motor (Java Web server)	650
Java development software	120 000
Firewall (security system)	412 000
7 Computer terminals Pentium III	8 400
Other costs, incl. maintenance	800

The customs portal has been an important facilitation measure. On a practical level, it has drastically reduced customs' paperwork and stationary costs. More importantly, it has increased and improved interaction between customs and traders. A true measure of the importance of this dialogue is the more than 25 000 visitors the portal attracts each day. Aduanet has greatly improved compliance with customs laws and procedures by enhancing users' awareness of applicable requirements and obligations and making it easier for them to comply. An additional motive of satisfaction on the users' side is the possibility to customise digital information to their specific issues and questions.

Source: Zavala (2001).

Information technology can assist and support the introduction of efficiency- and facilitation-enhancing measures in the customs process and is essential for the successful implementation of risk management techniques, but it should not be implemented in isolation or seen as an aim in itself. It is necessary to have a global perception of how and why things are done in a certain way and reform underlying commercial and official procedures and practices before embarking on extensive computerisation. A sudden shift from manual to automated methods without such preparation carries the very real danger of preserving outdated practices and primitive information flows in very expensive computer systems. Errors can be very costly: the expense of setting up and operating an inefficient system adds to the transaction costs borne by businesses. If these are official systems that make legal demands on businesses, these inefficiencies will be passed on and multiplied.

The technical infrastructure of automation involves not only information technology resources, but also telecommunications platforms and legislation governing inter-organisational relations. Automation can be seriously constrained by limited connectivity, variable reliability, high connection costs and a poor general telecommunications infrastructure. In addition, although hardware and software can entail significant costs, they account for only part of true corporate investment in information technology. Additional costs and challenges relate to what is often referred to as "organisational capital" and its importance for successful automation is demonstrated by the Peruvian Aduanet (Box 4.2). Automation that is "imported" without appropriate involvement of and ownership by customs staff may fail to achieve the overall modernisation of customs processes.

Human resources policies

Modification of human resource policies was an essential part of reforms undertaken in developing countries to address the low levels of professionalism that previously plagued customs administrations. This appears as one of the most difficult but very rewarding aspects of customs reform. Prior to the 1991 reform, of the 4 000 staff in Peruvian customs only 2% had university education and a considerable proportion were unsalaried assistants, living on tips and gifts. There were no career plans, as both recruitment and promotion depended entirely on political interference. As a result, customs staff lacked credibility and authority, and there was no training strategy for improving the situation.

Two of the three pillars of Peru's first-generation reform concerned human resource policies to improve the administration's moral stance and professional standards (the third pillar concerned the modernisation and

automation of customs procedures). Personnel involved in corruption cases were immediately laid off and the remaining staff were tested for competence so as to retain only those who were sufficiently qualified for customs work. Subsequently, the salaries of those retained increased tenfold and a Code of Conduct was established to communicate the change in culture and standards throughout the organisation. Peruvian customs also adopted new recruitment policies, increasing the proportion of university graduates and widening the range of skills in customs administration by hiring a number of mid-career specialists in economic analysis, statistics, audit and information technology, to support the increasing emphasis on systems-based audits and use of information technology. A policy of intensified training was introduced, and all personnel, including new staff upon recruitment, underwent a year of specific customs training. This brought the level of professional staff in customs from 2% to 55% in 2000, the rest of the staff being customs technicians (16%), specialised technicians (9%) and administrative personnel (20%).

Although initial radical measures for ensuring sound human resources and securing integrity and competence seem particularly important, they have to be accompanied by regular follow-up measures, such as enhanced training, performance assessments and internal audit. In Mozambique, staff performance is assessed on a quarterly basis during the two-year practical training period, and afterwards it is regularly monitored by an internal audit unit, which focuses on systems and procedures, and a staff irregularities unit, which investigates cases of internal fraud and corruption. The system is further supported by the introduction of a Code of Conduct. In Angola, the introduction of an annual appraisal system allows for better matching staff skills to job descriptions and properly identifying candidates for senior positions.

Organisational structure

Several developing countries have focused on streamlining and enhancing institutional structures, and have introduced changes in their concepts of financial and operational management. Reforming governments acknowledge the importance of appropriate and sufficient financial and material resources to create and sustain a productive, high-technology customs administration and they have given customs financial and budgetary autonomy, thereby allowing flexibility in spending, while also strengthening accountability. In Peru, the new customs law initially reserved 2% of customs duty revenues for operational expenses. An additional 1% was then devoted exclusively to infrastructure investments; this enabled Peruvian customs to invest USD 109.3 billion over the period 1991-2000 to build new premises for numerous border posts, totally renovate the

automobile fleet, and purchase computer equipment. Making customs responsible for their own financing and linking the level of resources available for their operations to their efficiency in collecting customs revenue meant that, as customs revenue increased, the customs budget also increased. The annual 3% of revenue reserved for the customs budget, which represented USD 18.73 billion in 1991 reached USD 72.57 billion in 2000, an increase of 287% in nine years (Zaconeta, 2003).

Many countries have moved in the direction of an integrated revenue authority operating independently of other government departments in order to improve customs accountability and efficiency. Revenue authorities generally combine customs and tax services to benefit from efficiencies in sharing administration costs, for example for information technology and joint auditing and intelligence gathering. In countries where the civil service is constrained by limited labour and financial resources, revenue authorities have been able to improve revenue collection at little additional cost. In Africa, Uganda, Tanzania, Rwanda, Zambia and Malawi have recently reorganised their customs departments into revenue authorities. In general revenue evasion has declined and revenue collected per staff member has increased. In Tanzania revenue collected per customs staff member tripled after a revenue authority was established. These benefits have to be measured against the one-time costs of establishing the revenue authority.

Enhancing efficiency at the border has also brought customs closer to users by removing layers of management and reducing institutional duplication. Opaque institutional frameworks for border control, with unclear mandates and responsibility dispersed among different agencies, wastes time and resources for both government and business. In Cambodia, a single agricultural import is subject to sanitary and phytosanitary (SPS) controls by the Ministry of Agriculture, checkpoint security and smuggling prevention controls by the Frontier Defence Department, controls by the Economic Police for the suppression of fraud, and monitoring of quality by Camcontrol. In addition, it is the responsibility of the "chief" of border operations at one of the 28 land and river border checkpoints, which represent the provincial governor or the administration of the nearest main provincial city.

Clarifying the roles and responsibilities of several overlapping agencies involved in border control and inspection means not only alleviating the burden of duplicative requirements and controls upon business users but also halving the costs these agencies incur. Customs may take the lead and co-ordinate other agencies' interventions, or even act as a single window for border controls. It is admittedly difficult to get the various agencies involved to work together in the absence of impetus at a relatively high political level. However, as reforms in developing countries have often built upon a

relatively unsophisticated institutional environment, single-window entities seem to have been easier to put in place than in developed countries.

Finally, a number of countries have privatised some management and operational activities that could be transferred to the private sector in certain policy environments, so that government agencies could concentrate on their main tasks. Privatisation of port operations seems to be quite successful. When the government of Chile authorised the private sector to establish stevedoring companies as a way to introduce competition in cargo handling and storage operations, cargo-handling productivity in the port of Valparaiso increased from 2 060 boxes of fruit per hour in 1978-79 to 6 500 in 1985-86. At the same time, vessel port-stay times decreased from 129 to 40 hours and per box costs from USD 0.54 to USD 0.26 (ECLAC, 1992). Guasch and Hahn (1999) report that competition in operations at port terminals in Buenos Aires has led to an 80% reduction in fees charged, while opening port operations to multiple parties in the port of Montevideo has increased productivity by 300% within a year of deregulation.

Procedures and enforcement

Procedures and enforcement have been a focus for a number of developing countries. The aim is to expedite clearance of legitimate shipments while accurately targeting irregular transactions. Modernised enforcement strategies and working methods emphasise flexible, risk-based and targeted operations, employing intelligence as the principal weapon to identify fraud and smuggling, and effective deployment of limited resources. Achieving sustainable progress in this field raises many difficulties. Although many customs procedures seem outdated and cumbersome, they are often deeply entrenched and difficult to change. In Pakistan, reform of the legislative framework to introduce more trade-enabling post-import controls was expected to benefit both government (by suppressing some exporters' undue advantage) and businesses (by reducing excessive transaction costs). However, the reluctance of customs to relinquish traditional controls over the movement of goods, and concerns that revenue performance would deteriorate, have meant that, in practice, most customs procedures have remained unchanged and the reform has not delivered the expected outcomes.

In some systems, procedures appear designed to maximise opportunities for negotiation between traders and customs officials. They offer no objective basis for limiting what an official might demand, no basis for knowing what is expected at each step and no basis for appeal to a higher authority, even if there were provision for such appeal. As officials use those opportunities to supplement very low salaries by inspecting each

consignment, there is a strong disincentive to adopt a risk management system that is already hampered by the lack of information and data management capacity.

Partnerships with businesses and other government agencies, as well as closer co-operation with foreign customs administrations to combat drug trafficking and other commercial fraud activities more efficiently, are among the most useful tools for improving enforcement. Business partnerships were used with considerable success in Mozambique, where reform planning relied quite heavily on feedback by traders, whose continuing involvement was ensured through a public relations section established by the reform project board.

Some countries that lack the capacity to implement risk management techniques themselves use pre-shipment inspection companies to reengineer the import process. This information is used as a basis for targeting inspections on high-risk shipments and away from companies with a good record of compliance. However, although the involvement of pre-shipment inspection companies has made it possible to move away from 100% physical inspection, it maintains the dependence of the customs administration on external support and delays the acquisition of inhouse capacity.

This makes it possible to move from 100% physical inspection to selective inspections and concentration on high-risk shipments, and to eliminate repetitive inspection of companies with a high level of compliance. However, to reap the full benefits, the customs administration itself has to be involved in rethinking the procedures.

Quantitative reform results

There are a number of success stories in the area of customs reform in developing countries, although there have also been failures. The most important immediate evidence of success seems to be the increase in customs revenue together with a reduction in operating costs; these often pay back relatively quickly the investments in customs modernisation. This sort of success usually allows for introducing further improvements and ensuring the long-term sustainability of the reform process. Equally importantly, many of the internal efficiency-enhancing measures have a very clear positive impact on trade facilitation. The clarification and consolidation of customs legislation, the adoption of risk-based controls and the limitation of physical examination, the improvement of the quality of customs staff, to cite a few measures, strongly facilitate trade because procedures are simplified and made more efficient, clearance times are

reduced and undue transaction costs eliminated. The following examples offer a very brief reminder of the kind of benefits that successful reforms have brought both to the governments that undertook them and to the trading community.

Improved revenue collection

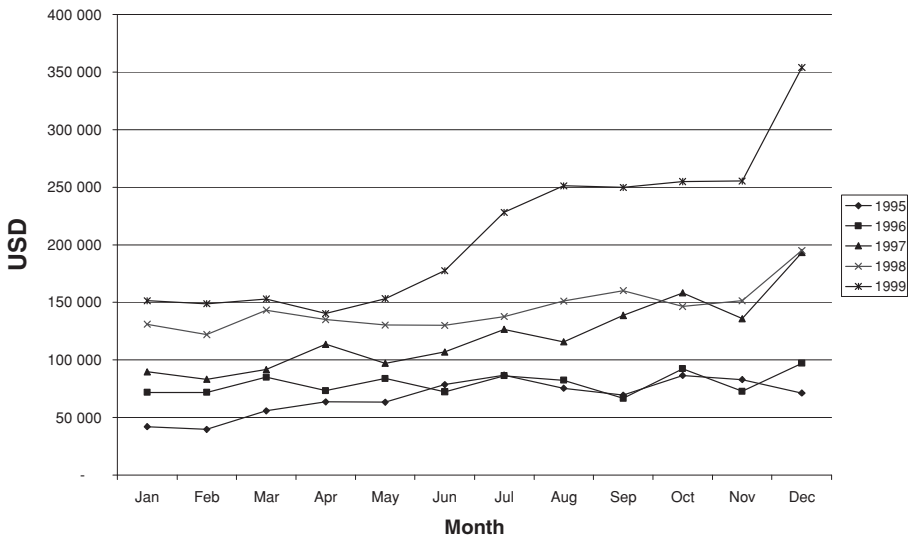
The most remarkable achievement of the Peruvian reform was the combination of a reduction in tariffs and personnel and a huge increase in revenue. Following the reform, staff numbers were reduced by approximately 30%, from 3 800 to 2 600 persons, and customs revenue increased by 335%, from USD 626 million in 1990 to USD 2726 million in 2000. The increase was largely due to more efficient customs controls, as the percentage increase in revenue was considerably higher than the percentage growth of imports during that period.

In Mozambique, the tangible benefits from increased revenue collection have greatly exceeded the overall costs of the five-year reform programme. During the programme's first two years, customs revenue increased by 38.4% in spite of significant reductions in duty rates and a 0.2% decrease in imports (Figure 4.1). Investments made during the initial stages of the programme were recouped within 14 months. Moreover, it is estimated that the improvements in customs revenue collection, the use of importer identifier numbers, the introduction of automation and improved co-ordination among agencies increased not only customs revenue but also valuable intelligence information which can be used by the authorities to improve the collection of domestic taxes.

Moreover, it is estimated that more effective collection of taxes at the borders, and the use of importer identifier numbers, the introduction of automation and improved co-ordination among agencies have all led to an increase in the availability of information that is valuable for verifying and auditing traders' other tax obligations.

Cost-to-collection ratios in Mozambique compare favourably with OECD benchmarks (where the cost to government of collecting USD 1 000 of revenue lies in a range of USD 15-25) and are now superior to those in many other developing countries. The costs of customs revenue collection during the first four years of the reform programme varied between 1.86% and 3.42% of total revenue collected (Table 4.1). This suggests that while customs costs increased dramatically during the early, very demanding stages of the programme – as new staff were recruited and trained, and the customs administration's infrastructure was developed – these extra costs have been compensated for by subsequent rises in overall collection levels.

Figure 4.1. Revenue performance of customs in Mozambique



Source: Crown Agents, 2003.

Table 4.1. Measuring the efficiency of customs in Mozambique

USD millions

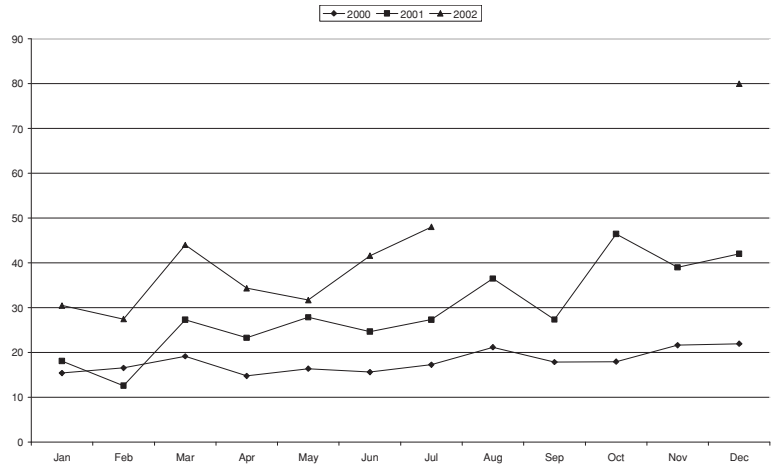
	1997	1998	1999	2000
Revenue collected	125.5	146.0	198.3	236.4
Total customs costs	2.33	5.00	6.14	6.4
Cost as a % of revenue	1.86	3.42	3.10	2.71

Source: Crown Agents, 2003.

In Angola, customs revenue figures in 2001 were 50% above those recorded in the previous year, rising from approximately USD 230 million to USD 345 million, and expectations for 2002 were around USD 500 million (Figure 4.2); the total cost of the reform over the two years was USD 84 million. The increase in revenue indicates that the reforms in effect pay for themselves during the lifetime of the reform process.

Figure 4.2. Revenue performance of customs in Angola

Monthly revenue receipts, 2000-02



Source: Crown Agents, 2003.

Reduced clearance times

In Peru, electronic cataloguing and identification of high- and low-risk shipments allowed officials to reduce physical inspection rates from 70-100% to a maximum of 15% and average clearance times fell to between two hours and two days. In Chinese Taipei the new air cargo and sea cargo systems have reduced average customs clearance time for air cargo to 21 minutes and for sea cargo to two hours, 35 minutes. In Costa Rica, the trade facilitation programme has decreased the average clearance time for goods from six days in 1994 to 12 minutes in 2001, with just under two hours for goods undergoing physical inspection.

In the Bangladesh port of Chittagong about 40% of bills of entry are now cleared in two working days or less. In 2001 the average number of bills of entry cleared in two days or less increased by 25% a month. Bills of entry taking seven days or more for clearance were reduced from about 26% to 21%, usually because follow-up customs enquiries were necessary (Mobarak Ali Molla, 2001). In Maputo 80% of road imports and 62% of imports by sea are cleared by customs within 24 hours of submission of correct documentation; this is 40 times faster than the pre-reform rate, making Maputo one of the most efficient terminals in Africa.

Reduced transaction costs

In Chile, the cost of implementing customs automation amounted to some USD 5 million. Two-thirds of this was borne by the private sector which had participated in the discussions and planning that accompanied the reform process; this amount was very quickly recouped through estimated business savings of more than USD 1 million a month The introduction of the system has also meant a decline in data entry errors from 14% to 2% (WTO, 2000).

Studies suggest that Singapore's TradeNet reduced trade documentation processing costs by 20% or more, owing to the replacement of over 20 paper forms required previously by a single on-line form and resulting savings in time and better deployment of staff. Faster turnaround made it possible to better organise shipments and overall production activities (see Box 5.5 in Chapter 5).

Trade facilitation as a development tool

Several conclusions may be drawn from the experiences of developing countries discussed in this chapter concerning the reform of customs administrations and the best means of implementing reforms.

An increase in revenue is often a stronger incentive for reform than trade facilitation. Most customs and border procedure reforms in developing countries are primarily motivated by a wish to augment government revenue, while successive tariff reductions in recent years have made more efficient revenue collection a necessity. Despite increasing evidence that trade facilitation has significant positive effects on the economy overall, some poorer countries still seem to view it as a luxury. In some cases, there is a perceived conflict between facilitation aims and governmental objectives. The case of Pakistan underlines the possible tension between a government's need to protect revenue and the trading community's demands to be freed from unnecessary regulations and interference. The reluctance within customs to relinquish traditional controls over the movement of goods and to rely instead on more trade-enabling post-import controls reflected concerns that revenue performance would deteriorate.

Successful reform quickly translates into improvements that greatly facilitate trade. Many of the efficiency-enhancing measures have a very clear trade-facilitating effect. The clarification and consolidation of customs legislation, the adoption of risk-based controls, the limitation of physical inspection and the improvement of the quality of customs staff all contribute by simplifying procedures, reducing clearance times and eliminating undue transaction costs.

Both successes and failures suggest that *the design of customs reform programmes must be tailored to particular circumstances and needs, so as to ensure ownership and sustainability*. Sufficient attention needs to be paid to involving both customs and trade in the reform design process and to sensitise them to the longer-term gains from the measures planned.

A *holistic approach to customs reform can yield more sustainable results than a piecemeal approach in terms of trade facilitation*. The modernisation programmes described in this chapter suggest that a phased, comprehensive customs modernisation programme is likely to lead to trade facilitation as a natural consequence of the overall transformation. Even though increased revenue may be the immediate spur for reform, the demands of government and of the trading community need not be at odds with each other. The alternative to wide-scale reform – piecemeal efforts to meet specific trade-related international standards such as customs valuation – is likely to be less successful, not least because such initiatives do not necessarily take into account the capacity of a customs administration to cope with change.

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Chapter 5

The Role of Automation in Trade Facilitation

by

Tadashi Yasui and Michael Engman

This chapter analyses customs automation, one of the most powerful tools for increasing customs efficiency. It focuses in particular on benefits and implementation costs. It aims to contribute to discussions in the WTO Negotiating Group on Trade Facilitation. Cost estimates for customs-related lending projects show that the costs of implementing, maintaining and operating automated customs systems are substantial. However, the very great majority of WTO members have already implemented such systems and past experience shows that, over time, the financial benefits have very often exceeded costs. Among the various lessons learned from successful implementation of automated customs systems, two are particularly highlighted. First, automation should not be considered a panacea for facilitating trade; and second, commitment and financial sustainability are prerequisites for successful customs modernisation involving automation.

Originally published as OECD Trade Policy Working Paper No. 22

Introduction

Issues relating to customs automation and the use of information and communication technology (ICT) in trade procedures have attracted considerable attention in WTO discussions of trade facilitation. Several developing countries have drawn attention to their lack of capacity to implement potentially new WTO trade facilitation disciplines. Although the type and magnitude of the costs involved in implementing trade facilitation measures are not fully understood, a substantial part is generally assumed to be due to automation. Automation does in fact give rise to significant implementation, operating and maintenance costs, but, as will be seen, the great majority of developing countries already have automated customs systems in their main seaports and airports. Prospective new trade facilitation disciplines are being discussed in the WTO Negotiating Group on Trade Facilitation (NGTF) and an agreement has yet to be reached. This chapter aims not to assess whether trade facilitation modalities could in any way be coupled to automation but rather to examine the role of automation in facilitating trade. Significant progress in trade facilitation can also be made in other ways (see Box 5.1).

Automation is not a requirement under the current multilateral trade facilitation disciplines of GATT Articles V, VIII and X, which have been in place for more than half a century. Nevertheless, non-binding recommendations or guidelines are quite frequent at the multilateral level (UN, 2001).[1] In the trade facilitation discussions that took place at the WTO Council for Trade in Goods (CTG) leading to the WTO Cancún Ministerial, some participants argued that most trade facilitation measures could be implemented without automation. Other participants argued that automation would be among the most important factors for ensuring the success of trade facilitation measures owing to its significant efficiency-enhancing impact on government border procedures.

1. Although the revised version of the World Customs Organization's Kyoto Convention (formally, the International Convention on the Simplification and Harmonization of Customs Procedures) recognises the importance for trade facilitation of making the maximum use of automated systems, it creates no obligation to make available or accept computerised data entry (EC, 2003a).

Box 5.1. Trade facilitation without automation

Automation is a powerful tool to facilitate trade but it is not an objective in itself. Automation only makes sense if it serves to support implementation of modern customs management practices. Plenty of trade facilitation measures do not require automation and some are already included in the current GATT framework. However, some provisions are poorly implemented in many countries and stricter adherence to existing rules and guidelines would greatly facilitate trade.

Publication of and easy access to information concerning trade regulations would greatly help traders, in particular small and medium-sized enterprises (SMEs). This could involve the establishment of single-window enquiry points with information on trade regulations and timely notification of new trade regulations. According to GATT Article VIII, customs fees and charges on imports should be limited to the approximate cost of the services rendered. Many countries still charge high *ad valorem* fees without ceilings for various purposes and services (OECD, 2006, Chapter 4). A stricter definition of how these fees should be calculated and what constitutes a valid "customs service" would further reduce trade transaction costs.

Trade formalities can be submitted to single-window environments that are not necessarily automated. Manual initiatives are less ambitious but nevertheless beneficial for both governments and traders. Costa Rica introduced a manual single-window system in 1994 with the aim of simplifying and accelerating import and export administration of foreign trade procedures. Risk management principles can also be applied by all customs administrations. Risk management requires the customs administration to have a clear understanding of the nature of existing risks and to develop practical methods to mitigate these risks, but automation is not a prerequisite (Widdowson, 2005).

The Dutch Ministry of Trade and Industry recently surveyed Dutch companies to investigate the type of trade facilitation measures that would make a direct impact on their daily operations. Three of the most common measures did not require automation. First, a central enquiry point would increase transparency and anticipation. Second, a move towards mutual recognition of inspection certificates would greatly facilitate trade, especially the removal of double sanitary and phytosanitary (SPS) inspection procedures. Third, traders (and customs authorities) would save on administrative work if customs authorities minimised requirements for non-standard documents.

There is a general consensus that automation can efficiently serve both public and private interests. Automation has the potential to facilitate trade while also helping to meet objectives related to the maintenance of national and social security. Smooth trade flows are essential in many countries that depend on just-in-time delivery and global supply chain systems. Predictable border services, customs clearance time and trade transaction

costs are important factors when companies consider investing or doing business in a country (see Chapter 3). From a public sector perspective, limited human resources and rapidly growing trade volumes have led to recognising the importance of automation for safeguarding and meeting budgetary, health, environmental and other social goals. Heightened national security concerns relating to the international movement of cargo following the terrorist attacks of 11 September 2001 have also encouraged further use of automation and ICT at borders. Automation serves purposes other than facilitating the movement of goods and people: added benefits may include reduced levels of smuggling and corruption, more productivity in customs operations, and improvements in valuation methods that may also lead to higher government revenue.

It is misleading to assume that all WTO members would be required to implement automation for government border procedures under prospective WTO disciplines on trade facilitation. It is not yet clear whether new obligations will arise and what form they might take. Thus, it may be early to discuss lack of capacity relating to automation. Although automation is not a pre-condition for trade facilitation initiatives, its great potential impact means that the issue is unavoidable when the cost of trade facilitation is discussed. Also, the benefits should be taken into consideration in any assessment of the role of automation in trade facilitation. This chapter aims to provide background information about automation issues that could be dealt with through possible WTO disciplines on trade facilitation and to contribute to discussions in the WTO NGTF.

The chapter first reviews cost and benefit analyses in the existing literature. It deals next with two other issues that are relevant for reducing costs and adding to the benefits of automation: namely, the lessons to be drawn from customs-related lending projects and emerging trends in ongoing initiatives and recently introduced trade facilitation measures in selected economies. A conclusion follows.

Cost-benefit analysis

There is a scarcity of reliable internationally comparable data that would allow for a detailed assessment of the costs and benefits of customs automation. This section therefore examines national trade facilitation experiences and shows the benefits resulting from overall trade facilitation efforts.

Costs

Customs automation gives rise to costs for both businesses and customs authorities. Few studies have attempted to estimate these costs owing to their complexity (Finger, 2000), although recent OECD work has made available the experience of several countries in this respect (see Chapter 6). This section draws mainly on data from customs-related lending projects and the OECD projects on costs of trade facilitation measures. As automation primarily aims at modernising customs procedures, with facilitation being just one aspect among many, the cost of automation should not be totally attributed to trade facilitation.

A narrower focus on customs procedures is adopted here because of the greater availability of data. Challenges relating to estimates of the cost of customs automation include:

- Costs vary significantly depending for example on the initial state of the border procedures and the desired nature and extent of automation. Cost figures are dependent on each country's unique situation.
- The implementation of automation presupposes the availability of related technologies, infrastructure, financial and human resources, and other conditions. For example, automation will not work appropriately without stable electricity supply and communication means or appropriate human resources for daily operation, management and maintenance (Box 5.2). Therefore, the cost boundaries are rather unclear.
- Without laws that recognise its legal status, electronic documentation must continue to be accompanied by paper documents. In this sense, an appropriate legal framework such as that relating to digital signatures needs to be established. It is often difficult to estimate the cost of changing laws and regulations.[2]
- Additional costs may be associated with procedural and organisational changes within both businesses and customs authorities (Finger, 2003).

2. Even if paper copies must be submitted afterwards, automated pre-arrival clearance drastically reduces delays.

Box 5.2. Constraints on implementing automation systems

While automation/computerisation can increase the efficiency of well-run operations, it is not a miracle solution to existing problems. Automation of customs procedures needs to be part of an overall modernisation project if it is to avoid the inappropriate introduction of computer systems that can exacerbate existing problems.

The successful introduction of automation requires careful planning, preparation and sequencing of a number of activities, including training of operators, procurement of hardware and the development or purchase of own or packaged software. Computerised systems are also dependent on reliable power supply, telecommunication networks, computer hardware suppliers and the availability of local maintenance services.

Several procedural considerations are crucial in automation projects. First, automation projects are heavily dependent on long-term political commitment – at both low and high levels – because automation projects may be resource-intensive, time-consuming and controversial. Second, prior adjustment or simplification and review of tariff schemes and customs legislation facilitate post-reform administration and remove many potential problems. New legislation may also be needed to introduce electronic signatures and encryption techniques as well as to ensure data security. Third, automation needs to be preceded by standardisation, consolidation, modernisation and simplification of the entire manual system and its procedures: simplification and streamlining of customs procedures and documentation, development of a self-assessment system, and planning and preparation for implementation.

Finally, automated systems need to be linked to a number of external sources, and issues relating to trade data interchange standards, telecommunication standards, security arrangements, etc., need to be negotiated and settled with trade participants, including importers, exporters, banks, seaport and airport authorities, shippers, brokers and freight forwarders. In addition, the potential introduction of single window systems imples a host of issues related to government inter-agency communication and institutional co-operation.

Source: Largely based on De Wulf and McLinden (2005) and Corfmat and Castro (2003).

Automation has been considered a critical part of most customs-related lending projects and was incorporated in over 90% (24 out of 27) of the technical assistance projects with a customs component funded by the World Bank between 1994 and 2002 (World Bank, 2005). Also, ASYCUDA (Automatic SYstem for CUstoms Data), developed and maintained by UNCTAD, had been installed in over 80 developing countries as of 2005.[3] According to WTO Trade Policy Reviews (TPRs)

3. See www.asycuda.org.

(2000-05), most WTO countries, including least developed countries (LDCs), have established customs automation systems, despite different degrees of development and coverage of the systems (see Box 5.3 for a discussion of the choice of automated system).

Automation normally entails substantial costs, in some cases amounting to over two-thirds of the total cost of a customs-related lending project. For example, the six-year budget for the Russian Customs Development Project (2003-09) was estimated at nearly USD 190 million, of which USD 133 million for customs automation (World Bank, 2003). The cost of automation accounted for 40% of total funding for the customs reform project in Tanzania and 60% in central and eastern Europe (Finger *et al*., 1999). The estimated cost of customs automation can be significant for governments, in particular in least developed countries. It can be drastically decreased, however, as use of the Internet eliminates the need for expensive hardware (World Bank, 2000).

According to UNCTAD (2002a), the cost is normally estimated at less than USD 2 million for the ASYCUDA system but can reach USD 20 million if a country develops an original system. In practice, the introduction of the ASYCUDA system required external funding of around USD 9 million in Bolivia (Gutierrez, 2001) and USD 5.5 million in Jamaica (Grant, 2001). In Turkey, the total cost of introducing the SOFI system was USD 32 million (World Bank, 2005). A survey commissioned by Japanese customs (CTB, 2001a) estimated the cost of setting up Korea's original automated customs system between 1992 and 1997 at around USD 24 million. One quarter of the cost was for programme development and management and the rest for hardware. The Royal Thai Customs invested THB 1 billion in 1997-2000 to introduce and install an information technology (IT) system in its central offices and an additional THB 400 million is budgeted for 2004-06 to migrate to an open Internet-based system accessible from all customs offices.[4]

Senegal developed a system for customs operation management (Trade X) between 1986 and 1990. In 2000-02 the system was upgraded to a Web-based version at a cost of EUR 3 million. Half of the cost was for investments in IT equipment. Ten professionals are currently employed to maintain, update and operate the system; the team's yearly cost is EUR 600 000. A recent three-year project to develop a single-window system (Orbus) cost EUR 610 000; the system is based on the IT infrastructure provided by Trade X installed at the customs headquarters. This system is operated by 18 professionals at an estimated cost of

4. Information provided by the Thai authorities.

EUR 600 000 a year. EUR 800 000 a year is collected in service charges. Senegal's customs website was developed over a six-month period at a cost of EUR 15 000.[5]

Automated systems incur substantial operating, maintenance and updating costs. It is reported that updating ASYCUDA software requires at least USD 2 million (Nathan Associates Inc., 2002). The operating and updating costs may be balanced by user fees or financed by governments. Haiti's upgrade of ASYCUDA to ASYCUDA ++ at principal customs offices cost USD 1.43 million. In Singapore, operating costs are covered by user fees, while updating costs are financed by the government. Chinese Taipei updated its air cargo clearance system in 2000 at a cost of USD 5 million, and its ocean-going cargo system in 2004 at a cost of about USD 6.5 million (WTO CTG, 2002). In the Philippines, updating the automated system from a DOS-based system to a Windows platform increased the costs of the modernisation project by 40% to a total of USD 27 million, most of which was used to purchase hardware and software (Bhatnagar, 2001).

Box 5.3. Off-the-shelf systems vs. in-house development of automated systems

The International Monetary Fund (IMF) (2003) argues that acquiring an existing software package such as ASYCUDA ++, MicroClear, SOFI, TATIS or TIMS is less costly than developing original software. Apart from the cost, there are advantages and disadvantages. The World Bank (2005) argues that off-the-shelf systems incorporate the most advanced technologies and give the assurance that the functions of the different system modules are stable and robust. Systems developed in house tend to be more expensive and are often not as well designed as those on the market. Widespread use, the availability of external expertise and the use of international standards are other advantages of off-the-shelf systems.

However, these systems also have some disadvantages, and lack of flexibility and the difficulty of changing or upgrading the system can be major concerns. Off-the-shelf systems may be available at competitive prices, or even be free, but inevitable long-run costs can significantly reduce their benefits. Reliance on external expertise makes implementing countries dependent on the future procurement of services. External service providers may have limited capacity to provide timely services or simply go out of business. Customs administrations may therefore choose to develop local IT expertise to gradually reduce the level of dependency on the service providers.

5. Information provided by the Senegalese authorities.

Benefits

Several countries' experience indicates that customs automation benefits both traders and governments. The extent to which the benefits are due to the introduction of automation is less clear. Effective implementation of modern customs procedures (*e.g.* risk management, pre-arrival processing and post-clearance audit), uniform application of national laws and regulations as well as the generation and analysis of customs data all enhance the efficiency of customs procedures, for example through the reduction of direct costs and delays. It also provides an effective anti-corruption mechanism owing to reduced face-to-face interaction between customs officials and traders. Several countries also have reported that customs automation has helped both to increase customs productivity and to tackle fraud, smuggling and valuation issues (see Chapter 3).

Some countries provide quantitative information on overall benefits, especially in terms of customs clearance time. According to WTO TPRs (2000-01 to 2005-06), customs clearance can be carried out quickly with electronic environments provided that all the requirements and paper formalities are in order. As Table 5.1 shows, the great majority of WTO members have implemented some kind of automated system. All OECD members and non-OECD EC members have automated customs systems and 83% of non-OECD members were reported to have automation systems implemented at the time of publication of the WTO TPRs.[6] UNCTAD's ASYCUDA and ASYCUDA ++ systems are installed in more than half (62 out of 110) of the reported developing and least developed countries. In some of these countries, automation is only installed in major seaports and airports, but covers most cross-border movement of goods, typically between 75% and 100% in terms of import value. Several developing and least developed countries have more than a decade of experience with the ASYCUDA system.

6. The WTO Trade Policy Review of the EC states that: "The uniform implementation of common customs procedures by EC member states has been a challenge due to variation in the availability of electronic access to customs…, limited interfaces for interoperability between systems, and different interpretation of EC customs legislation by national customs administrations…". It also states that "The challenge is being addressed within the context of the EC's 'Customs 2007' programme… [which] aims to ensure that member states' customs administrations interact and perform their duties as efficiently as a single administration; improve trade facilitation…".

Table 5.1. Customs automation and clearance time for imports in WTO members

Country	Year*	Automation	System**	Automation coverage	Clearance time (h)***	PSI
OECD mmbers						
Australia	2002	√		98%	…	
Canada	2003	√		…	…	
EC	2004	√		…	…	
Iceland	2000	√		95%	a few minutes	
Japan	2005	√		…	0.6-4.3	
Korea	2004	√		75%	1.3	
Mexico	2002	√		…	< 3	
New Zealand	2003	√		100%	0.2	
Norway	2004	√		…	0.05-0.08	
Switzerland	2004	√		90%	…	
Turkey	2003	√		100%	< 24	
United States	2004	√		96%	…	
Non-OECD mmbers						
Albania	…	√	ASYCUDA ++			
Angola	…					
Antigua & Barbuda	2001	√	ASYCUDA	…	24-72	
Argentina	…	√				
Armenia	…	√	ASYCUDA ++			
Bahrain	2000	…		…	…	
Bangladesh	2000	√	ASYCUDA ++	…	48-72	√
Barbados	2002	√	ASYCUDA ++	…	…	…
Belize	2004	√	ASYCUDA	…	< 72	
Benin	2004	√	ASYCUDA ++	…	< 24	√
Bolivia	…	√	ASYCUDA ++			
Botswana	2003	√	ASYCUDA	…	0.17-0.75	
Brazil	2004	√		…	30-40	
Brunei	2001	…		…	…	
Bulgaria	2003	√		…	…	
Burkina Faso	2004	√	ASYCUDA ++	98%	48	√
Burundi	2003	√	ASYCUDA	…	48-72	√
Cambodia	…	√				
Cameroon	2001	…		…		√
Central African Rep.	…	√	ASYCUDA			
Chad	…	√	ASYCUDA ++			
Chile	2003	√		100%	< 24	
China	…	√				
Colombia	…	√	ASYCUDA			
Congo	…	√	ASYCUDA ++			
Costa Rica	2001	√		…	1	…
Côte d'Ivoire	…	√	ASYCUDA			
Croatia	…					
Cuba	…	√	ASYCUDA			
Dem Rep. Congo	…	√	ASYCUDA			
Djibouti	…					

Country	Year*	Automation	System**	Automation coverage	Clearance time (h)***	PSI
Dominica	…	√	ASYCUDA			
Dominican Rep.	2002	√		…	48	
Ecuador	…					
Egypt	…					
El Salvador	2003	√	ASYCUDA ++	…	< 24	…
Fiji	…	√	ASYCUDA ++			
FYR Macedonia	…	√	ASYCUDA ++			
Gabon	2001	√	ASYCUDA ++	…	…	
The Gambia	2004	√	ASYCUDA	…	3-4	
Georgia	…	√	ASYCUDA ++			
Ghana	2001	√	ASYCUDA	…	24-48	
Grenada	2001	√	ASYCUDA	…	< 48	
Guatemala	2002	√	ASYCUDA	…	4-24	
Guinea	…	√	ASYCUDA			
Guinea Bissau	…	√	ASYCUDA			
Guyana	2003	√	ASYCUDA	…	< 168	
Haiti	2003	√	ASYCUDA ++	…	24-48	√
Honduras	2003	√	ASYCUDA ++	98%	24-72	
Hong Kong, China	2002	√		100%	…	
India	2002	√		75%	…	
Indonesia	2003	√		…	…	
Israel	…					
Jamaica	2005	√		…	< 24	
Jordan	…	√	ASYCUDA ++			
Kenya	2000	√		…	< 48	√
Kuwait	…					
Kyrgyz Rep.	…					
Lesotho	2003			…	48-72	…
Macao, China	2001	√		…	0.33	
Madagascar	2001	√	ASYCUDA	…	…	
Malawi	2002	√	ASYCUDA ++	…	48-72	√
Malaysia	2001	√		…	3-48	
Maldives	2003	√	ASYCUDA ++	…	< 2	
Mali	2004	√	ASYCUDA	95%	2-6	√
Mauritania	2002	√	ASYCUDA ++	…	48	√
Mauritius	2001	√		…	0.08-1	
Moldova	…	√	ASYCUDA			
Mongolia	2005	√	ASYCUDA	65%	…	
Morocco	2003	√		100%	0.87	
Mozambique	2001	√		…	…	√
Myanmar	…					
Namibia	2003	√	ASYCUDA ++	90%	2-4	
Nepal	…	√	ASYCUDA ++			
Nicaragua	…	√	ASYCUDA ++			
Niger	2003	√	ASYCUDA	…	…	
Nigeria	2005	√	ASYCUDA	…	48	√
Oman	…					
Pakistan	2002	√		…	24	√

Country	Year*	Automation	System**	Automation coverage	Clearance time (h)***	PSI
Panama	…	√	ASYCUDA			
Papua New Guinea	…	√	ASYCUDA			
Paraguay	2005	…		…	…	
Peru	2000	√		…	…	√
Philippines	…	√	ASYCUDA ++			
Qatar	2005			…	1-3	

*) The year of publication of WTO TPR.

**) The UNCTAD ASYCUDA or ASYCUDA ++ system is implemented or is being implemented.

***) The data reported typically refer to "average clearance time" or "clearance time in normal cases".

"…" no relevant information available in the sources mentioned below.

The ticked boxes indicates "yes"; and unticked boxes "no".

Source: WTO Trade Policy Reviews (2000 January - 2005 June); Chapters 4 and 6 in this volume; UNCTAD at www/unctad.org.

The data on customs clearance time reported in the WTO TPRs are based on government information rather than independent measurements by the WTO. This may be one reason why the clearance times reported in Table 5.1 are lower in many cases than the times reported in many independent surveys of traders.[7] For example, the authorities of Benin state that customs formalities take less than 24 hours but according to the WTO TPR private operators do not concur. Table 5.1 indicates that there is a great difference in clearance times between different countries with automated systems and even between countries with similar systems. For example, Guyana, which has installed an ASYCUDA system, reports clearance times below 168 hours but other countries with a similar system report average clearance times in low single-digit hours. This illustrates how important factors other than automation are in trade facilitation. Most developing countries with automated customs systems report that average customs clearance takes between 24 and 72 hours.

In Canada, the standard clearance time was 45 minutes in 2000, but most goods were cleared within seconds (WTO CTG, 2000). In Australia in 2000, over 98% of electronically lodged import entries were processed within 15 minutes (Australian Customs Service, 2002). Customs clearance

7. It is unclear from the WTO TPRs how clearance times are measured and if the authorities always use the same definition. Many of the figures refer to average customs clearance of cases where all requirements and paper work are in order. Other cases are less clear and simply refer to "average" customs clearance. This discrepancy and loose definition imply that any comparisons should be made with caution. The data reflect customs information provided over a period of five and a half years, and clearance times may have changed in some countries that have reformed their border procedures.

time was reportedly an average of four hours in Spain (OECD, 2000), 30 minutes in Greece (OECD, 2001), 14 minutes in France (see Chapter 4), and less than 24 hours in major cases in Mozambique (see Chapter 1). Thanks to the paperless trading system, average customs clearance time has fallen from 5.3 to 1.5 hours in Chinese Taipei, and from 12.2 to 1.1 hours in Mexico (DFAT, 2001). Morocco's automated system contributed to a reduction of the average clearance time from 132 hours in 1997 to less than an hour in 2002. Major effects of Peru's customs reform programme included a reduction in the release time from 360-720 hours in 1990 to 2-48 hours in 1996 (Wilson and Woo, 2002). Automated systems in Costa Rica helped to reduce the average customs clearance time from 144 hours before 1994 to 12 minutes for cases without inspection and 115 minutes for those requiring physical inspection in 2000. According to information provided by the Argentinean authorities, Argentina's reorganisation and the introduction of its Maria Informatics System helped reduce clearance time from four days to 24 hours. Box 5.4 describes further experience from time release studies.

Box 5.4. Time release studies in selected countries

Indonesia: A study of cargo clearance times at Tanjung Perak port Indonesia by the WCO found that the customs clearance process for certain shipments took an average of 6.4 minutes, compared to 159 hours and 23 minutes for other activities involved in cargo clearance. The main sources of delay included incomplete documents, red tape involved in releasing goods from godowns (warehouses), documentation errors, payment hold-ups and deliberate delays in delivery even after the release of goods by customs officials.

Source: Wilson and Woo (2000).

Japan: The latest Japanese time release study showed that sea cargo imported to Japan took 68.4 hours on average from port entry to customs entry declaration in 2001, ans 4.9 hours on average from customs declaration to permission. The study also showed that air cargo imported to Japan took 25.1 hours on average from port entry to customs entry declaration, and 0.4 hours on average for clearance time.

Source: CTB (2001b).

The Baltic countries: At the Fourth Baltic Sea Customs Conference (BSCC) in Vilnius in June 2001 it was agreed that a pilot study to measure the time for border crossing would be carried out in Estonia, Germany, Latvia, Lithuania, Norway, Sweden and Poland, and the crossings of more than 33 000 vehicles were measured. The result shows that border crossing time averages between 11 minutes and over 12 hours. The goal to reach two-hour border crossing was only reached in 50% of the measured border crossings.

Source: BSCC (2002).

The effectiveness of automation is more apparent when one compares customs clearance time for automated and paper-based systems (Table 5.2). The New Zealand customs service envisages processing electronic data interchange (EDI) import entries within a half hour and paper-based entries within 24 hours (WTO TPR, 2003). In Chile, the average customs clearance time was 2.2 hours (maximum three hours) for EDI processing, and 10.8 hours for the paper-based system (WTO CTG, 1998). The Philippines' project for computerising the tax and customs administrations during 1994-99 also resulted in considerably reduced customs clearance time for EDI users compared to non-EDI users in the first quarter of 2002 (Arevalo, 2002). In Thailand, it takes less than an hour on average for EDI systems but 3-4 hours for non-EDI processing (WTO TPR, 2003).

Table 5.2. Customs clearance time in automated and non-automated environments

Country	Customs clearance time (hours)		Conditions	Sources
	Automation	Non-automation		
Chile	2.2	10.8	On average	WTO CTG (1998)
New Zealand	0.5	24	At maximum	WTO TPR (2003)
Philippines	0.1-0.5	1.0-2.5	No inspection	Arevalo (2002)
	1.1-24.5	2.1-24.2	Documentary inspection	
	4.1-48.5	6.1-72.5	Physical inspection	
Thailand	1	3-4	On average	WTO TPR (2003)

Chile's implementation of an EDI system brought significant benefits to the trading community (WTO, 2000). For example, the number of data inputting errors fell from 14% to 2%. Traders were also allowed to resubmit import declarations containing errors on the same day instead of the following day. The opening hours for submitting declarations were greatly extended, customs clearance time was drastically reduced, and a number of officials were reassigned from repetitive administrative work to more value-adding duties such as customs inspection.

Border waiting time may be reduced through the introduction of automation to other border procedures, in particular by establishing a single-window system (see below). For example, it has been estimated that extended use of automated systems has made it possible to shorten the delay from port entry to release for food or like products imported to Japan by 47% (JETRO, 2002). In Korea, a single-window system linking automated systems of customs and 56 other government agencies has reduced the waiting time by half in government border procedures for goods subject to clearance confirmation for public health, social security and environmental protection (WTO TPR, 2000).

Reducing delays at the border can provide substantial benefits to traders. Hummels (2001) estimates that one day saved at the border equals a 0.5% reduction in tariffs. Another quantitative study on benefits of trade facilitation also suggested that welfare gains would be higher for trade facilitation measures that reduce delays at the border than those that reducing compliance costs related to border procedures (see Chapter 1).

Do investments in customs automation pay off?

There is a significant opportunity cost to foregoing the efficiency gains provided by automation and its trade facilitation effects (WTO CTG, 2000). Experience has shown that development and implementation costs can be covered by the financial benefits incurred in the long run, as World Bank project appraisal reports have shown (World Bank, 2000).

The cost-benefit assessment for the United States' Automated Commercial Environment (ACE), a new automated customs system, estimated that the government's USD 1 billion investment would save USD 22.2 billion for businesses and USD 4.4 billion for the US Customs Service over 20 years (USTR, 2002; APEC, 2003). In Chile, the total cost for implementing customs automation was USD 5 million, two-thirds of which was paid by the private sector; the costs to business were quickly recouped through business savings estimated at over USD 1 million a month (WTO CTG, 2000). The direct cost of developing Singapore's TradeNet, often cited as a successful effort to meet the peculiar needs of its free port environment, exceeded SGD 20 million (equivalent to about USD 11 million) in 1987, and saved Singapore traders around USD 1 billion a year in internal productivity savings (see Box 5.5; DFAT, 2001).

Box 5.5. Singapore TradeNet: Costs and benefits

Costs to the administration: The direct capital cost of TradeNet's development, *i.e.* the contract cost to IBM and other subcontractors, was over SGD 20 million in 1987. This does not include the costs incurred by various agencies in conceiving the project, developing requirements and specifications, and establishing Singapore Network Service Ltd. (SNS), the quasi-governmental company that manages TradeNet.

Costs to businesses: In order to join TradeNet, a company has to pay a one-time connection fee of SGD 750, a monthly charge of SGD 30 for a dial-up port and transaction costs of SGD 0.50 per kilobyte of transmitted information (the average declaration requires 0.7 kilobytes). A company also needs the appropriate hardware for local processing of applications and transmission of the coded EDIFACT data. When TradeNet was introduced, the minimum PC configuration required cost SGD 4 000 plus software costing between SGD 1 000 and SGD 4 000. The indirect cost of making the changes to procedures and protocols necessary to adopt TradeNet was less clear. For some companies, the conversion was minimal because they already possessed the relevant systems, but for those with no prior experience in e-business, the change was more difficult. Today, the user pays a one-time fixed fee of about SGD 1 500 and a yearly maintenance fee of about SGD 1 200. In addition, the user pays SGD 6.50 per transaction or declaration made through the system.

Benefits to businesses: TradeNet has resulted in considerable productivity improvements and the entire trading community has become more competitive internationally. Turnaround time for processing typical trade documents was reduced from two to four days to as little as 15 minutes. Studies suggest that TradeNet reduced trade documentation processing costs by 20% or more by replacing more than 20 paper forms by a single on-line form. The use of clerks or couriers to transport trade documents to various agencies and the long delays while staff waited for documents to be cleared were eliminated; time was saved and staff and vehicles could be deployed more efficiently. Faster turnaround made it possible to better organise shipments and overall production activities. Several freight forwarders reported savings of 25-35% in handling trade documentation as TradeNet operates 24 hours a day rather than simply during normal office hours.

Benefits to the administration: Benefits also accrued to government agencies using the system. Customs moved from a system of post-approval to pre-approval of applications, such that customs duties are now pre-paid electronically and customs receives payments faster. TradeNet also enabled faster compilation of more accurate and complete external trade statistics, since data from the documents no longer need to be rekeyed by government agencies to compile trade statistics. Singapore claims that properly applied trade facilitation is already saving it in excess of 1% of its GDP each year.

Source: Extracts from ESCAP, *Trade Facilitation Handbook for the Greater Mekong Subregion*, Chapter 7: Electronic Trade Document System Development, February 2003.

Lessons learned

Many studies and reports have drawn lessons from customs reform and modernisation projects (Cox and Ghoneim, 1998; Wilson, 2001; WCO, 2002; World Bank, 2005). A successful outcome generally depends on high-level commitment, a top-down and holistic approach, consultations with businesses, the establishment of a consultation committee and clear responsibilities.

Automation is not a panacea

In spite of its great potential for increasing customs efficiency, automation should not be viewed as a panacea for achieving the benefits of trade facilitation (WTO CTG, 1999). Too often, there is a misperception that automation can solve all the problems faced by customs, such as fraud, poor revenue collection and corruption, and that it therefore should be implemented straight away.

Experience has shown that this is not the case. Rather, to achieve its full potential, customs automation should be accompanied by streamlined and simplified border practices and management. The introduction of new or updated automation systems for border procedures is an important opportunity for revisiting and re-engineering overall border procedures.

Long-term commitment is crucial

In addition to initial development and implementation costs, automation generates operating and updating costs. For example, the Philippines' automated customs system suffered badly from the withdrawal of the external funding needed for continuous system updates. Sustainability of funding and management is essential to keep automated systems operational and functional. Also, as the frequent updates of protocols and/or procedures may be a considerable burden for both businesses and governments, the timing of changes should be carefully considered to strike a balance between costs and benefits.

Emerging trends

This section aims to identify some emerging trends from ongoing and recently implemented automation programmes. It may be useful from a capacity-building perspective since newcomers to automation have the advantage of being able to adopt approaches based on best practices and modern technology. The findings presented here can be considered as a menu of options or actions, depending on the degree of a country's

development, with respect to the introduction, updating or changing of automated systems.

Before examining specific trends in automation, it is worth noting the lead time necessary for implementing new or changed systems and the related cost implications. In fact, it normally takes several years to develop and implement a new system. For example, the phase-by-phase implementation of the ASYCUDA system takes about three years (Gurunlian, 2001). In Japan, the automated customs systems for air cargo and sea cargo were updated in 2001 and 1999 respectively, after the end of their eight-year life cycle.

The necessary time frame for implementation appears associated with relevant international initiatives as well as national e-government strategies. Although the goal is non-binding, APEC envisages achieving paperless trading by 2005 for industrialised and 2010 for developing APEC economies. APEC has also set a goal, included in the Shanghai Accord, to reduce trade transactions costs by 5% across the APEC region by 2006. Moreover, harmonised electronic messages for certain border procedures are expected to be implemented in the G7 countries by 2005. National e-government strategies in many OECD countries also envisage handling all types of government procedures on line (Accenture, 2002).

Paperless environment

Recent legal and technical developments relating to ICT make it technically possible to eliminate paper requirements in government border procedures, but some paper documents are still required in most countries. This is often due to the legal requirement to submit original documents and/or the need of the signature of the person in charge. It may also be due to procedural requirements for verification purposes. Several countries allow electronic clearance without paper documents but require paper copies to be submitted at a later stage. Cost savings will be below potential for both businesses and governments unless paper document requirements are completely eliminated (DFAT, 2001). Even so, the reduction in delays due to paperless clearance can secure substantial benefits. According to WTO TPRs, the trade documents typically involved in importation include import entry declaration, official certificates and commercial documents.

Import entry declarations

Not only customs services but also many other government agencies are responsible for the movement of goods at the border: port authorities, statistics bureaus and various control agencies, including health and safety agencies. Among government border procedures, however, automated

systems for customs import entry declarations appear the most widely used in both OECD and non-OECD countries. First introduced in the 1970s in Europe, they are now common in most countries. Automated systems have increasingly been extended to other customs procedures as well as other border procedures such as quarantine-related or port procedures (APEC, 2002a). Since most have been developed independently to meet their particular requirements, interoperability of the systems seems to be unsatisfactory in most cases, as discussed above.

Many countries tend to maintain a hybrid system which allows government agencies to accept trade-related declarations in both electronic and paper form. In several countries, various incentives encourage traders to adopt electronic lodgement, such as lower fees and cheap or even free software. The e-customs project of the EU envisages electronic customs declarations as the norm and verbal or paper-based declarations as the exception (EC, 2002a). On the other hand, electronic lodgement is obligatory in some countries. In Korea, New Zealand, Morocco, Singapore and Peru, for example, import entry declarations must be electronically filed to customs authorities. In Mexico and Chile, fully electronic import declaration systems have been established and declarations must be processed by certified customs brokers. In the United States and Australia, an import customs cargo report must be electronically lodged, but the hybrid system for import entry declarations remains operational for the time being. This enables data to be systematically and efficiently processed for assessing the risk of border-crossing cargo. In any case, it is desirable to store and process the declared information electronically in order to enhance efficiency and allow secondary use within or between governments.

Official certificates

The importation of goods may require official certificates issued by different authorities. Such certificates may include SPS certificates and certificates of origin. For example, certificates of origin may be needed to enjoy preferential tariff treatment under the Generalised System of Preferences (GSP) or free trade agreements (FTAs).[8] They are normally issued by governments (*e.g.* the customs authority) or other authorised bodies (*e.g.* chamber of commerce) in the exporting country, and most importing customs authorities still require them in paper form, while increasingly accepting electronic equivalents for most other documents. In

8. Procedures to issue certificates of origin can vary across FTAs. Instead of official certificates, self-certification by traders is adopted in several FTAs, including NAFTA.

cases where certificates of origin are needed and in light of the recent proliferation of FTAs, the possibility of electronic submission of certificates of origin in standardised format is increasingly important. Electronic submission discharges customs officials to a certain degree from having to process paper certificates based on different sets of rules of origin.

Among trade-related documents, certificates issued by foreign authorities appear the most difficult to incorporate into an electronic environment because interoperability between the systems of the issuing and accepting authorities may be necessary. A limited number of interoperable systems are found in bilateral arrangements or regional initiatives. The Australian Quarantine and Inspection Service forwards to the Japanese Ministries of Health and Welfare and Agriculture, Forestry and Fisheries 38 000 electronic health certificates a year for meat exports to Japan (DFAT, 2001). APEC has endorsed the Pathfinders Initiatives in the area of electronic SPS certificates and electronic certificates of origin,[9] with the aim that each APEC economy will implement them when they are ready. As of early 2004, Australia, New Zealand and Chinese Taipei participated in the former initiative, and Singapore and Chinese Taipei participated in the latter (APEC, 2004). The APEC Secretariat will review progress in due course in order to encourage broader participation of APEC economies.

Commercial documents

Border agencies often require various kinds of commercial documents to support import entry declarations. This is mainly to verify the information declared by traders and it often involves duplication. If governments do not remove such regulatory requirements altogether, they should consider accepting electronic equivalents in order to fully realise the benefits of the paperless environment.

According to the WTO TPRs (2000-05), standard commercial documents required for border procedures include commercial invoice, manifest, bill of lading and packing list. In commercial transactions, electronic equivalents to such commercially available documents are more and more common and, in particular, they are widely accepted throughout the banking and logistics sectors. Private value-added networks (VANs) such as Bolero and TEDI (Trade EDI) provide frameworks for electronic documentation and formats for various kinds of trade documents. Border

9. It was estimated that the application and transmission of electronic certificates of origin to buyers, banks and the relevant regulatory agencies would reduce the entire process from four to seven days to just a few minutes via the Internet, with direct savings of about SGD 2.9 million a year for Singapore traders (APEC, 2002b).

authorities are increasingly required to consider acceptance or interoperability of such electronic equivalents.

In Korea, all documents required for customs import entry declarations must be submitted in electronic form except for certificates of origin. Commercial invoices are no longer required; the relevant information is incorporated in the customs import entry declaration (CTB, 2001a). The NAFTA Implementation Act allows the US customs authorities to release entries without a review of invoices by a customs officer. Instead, commercial invoice information needs only to be transmitted when specifically requested by customs. This "Invoice by Request" feature is available within the electronic invoice programme prototype, and the electronic invoice is reportedly requested for a very small number of shipments. The Japanese customs authorities began accepting electronic invoices via the Internet from March 2003, and they are currently reviewing the interoperability between Japan's customs system and private VANs (MOF, 2002). The Japan-Singapore Economic Partnership Agreement (JSEPA)[10] also includes a provision for jointly reviewing progress to accept, as supporting documents, electronic trade-related information and electronic versions of relevant documents exchanged between the public and private sectors. This is meant to help promote paperless trading.

Internet use

The Internet is increasingly used as a tool for communicating between traders and government authorities. The most widespread use of the Internet is probably for making trade-related information available to the public and may provide an easily accessible centre for all kinds of trade-related information.[11] Moreover, governments increasingly offer the possibility to submit electronically via the Internet import entry declarations and other relevant documents required in border procedures. Businesses generally welcome the use of the Internet for modernising customs procedures and emphasise its advantages, such as the ability to access shipment information quickly, securely and from any location (ICC, 2002).

Some OECD and non-OECD countries have either partly or fully implemented such a system for customs declarations, while several others are in the process of doing so. Hong Kong (China), Japan, Korea,

10. For further information on JSEPA, see www.mofa.go.jp/region/asia-paci/singapore/jsepa.html.

11. As of 6 July 2005, 134 out of 166 members of the WCO provide hyperlinks to their homepages on the "customs web sites" at www.wcoomd.org/ie/en/CustomsWebSites/customswebsites.html.

New Zealand, the Philippines, Singapore, Sweden and Thailand are some examples. In several European countries like the United Kingdom and Germany, private VANs act as clearing houses for receiving trade data from traders via the Internet and forwarding them to the relevant government system through closed networks. Also, UNCTAD has launched a Web-based version of ASYCUDA, called AsycudaWorld, which is compatible with the latest EDI-based ASYCUDA ++ (UNCTAD, 2002a).

An interesting possibility is the use of mobile phones for Internet connection. In the Philippines, Internet access through mobile phones allows traders to pay duties as well as access trade-related information (ASEM, 2002a). In Sweden too, trade-related information can be accessed via mobile phones (Swedish Customs, 2002). In a pilot project in Japan, truck drivers can use mobile phones to check the status of customs clearance and whether and when to move their containers to or from the container yard in the port.[12]

Benefits of Internet use have been well documented in the context of e-commerce and e-government. For instance, the installation of Web-based systems normally costs much less than conventional EDI systems, since it does not require a specific type of hardware and software, and the same infrastructure can be used for both business and official purposes. Web-based systems are of particular interest to SMEs in developing countries which suffer from a number of drawbacks, such as their distance from important markets and the lack of information about market opportunities and available supplies. However, developing countries are less in a position to avail themselves of Internet services than developed countries owing to their physical and financial constraints. They may need first to invest in basic infrastructure for telecommunication and power supply. Such investments are usually substantial but the services they generate can be shared and benefit the society as a whole.

Experience to date indicates that Internet communication is unlikely to be adopted for all government border procedures. It is likely that conventional electronic means of communication will be retained for the time being, including closed EDI systems based on in-house direct connection or via relevant agencies, through input at a designated centre, or submitted on floppy disks. Traders are able to select the most suitable means of communicating with government authorities. Since Internet-based solutions are often currently considered more vulnerable for heavy traffic, direct permanent EDI-based connections to the relevant authorities may be suitable for regular and high-volume traders. Low-volume traders may

12. www.hits-h.com/.

prefer the Internet. For example, New Zealand Customs Service (2004) suggests that Internet declarations are generally more suitable for low-volume traders, because they do not need to invest in special software but simply pay for message costs. If compatibility among communication means is assured, such multi-tiered systems are likely to be adopted elsewhere, although it is generally more expensive for governments to maintain multiple systems.

Single-window environment

A "single window" can be described as a system that allows traders to lodge information with a single body to fulfil all trade-related regulatory requirements (UNECE, 2002). It can provide one entrance for all data and documents related to the release and clearance of an international transaction. The concept of single-window environments, whether physical or electronic, has existed for several decades and has been recommended for a long time.[13] However, implementation has been slow in many countries. This is partly due to competition between government agencies and legacy systems that make interoperability difficult. Agencies are often reluctant to change their current automated system for the sake of interoperability. In spite of this, an increasing number of electronic single windows are now in operation, including in Australia, the Czech Republic, Finland, Japan, Mauritius, the Netherlands, Norway, Sweden, Singapore, Thailand, the United Kingdom and the United States.

Electronic single-window systems can be established in different ways (UNECE, 2002). One is to allow one agency, such as customs services, to perform a number of tasks on behalf of other government agencies. Such a system is used in the Netherlands and Sweden. In Sweden, "virtual customs" are in charge of selected trade-related procedures via the Internet (Swedish Customs, 2002). Another is an entry through which traders are able to communicate with different systems of different government agencies, as in Singapore and Mauritius. A third is a single integrated system which allows traders to submit the standardised data only once; the system distributes the data to the relevant agencies. Current automated systems in Japan and the United States fall into this category. Japan's system was installed in July 2003, and as of the beginning of 2004 it is reported to handle close to a quarter of customs clearances (OECD, 2004). In addition, private VANs may provide a single-window function as intermediaries and value-added services by receiving the necessary information for border procedures from traders and distributing it to the

13. ICAO, CICA, Annex 9 (4.24) Recommended Practice (UN, 2001).

relevant government authorities in appropriate form, as in several European countries.

Co-operation and co-ordination among the relevant government agencies are essential for successful single-window environments. With a single-window system, different procedures can be processed in parallel, thereby reducing delays. Also, traders do not need to keep different systems or produce data in different formats for different border procedures. Another possible benefit to governments is the possibility of carrying out risk analysis by sharing information among relevant government agencies, so as to enhance the overall efficiency of government. In this case, it may be necessary to overcome problems relating to confidentiality, as authorities may be prohibited from forwarding information declared by traders to other agencies. A UN/CEFACT recommendation on establishing a single-window system and associated guidelines, which are currently under discussion, may provide a good reference for planning and establishing single-window environments (UN/CEFACT, 2004).

Harmonisation/standardisation

Another development is the progress made in the harmonisation or standardisation of electronic message structures and data elements. UN/EDIFACT (United Nations Directories for Electronic Data Interchange for Administration, Commerce and Transport)[14] provides a set of international standards in this area. These standards are used by the G7 countries, which have harmonised and standardised their customs message structures and data requirements. In January 2002, this initiative was taken over by the WCO for implementation and follow-up work and renamed "WCO Customs Data Model".[15] UNECE has elaborated an integrated set of electronic standards-based trade documents to be implemented on a pilot basis in selected countries (UNECE, 2004).

A number of international initiatives to align their border procedures, including customs procedures, with internationally standardised or harmonised systems have also been taken by members of regional trade agreements. In APEC, for example, collective action plans (CAPs) in the area of customs procedures provide for the adoption and support of the UN/EDIFACT standard as well as the harmonisation of common data elements based on the WCO work for customs cargo clearance (APEC, 2002c). Similar endeavours are part of the ASEM Trade Facilitation Action Plan for 2002/04 (ASEM, 2002b). The EU-Mercosur Action Plan on

14. www.unece.org/trade/untdid/welcome.htm.

15. www.wcoomd.org/ie/En/Topics_Issues/FacilitationCustomsProcedures/.

Business Facilitation agreed in May 2002 includes "an undertaking to use and further develop information technology, using international standards" (EC, 2002b), and the Positive Economic Agenda agreed in the EU-US Summit in 2002 includes an electronic customs initiative for defining and developing prototypes between the EU and the United States (EC, 2002c).

The EU has also undertaken community-wide efforts to harmonise members' automated systems in its "Customs 2007" programme (EC, 2003b),[16] including the New Computerised Transit System (NCTS). The main elements of the NCTS are: to confirm the legal status of electronic exchanges between economic operators and customs as well as between the various customs administrations; to provide rules on the structure and content of messages to be exchanged as well as the codes to be used; and to establish a procedure for providing systematic advance notification to concerned customs through electronic exchange of data between member customs administrations. This covers transit procedures undertaken on the basis of single administrative document (SAD) declarations and therefore mainly concerns road transport at present (although it is applicable to other modes of transport). The programme also includes an objective to support the creation of e-customs via the development of communication systems coupled with the necessary legislative and administrative changes (EC, 2002d).

Harmonisation or standardisation of data requirements is essential for taking full advantage of electronic documentation. This can take place between the relevant automated systems in the public and private sectors, among government agencies, and between agencies in importing and exporting countries. It would enhance transparency of border procedures by eliminating data ambiguities and allow traders to find easily information on the type and format of data required. Harmonisation or standardisation would also allow traders to use the same information for commercial documents, export and import documents, and for statistical and trade regulation purposes. They would not have to re-enter or modify data for each instance, and opportunities for errors in electronic documentation would be greatly reduced. This would pave the way for a "seamless data flow" throughout trade-related activities.[17] As a result, traders could avoid the burden of complying with different requirements of different

16. http://europa.eu.int/comm/taxation_customs/customs/c2007/customs_2007_0_en.htm.

17. In the WCO Customs Data Model, export and import data requirements are aligned and the respective electronic declarations share the same structure. This allows traders to exchange information more economically and enables the importer to utilise the export information as the basis for the import formalities.

authorities. International shipping lines calling at multiple ports are often faced with this problem (APEC, 2002a).

Additional observations

The emerging trends summarised above lend themselves to several cross-cutting observations. One is that traders are provided multiple choices for communicating with the relevant government authorities, including paper-based systems, inputs at a designated centre, physical submissions on floppy disks, closed EDI systems, trade-related private agencies such as customs brokers, open network Internet systems, private or quasi-governmental VANs, direct permanent connection to the related authorities, or varying combinations of the above. Traders can choose the most suitable means of communicating with government authorities depending on their situation. On the other hand, it is worthwhile noting that electronic lodgement has become mandatory in several cases, and more countries are expected to follow, particularly in light of increasing national security concerns about the movement of cargo.

Another observation is the importance of interoperability among information exchange systems to ensure the efficiency of border procedures. Co-operation and co-ordination are essential between the public and private sectors, among border agencies, and between authorities in importing and exporting countries. For example, the implementation of electronic single-window systems requires interoperability between government systems as well as co-ordination between the private and public sectors. Risk management is also facilitated if the authorities in importing and exporting countries have interoperable information systems.

Conclusions

The negotiation of WTO disciplines on trade facilitation is of concern to some developing countries. Their concerns relate to the prospective costs of compliance and the capacity constraints of implementing additional disciplines.

Among trade facilitation measures, customs automation has attracted considerable attention owing to its potential for reducing trade transaction costs. In particular, it is considered one of the most promising ways to facilitate trade while safeguarding national and social security. Yet the cost of automation may be significantly greater than other trade facilitation measures, even though it varies depending on the initial state of customs infrastructure and customs procedures and the ambitiousness of the reform.

In some cases, automation takes up two-thirds of the budget for customs-related lending projects.

Customs modernisation programmes may require commitments to large initial investments and long-term operating and maintenance costs. Yet experience has shown that the costs can be quickly recouped by the gains from facilitated trade and increased productivity in customs administrations. The non-application of automation can also entail a high opportunity cost.

Automation should not be considered a panacea for achieving the benefits of trade facilitation. Rather, real benefits can be achieved only if automation is accompanied by measures to streamline and simplify border procedures. In addition, long-term financial and political commitment must be provided to maintain automated systems, particularly in low-income and medium-income countries.

Trends in recently introduced automation include paperless environments, Internet use, single-window systems, and harmonisation/standardisation. Multi-tier means of communication and interoperability between different automated systems are also of great importance.

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Chapter 6

The Cost of Introducing and Implementing Trade Facilitation Measures

by

Evdokia Moise

This chapter seeks to analyse the costs of introducing and implementing trade facilitation measures, in response to the WTO 2004 Modalities for Negotiations on Trade Facilitation, which decided to "address the concerns of developing and least-developed countries related to cost implications of proposed measures". It draws on the experience of 15 non-OECD member countries, which have recently introduced, or are in the process of introducing, trade facilitation measures proposed for inclusion in a future WTO agreement on trade facilitation. The aim of the study was to provide indications as to the relative complexity of the measures, the challenges presented by their implementation and approaches for overcoming such challenges in practice.

OVERCOMING BORDER BOTTLENECKS: THE COSTS AND BENEFITS OF TRADE FACILITATION – ISBN 978-92-64-05694-7 © OECD 2009

Introduction

The costs of introducing and implementing trade facilitation measures have increasingly attracted attention and have been the subject of much concern in recent WTO discussions, including at the 5th WTO Ministerial Conference, held in Cancun in September 2003. In the lead-up to the conference, several developing countries expressed reluctance to engage in trade facilitation commitments that might prove disproportionately costly for their economies, particularly since they had no clear idea of the importance of these costs. Owing to the lack of reliable data on this issue, unsubstantiated and unrealistic figures were floated during the conference. The Decision adopted by the WTO General Council on 1 August 2004 indicates that negotiations on trade facilitation "shall also address the concerns of developing and least developed countries related to cost implications of proposed measures".

Recognising the significance of the cost issue for future negotiation prospects, the OECD Trade Committee decided to analyse the costs of introducing and implementing trade facilitation measures as a follow-up and complement to its recent work to quantify the benefits of such measures. In view of the lack of consistent data on costs, the first task was to collect reliable and comparable data that could then be analysed with a view to better understanding what trade facilitation measures may entail. It therefore sought the assistance of countries that have just introduced, or are in the process of introducing, trade facilitation measures and have figures on their implementation expenses. Networking and data collection benefited from valuable support from the Secretariat of the World Customs Organization (WCO). The focus was on costs to government; possible costs for the private sector were not addressed. Furthermore, research was intentionally limited to data already available to the participating countries; no attempt was made to generate new data.

Fifteen non-member countries accepted to participate in the study: Argentina, Barbados, Cambodia, Chile, Jamaica, Latvia, Mauritius, Morocco, Mozambique, the Philippines, Senegal, Tanzania, Thailand, Uganda and Zambia. They represent Africa, Asia, Europe and the Americas and six are least developed countries (LDCs). Information from a number of OECD countries suggests that their recent developments in the area of trade facilitation were small incremental steps in a long-standing process, so that data for those countries would not provide an accurate picture for the purposes of this study.

The countries covered are very different from each other in many respects: size, geographical and geopolitical conditions, level of

development and trade patterns. For countries like Chile and Morocco, their integration into global trade has generated additional customs revenue which helped finance the adaptation of the customs administration to the challenges raised by increased trade flows. In countries like Mozambique, Senegal or Uganda, instead, reforms aim at fostering the conditions for better integration into global trade, including by improving the country's export competitiveness and attractiveness for investment. Cambodia, the least advanced of the reviewed countries in terms of customs reform, faces challenges that other countries may have already resolved. Countries' differing situations should be taken into account in interpreting figures and outcomes: trade facilitation and customs reform endeavours did not start from the same point everywhere and the research could only focus on additional costs for new measures.

To keep the scope of the research manageable, only trade facilitation measures in the narrow sense – as discussed in the WTO Negotiating Group on Trade Facilitation[1] and detailed in OECD (2003) – are considered. Eleven measures among the proposals made by WTO members at the Negotiating Group on Trade Facilitation were selected so as to cover the broad lines of the WTO discussions and to ensure that sufficient information could be gathered from the reviewed countries. To avoid duplication with the work of international organisations with extensive field experience in transit issues, measures related to transit were not included. As noted in OECD (2003), there is a range of possible approaches for pursuing and implementing trade facilitation principles, although multilateral endeavours do call for coherence and consistency. The studies undertaken here show that, while implementing some of the measures requires other measures to be up and running, there is still room for flexibility in the way trade facilitation is put in place.

Many of the measures studied primarily concern customs procedures and requirements; these are of particular importance in international trade since customs is, in practice, the only government body that deals with all goods arriving in and departing from countries. However, customs administrations are invariably responsible for the application not just of their own procedures and requirements but also those of a range of other authorities, particularly for ensuring compliance with documentary requirements (licences, certificates, etc.) for many purposes. Second, on many occasions both the customs and other authorities require physical examination of certain goods to ensure they meet official requirements.

1. A compilation of all proposals made by WTO members at the Negotiating Group on Trade Facilitation can be found in WTO Document No. TN/TF/W/43 of 3 June 2005, revisedregularly since to incorporate new proposals and amendments.

Appropriate co-ordination and co-operation between authorities constitutes in itself an important element of trade facilitation and sometimes results in significant reductions in time and costs for traders. Customs procedures benefit from a fairly advanced level of international standardisation owing in particular to the work of the WCO, and this contributed significantly to the comparability of data examined in this chapter. It should be noted that the choice of measures adopted here is not intended to prejudice the scope and definition of trade facilitation in OECD discussions and ongoing WTO negotiations.

The introduction and use of automated systems is not included as a separate item. As investments in information technology (IT) are undertaken primarily in relation to customs control operations and are also part of the regular maintenance of existing systems, it would be very difficult to distinguish costs related to the implementation of trade facilitation measures from other IT costs. Nevertheless, while IT was not studied on its own merit, it was not excluded altogether. There are aspects of IT related to a particular trade facilitation procedure or practice, such as transparency mechanisms, advance lodgement and processing of data or risk management mechanisms, which do in fact have to be taken into account to properly assess the costs of these procedures.

The following pages first make some general observations and describe a typology of trade facilitation cost components. The main findings for each reviewed measure, including country examples, are presented next. Annex 6.A1 gives a brief description of the measures considered.

Assessing the costs and challenges of trade facilitation

General observations

In all the reviewed countries, most of the trade facilitation measures examined were part of larger efficiency-enhancing efforts. The country studies confirm that trade facilitation is generally not the main objective of reforms in border procedures, although, as in Morocco, it may well be an important goal. This is in fact often the case, despite considerable differences in the initial situations of the reviewed countries or the main driving forces behind reform. Motivations like the transition to a market economy and accession to the EU in the case of Latvia, the expansion of regional trade links in the case of Chile, or revenue enhancement in the case of Uganda and Mozambique imposed similar efficiency-enhancing strategies on these countries, albeit on a different scale. The studies also show that even if facilitation is not the primary objective, it is certainly one of the main positive outcomes of reforms. Trade facilitation measures have

introduced new ways to fulfil the traditional mandates of border agencies, often making them more efficient and effective by rationalising resource use, whether or not additional resources for facilitation were available.

The corollary is that generally no specific budget was allocated for introducing and implementing trade facilitation measures. Additional resources specifically earmarked for trade facilitation are often not available. Resources spent to introduce and implement these measures were therefore often absorbed in normal administrative operational costs. The implications are not the same, of course, for all countries. Some have been able to introduce facilitation measures with a minimum of change and expense because they already had relatively trade-friendly procedures. Others, having made less progress in the past, have found it difficult to introduce facilitation measures in some areas. Yet, progressive facilitation efforts woven into agencies' normal operations led in all cases to significant improvements for both the administration and the trading community.

The studies strongly underscore the close link between efficiency enhancement and trade facilitation: improved revenue collection owing to good governance has generated resources that can be devoted in part to adopting more business-friendly procedures. At the same time, they show that initial gains may be reversed when there are not enough resources or political momentum to sustain the process or to prevent backsliding. Interdependencies among the measures mean not only that it is not feasible to introduce some of the measures in isolation but also that weaknesses in the implementation of some measures may limit the effectiveness of others.

Not surprisingly, among the measures selected for review, the most radical and complex changes were required in the most technically demanding areas of risk assessment, audit-based controls and special procedures for authorised persons. Costs incurred in these areas were primarily related to recruitment and training of specialised staff and for equipment, but the time necessary for satisfactory implementation of the measures constitutes an additional challenge. Advance lodgement and processing of data is also a challenge for some countries because of the IT requirements. The costs of such measures were not large in the overall context of reform, with the probable exception of IT. However, IT concerns far more than trade facilitation, and the costs would have been borne even in the absence of a trade facilitation agenda. Current developments suggest that the costs are more than offset by staff savings at the border and by enhanced control and revenue collection. For obvious reasons, only time will show the full financial and procedural benefits derived from these control techniques. In Morocco, the anticipated benefits have clearly already been achieved.

As a final point it is important to stress the difficulties encountered for identifying cost elements. Very few measures or tasks could be isolated from related tasks or from broader endeavours. The reviewed customs administrations did not always have a clear picture of what specific measures entailed in terms of resources, although they were in a position to indicate the major challenges posed by their introduction and implementation. This difficulty was particularly clear when seeking to identify country needs with respect to a given measure and suggests that many countries may need assistance to better understand what possible trade facilitation commitments may require in their domestic regulatory and economic context.

Typology of cost components

The introduction and implementation of trade facilitation measures have entailed costs in one or more of the following areas: new regulation, institutional changes, training, equipment and infrastructure. Among cost components, equipment and infrastructure may often be the most expensive; however, training appears to be the most significant, as trade facilitation is primarily about changing border agencies' ways of doing business. An accurate cost assessment needs to factor in linkages between different elements of trade facilitation that cannot be correctly implemented in isolation, such as separation of release from clearance and risk assessment. The costs of introducing and implementing trade facilitation measures also need to be seen in the light of their effectiveness, but in the absence of quantitative performance indicators, it is very difficult to get a full picture of the costs and benefits. Clarifying the linkages between the different cost components and exploring possible parameters for assessing the measures' effectiveness may be important tasks for future analysis.

***Regulatory costs*:** Trade facilitation measures may sometimes require new legislation or the amendment of existing laws in accordance with the national legislative and regulatory process of each country. This will in turn involve time and staff specialised in regulatory work in ministries, the centre of government and parliament. Resources required for legislative and regulatory work differ depending on the country's legislative structures, procedures and frequency of changes in legislation. However, with the exception of major legislative overhauls, as in the case of Cambodia, or the need for major legislative changes, such as the adoption of legislation on electronic signatures, most changes pertinent to trade facilitation seem to be handled at the operational level and entail little additional cost.

***Institutional costs*:** Some trade facilitation measures require the establishment of new units, such as a post-clearance team, a risk

management team or a central enquiry point, which may mobilise additional human and financial resources. With respect to the human resources, countries can either recruit new staff or redeploy existing staff. The former option generally costs more, although the latter option may also entail training costs, expenses for physically relocating staff and resources devoted to forward planning. As relocation is not an uncommon management practice in customs, redeployment linked to newly introduced trade facilitation measures may simply be part of the general practice of relocation. However, redeployment is only possible to a certain degree if service disruptions are to be avoided. In general, the more customs administrations introduce sophisticated, specialised functions, the less they can redeploy staff from one task to another.

In several of the reviewed countries, customs administrations are part of a single public revenue authority. Customs authorities that were brought under a common structure after having enjoyed institutional and budgetary autonomy tend to complain that such a structure focuses too much on revenue collection and too little on customs control and trade facilitation. However, this institutional arrangement seems to afford welcome economies of scale and to enable a valuable pooling of expertise and cross-fertilisation between tax and customs authorities, especially in poorer countries where the shortage of qualified staff is an important concern.

***Training costs*:** Training often appears as the most essential cost component of trade facilitation measures. Countries may choose between: *i)* recruiting new, expert staff; *ii)* training existing staff in a training centre; *iii)* on-the-job training; and *iv)* importing trained staff through personnel exchange with other ministries/agencies. Option *i)* is the most expensive since it implies a budgetary increase and can only tap into a limited pool of expertise with the necessary customs-specific skills and know-how. In a number of countries, option *i)* seems to be further constrained by a salary scale that is too low to attract staff with sufficient professionalism and integrity. Among reviewed countries the more commonly observed practice was a combination of options *ii)* and *iii)*. Regular training is common practice in many customs administrations around the world, although it varies in frequency and duration, and training for specific trade facilitation measures is often part of such general training. On-the-job training results in no additional cost for the administration, but it may give rise to temporary costs for traders, in the form of lower performance of the public service. On the other hand, the possibility to massively train officials to new techniques, such as risk assessment, may be constrained not only by financial considerations, but also by the need to avoid disrupting the administration's normal operations. Option *iv)* may be relevant for cases such as post-clearance audit, where appropriate expertise may be drawn from the inland

tax administration. Although this is a costless option for the state and for the customs administration, the loss of qualified staff from the tax administration may make it difficult to implement without high and sustained political commitment, even when customs and tax are under the same agency or department. Most reviewed countries provide for training of all customs officers when they join the administration. Training when customs legislation or practice is modified is also a common feature, although the number of officers trained is smaller.

***Equipment/infrastructure costs*:** Equipment and infrastructure are not a prerequisite for trade facilitation measures, although some of these measures, such as advance lodgement and processing of data, risk assessment or special procedures, are more readily implemented with appropriate equipment and infrastructure. Border agencies call for information and communication technology (ICT) products and infrastructure and scanners primarily to enhance the effectiveness and efficiency of customs operations and controls and only incidentally to sustain trade facilitation measures. For example, telephone lines and telephone equipment make it far easier for customs to communicate, and office automation provides genuine improvements in performance. None of these costs can be counted as costs of trade facilitation. Nevertheless, the studies show that insufficient equipment and infrastructure will make some facilitation measures more difficult to implement.

Most equipment and infrastructure should be viewed as implementation tools to be carefully combined and sequenced with regulatory, institutional or human resource changes. For example, as long as a country has not introduced modern risk management for targeting high-risk consignments and continues examining unnecessarily large numbers of low-risk consignments, scanners will not help reduce clearance times or enhance control performance. Likewise, while modern equipments and IT systems can be brought to bear on trade facilitation, a complementary investment in people is indispensable. As the technical aspects of customs work are improved, human resource development has to keep pace because any system is only as efficient as the people who run it. Furthermore, choosing implementation tools before elaborating the relevant policies (for instance introducing computer networks before modernising control and clearance procedures) runs the risk of reducing available policy options and making subsequent changes lengthier and more costly.

Distribution of costs and benefits

Analysing costs also implies identifying who bears such costs and how as well as where benefits accrue. Some measures may be provided for

through resource transfers among government agencies, while cost savings by a border agency may generate costs to traders or to another segment of the government. For example, the establishment of a central enquiry point could constitute a cost for the central administration, although it also eliminates or reduces the costs of regional customs offices for dealing with enquiries. Likewise, the conversion of a general court into a special customs court has the advantage of drawing on available knowledge and specialisation without generating costs for customs; however, it may be a net loss for complainants whose cases are not related to customs.

In some countries public-private partnerships have reduced the fiscal burden of implementation and the usual resistance to changes in the system. The Philippines Automated Customs Operations System (ACOS) is a product of such a public-private collaboration. Developed on the basis of ASYCUDA++, it benefited from financing, personnel and technical advice from private companies for the development of adjunct systems and requisite additional infrastructure. Private support can be extremely valuable in filling resource gaps, including to tackle expense overruns during the implementation of reforms, but it is obviously easier to elicit such support when the administration's good governance practices inspire confidence to the private sector.

In addition, a cost evaluation has to be set against a specific time frame, as some measures may involve important one-off costs but spawn long-term benefits. Countries' experience shows that, although the revenue collected by efficient customs administrations remains relatively stable or even increases despite large tariff cuts, it has nonetheless become less important in the revenue stream of the government. Customs modernisation will result in particular in cost savings, especially of personnel, in the ability of the administration to handle a growing number of trade declarations without the need for additional personnel and in shorter clearance times and more effective screening of cargoes.

Finally, it should be kept in mind that only a small cross-section of countries was studied. Their very diverse situations inevitably mean that practical application of trade facilitation measures in each country will differ in the immediate future. The aim of the study was not to generate hard and fast figures about how much each country is or should be spending for promoting trade facilitation but to provide indications as to the relative complexity of trade facilitation measures, the challenges that such measures present, and approaches for overcoming such challenges in practice.

Main findings

Publication and availability of information

Publication

All reviewed countries supply information of a general nature, including applicable laws, regulations and procedures, and operational aspects through a variety of means, including the *National Gazette* and the *Customs Bulletin*, press releases, public notices, stands at fairs and exhibitions. These are longstanding practices, well incorporated into customs administrations' operating budget and did not entail any additional expenses. Specific customs publication activities are often handled by a public relations unit or information desk inside the customs administration, which may range from 3 people (0.20% of total staff) in a small LDC like Senegal to 13 people (0.28% of total staff) in Argentina. In addition to staff expenses, there is a modest budgetary allocation for paper publications: in Mozambique this allocation averages USD 35 000 a year (in 2004, USD 37 212 or 0.13% of the total customs budget).

On the other hand, most of the countries do not publish internal procedures and guidelines, court judgements or the underlying objectives of enacted laws and regulations. Although it has not been possible to assess the potential costs of expanding publication practices to cover this type of information, it can be argued that it would not generate additional costs of any significance insofar as it relates to information that is available and therefore does not need to be specifically produced or collated. The situation may be different when countries need to develop the capacity to generate information that is lacking: for example, the World Bank has recently estimated the costs for enhancing legal transparency in Cambodia at USD 400 000, including USD 320 000 over 24 months to develop a system for publishing on the Internet all[2] commercial laws, regulations, draft legislation and final judgments of the Supreme Court and the Court of Appeal and USD 80 000 to provide training for judges and key staff. In the Philippines, the scarcity of published statistical information, other than trade value and volume and revenue collection, is not due to a lack of transparency but to the fact that such information still has to be compiled manually for a number of ports and transactions.

The provision of value-added services may generate extra costs, but these are usually passed on to the customer. In Chile, new regulations and rulings are published free of charge on the Customs website, users can also

2. That is, not only pertaining to those applicable to the movement of goods across the border.

access them for a fee through a special legal compendium (*Bulletìn Jurídico*). Likewise, the monthly statistics bulletin is free of charge but specific statistics questions are billed. Latvia subjects the supply of information from government databases to a fee that reflects the cost of retrieval. The provision of information that is specific in nature and not available through traditional means of publication may be free of charge in some countries (Argentina, Mauritius), or subject to service fees on a cost-recovery basis in others (Thailand).

Efforts to make information available in a widely used language other than the country's official language (for instance English) also generate additional costs, which some poor countries may find of relatively low priority, considering their available resources. Mozambique, a Portuguese-speaking African country, has found it financially impossible to undertake translation of customs information into English in the face of competing requirements for other reforms.

Internet publication

Provision of information on the Internet is also widespread, often via a customs website (Cambodia, Chile, Jamaica, Latvia, Mozambique, Morocco, Senegal) but sometimes in an area of the national revenue authority website when customs is part of such an authority (Argentina, Uganda). The costs of putting in place and operating a website include the creation of the site's frame, expenses for purchasing or developing the appropriate software and for elaborating the information platform, which are one-off expenses, and the staff required for keeping the Web pages up to date (Table 6.1).

In Chile, the creation in 2000 of the customs website frame was entrusted to a private company and cost USD 2 000, and the software for operating the site cost USD 10 000. The information platform (in Spanish and English) was elaborated in house and mobilised ten staff members for approximately one year. In Mozambique, the website frame for the newly launched customs portal was created internally in around a month by a development team of four and an additional USD 8 500 was paid for the software. By contrast, the quoted price for purchasing a "turnkey" system from an outside company was USD 50 000. In Senegal, the creation of the customs website in 2000 mobilised a special project team for a period of six months and cost in total USD 18 000.

Daily operation of websites appears relatively inexpensive and there are no additional costs for putting together the information displayed on the website because this is handled by the people that deal with the traditional paper publications. In Chile, in addition to staff in the communications

department who collate the information to be published, the website requires two staff members (0.15% of total staff) for operation and daily updates. The Cambodian customs website is also operated by two customs staff (0.17% of total staff). In Argentina, the customs pages on the Federal revenue authority website are handled by seven staff members (0.15% of total staff).

Enquiry points

Enquiry points are increasingly established to help customs users and to improve and rationalise the work of customs officers. They can be centrally located (physically or in the form of an electronic portal), or in regional customs offices. In Mozambique, an online enquiry point was included in the newly created customs website and expenses for its establishment were part of the website creation expenses noted above. In Argentina, the customs website includes "intelligent search" facilities for customs resolutions and enquiries. In Latvia, a small group of three people was set up in the central administration to deal with enquiries. In Chile, in addition to information desks in regional offices, questions can be asked through the customs website; replies are also provided electronically, on the same day if they are about applicable rules. Customs administrations generally consider that the operation of these measures does not generate additional expenses, because they result in time savings for other staff that no longer have to deal with routine enquiries.

A relatively ambitious project was envisaged by Senegal, which set up in 2000 a new business advice and facilitation entity to provide information support and advice to traders to help them select the most advantageous regimes. However, an insufficient endowment in human resources (currently one person) and the fact that the applicable regulatory framework makes no provision for it, made it very difficult for the entity to adequately fulfil its tasks. In its 2003 Strategic Action Plan, Senegalese customs planned to devote USD 14 450 over a period of six months to reinforce the business advice and facilitation entity, including through better organisation and the acquisition of supporting equipment.

No enquiry points are available in Barbados; the country's small size and the limited number of customs offices led the administration to consider this measure superfluous.

Binding rulings

Binding rulings on classification, valuation or origin may be supplied on application in a number of the reviewed countries but are not available everywhere. In some countries users may request an advance valuation or

classification assessment of their goods but the assessment is not binding upon the administration. This is the case in Senegal, where the automated customs system Trade X allows traders to calculate in advance duties and taxes payable on a given consignment, although the simulation outcome does not commit the customs administration. Binding rulings are not available in Cambodia or Mozambique either. In Tanzania, a unit devoted to binding rulings on classification and origin will be established in the framework of the ongoing Customs Modernisation Plan. In the Philippines the Tariff Commission, an agency under the Office of the President, has exclusive authority to issue advance rulings on classification, but such rulings are rarely sought; the customs have no authority to issue rulings on valuation and origin.

Among countries that provide for binding rulings, rulings on classification are a longstanding practice, but there is much less experience with rulings on valuation and origin. In Argentina, a unit of 30 people (0.64% of total staff) is devoted to binding rulings, mainly in the area of classification. In Zambia nine officers (1.63% of total staff) are in charge of delivering binding rulings in addition to their other duties. In Barbados, a Classification Committee composed of eight officers (1.7% of total staff) issues binding rulings on tariff classification; although the possibility of rulings on valuation and origin is provided for, no such rulings have been requested to date. In Chile valuation rulings were to be available from 2007 to allow for the necessary on-the-job training of the staff concerned.

Rulings are issued free of charge in some countries and are subject to a fee in others. The rulings are usually only notified to the affected party and are not publicised more widely, however there are some interesting exceptions. In Jamaica, rulings are shared among concerned customs officers, so as to ensure consistency of customs decisions and policy implementation. In Argentina, the customs administration exceptionally issues general rulings on classification and valuation that are published in the Official Gazette.[3] All countries considered that the administration of such rulings calls for no additional resources, as in most cases assessment would take place anyway at the moment of importation.

3. The practice of publicising binding rulings is more widespread among OECD countries, for instance in Australia, Canada or the United States (see OECD, 2002).

Table 6.1. Illustrative costs for publication measures

	Internet introduction[1]	Staff assigned to internet operation	Staff assigned to rulings
Argentina	n.a.	0.15%	0.64%
Barbados	n.a.	n.a.	1.7%
Cambodia	24 man-months	0.17%	--
Chile	USD 12 000 + 120 man-months	0.15%	n.a.
Mozambique	USD 8 500 + 4 man-months	n.a.	--
Senegal	USD 18 000 USD	n.a.	--
Zambia	n.a.	n.a.	1.63%

n.a. Figures not available.

--: Not applicable; the measure has not been introduced.

1. Figures in monetary terms refer to purchases of goods and services; figures in manpower terms refer to tasks undertaken by customs staff.

Source: Based on data provided by the national administrations.

Consultative and feedack mechanisms; communication with traders

Customs administrations in most countries maintain formal consultative arrangements with different stakeholders, such as importer associations, government ministries/agencies, brokers associations and the trading community, at both national and local (port, airport, regional) levels. Consultations can cover proposals for new or amended legislation and procedures, customs practices, location, competence and working hours of customs offices, or other items proposed by the trading community. Communication on a less formal basis can also take place at the request of traders. The frequency of consultation depends on outstanding issues. Argentina, for instance, reports that its customs administration holds on average 120 consultations a year. Mauritius holds three formal consultations a year at the national level and local consultations once a month in each airport and port. In Mozambique, in addition to consultations held prior to the enactment of new or amended regulation, the CSTA (*Conselho Superior Técnico Aduaneiro*, the formal entity entrusted with consultations, composed of the General Director of Customs and representatives of the Ministries of Trade, Health, Agriculture and Transport, of the clearing agents and of the Confederation of Trade associations) meets twice a year to ensure good working relations between the administration and the private

sector. Mozambique considers these consultations as one of the major strengths of their post-reform regime.

In the Philippines, it is felt that the customs administration's success in mobilising private-sector resources and support for new regulations and practices was largely due to their policy of enhanced communication with different stakeholder groups. For instance, it has concluded a co-operation agreement with the Philippines Chamber of Commerce and Industry (PCCI) and the Federation of Philippine Industries (FPI) to prevent and control smuggling by sharing data analysis on abnormalities in the value of specific shipments. This data link-up project was wholly funded by FPI, while the technical work was done by customs IT personnel.

Consultative arrangements of customs administrations may also be part of wider consultative mechanisms operated by the government or initiated by the private sector. Cambodia has established a Working Group on Legislation, Governance and Taxation in the framework of the government-wide Government-Private Sector Public Forum, which will include a partnership mechanism between the Customs and Excise Department (CED) and stakeholders. The partnership will be based on a series of Memoranda of Understanding to be concluded with business groups, such as the Chamber of Commerce, the freight forwarders association and the customs brokers association. A Business Outreach consultation programme was also envisaged in the CED Annual Report of 2001 but it has not yet been established. Since 1999, Barbados operates a tripartite consultative mechanism known as the Customs, Trade and Finance Consultative Committee, which meets roughly every three months. In Tanzania, the customs department is a member of the Shipping Industry Consultative Forum and uses it to get feedback from stakeholders and advise them of policy changes. Consultations and sensitisation during the transition to ASYCUDA++ were conducted in this framework.

In Barbados, Mauritius and Tanzania, customs also organises training sessions for the private sector aimed at familiarising traders, brokers and other relevant stakeholders with inputs expected from them under newly introduced or upcoming measures (such as new documentation, the introduction of electronic lodgement of data, updates of the customs electronic data interchange [EDI] system, etc.). These sessions are often absorbed in the budget available for customs training, but may also (Mauritius) be partly passed on to the concerned stakeholders.

All interviewed administrations reported that the costs for operating consultative and communication mechanisms are minimal. At the same time, administrations find it extremely difficult to assess the number of hours devoted to specific consultations and thus to express incurred "costs"

in terms of staff hours, because several areas and many stakeholders may be involved in a given consultation at different points in time and because some consultation outcomes may be discarded outright while others may go through a series of discussion rounds that spill over more than a single year. In general, customs administrations consider that such consultative and communication mechanisms are essential for their good and efficient governance; their costs are not budgeted as "additional" as they are central to the operation of customs.

Review and appeal procedures and due process

In all of the countries, users can ask for customs decisions to be reviewed in the first instance by superior officers in the customs administration. In Chile, for instance, claims have to be addressed first to the Regional Customs Director or Administrator (*Juicio de Reclamo*). The decision can then be appealed to the Director of the National Customs Service. In handling the review, these officers are subject to administrative laws, rules and procedures. In Cambodia, a unit of seven or eight officers (0.69% of total staff) is in charge of dispute resolution within customs, and the formal appeals system is essentially not used. In Zambia, nine customs officers (1.63% of total staff) handle recourses in addition to their other tasks. In Tanzania, where approximately 300 litigation cases are handled yearly by customs, the ongoing Customs Modernisation Plan provides for the creation of a technical disputes and rulings unit in the near future. In Barbados, where the litigation rate is approximately two cases a year, recourses are handled directly by the comptroller, *i.e.* the head of the customs administration. In all countries, the administration handles such reviews part-time in addition to other tasks and does not incur additional costs for this work.

Appeals may be lodged either in the courts or in a special tribunal. Appeals to general courts are the least expensive solution for the administration, but experience shows they are generally time-consuming and costly for users. The record is better with administrative courts, whether they have general jurisdiction on citizens' appeals against the state, as in Latvia, or jurisdiction on fiscal matters, like the Tax Appeals Tribunal in Mauritius, the Philippines, Uganda and Tanzania, the Revenue Court in Jamaica, or the Federal Fiscal Tribunal in Argentina. In Mauritius customs decisions could be appealed to the Tax Appeal Tribunal, established in 1984, until 2003, when the tribunal was replaced by an Assessment Review Committee, set up to hear representations from aggrieved taxpayers and required to take decisions within a period of eight weeks. Decisions of the tribunal and of the committee can be further appealed to the Supreme Court.

Customs cases were in both instances a very small part of total appeals (on average 0.56% and 0.38%, respectively).

In Argentina, nine out of the 21 judges in the tribunal and roughly 43% of the tribunal's budget (about USD 955 570 of a total of about USD 2.27 million in 2004) are allotted to customs matters. Although it is possible to lodge appeals with the judicial authorities, the vast majority of tax and customs cases go to the Fiscal Tribunal because of its specificity and professionalism; among the cases heard by the Tribunal, customs infractions have the highest litigation rate (40%). In countries where customs matters are heard by administrative courts, costs related to their operation are absorbed in the country's court system and are not specifically considered in border administrations' budgets for trade facilitation. Most countries also make provision for appealing decisions of the administrative tribunal to the country's Court of Appeals.

To provide a more efficient and timely handling of customs issues, Morocco has created a specific appeals mechanism for customs, composed of a network of regional appeals commissions and a national appeals commission. The commissions, presided over by a customs official, include representatives from other government departments and professional bodies; their decisions can be further appealed to the courts. These commissions were set up during a general review of the customs code that ended in 2000 and were part of the general reorganisation of customs arrangements. Morocco reports that they did not involve any measurable costs.

Mozambique has also established a specific mechanism for appeals, composed of three customs tribunals, one in each of the three administrative regions of the country. The tribunal of the southern region, which includes the capital Maputo, is currently composed of five judges and 37-39 support staff (the tribunal's budget allows for a total of 62 people); the tribunals in the regions of Beira and Nacala are each composed of one judge (two are allowed) and ten support staff. The average litigation rate is around 1 000 cases a year which are essentially brought by the administration. However, the figures are expected to rise as traders' confidence increases and they use the tribunal more often. A case is usually decided in 60-120 days, compared to an average of 6-12 months in administrative tribunals. At their inception, 50% of the collected fines financed the tribunals, which were staffed by former customs officers. Gradually, professional judges, enjoying judges' privileges, immunities and salary, have been appointed to the tribunals, which since 2005 have also been allotted their own budget: MZM 14.3 billion for the Maputo region (around USD 579 500) and MZM 5.9 billion (USD 284 000) and MZM 5.2 billion (USD 210 000) for the Beira and Nacala regions respectively. Judges and supporting staff undergo 4-6 months of initial training on customs matters in

the Matola training centre run by the Ministry of Justice and also benefit from periodic training afterwards.

Advance lodgement and processing of data

Advance lodgement and processing of data require a certain degree of automation of customs systems. Cost information in this section reflects this fact and should be interpreted with caution (Table 6.2). Expenses incurred for implementing automation cannot be counted as costs of trade facilitation; however, their efficiency-enhancing effect will support the implementation of a trade facilitation strategy.

Table 6.2. Advance lodgement systems

	IT supported	IT system	Inception cost	Upgrading cost	Annual maintenance cost
Argentina	✓	SIM (SOFIX)	made available	n.a.	n.a.
Barbados	partial	ASYCUDA 2.7	n.a.	n.a.	n.a.
Cambodia	no	--	--	--	--
Chile	✓	ISIDORA	n.a.	n.a.	n.a.
Jamaica	✓	TIMS	USD 5 million	n.a.	n.a.
Latvia	✓	n.a.	n.a.	n.a.	n.a
Mauritius	✓	CMS	n.a.	n.a.	n.a.
Morocco	✓	SADOC (SOFIX)	n.a	n.a.	n.a.
Mozambique	partial	TIMS	USD 4 (made available)	USD 200 000 (geographical extension)	USD 50 000
Philippines	✓	ACOS (ASYCUDA++)	USD 2 565 000 (customisation)	USD 9 914 000 (Windows upgrade)	USD 1 086 000[2]
Senegal	✓	TRADE X	n.a.	USD 1 850 400 (web migration)	USD 740 160
Tanzania	partial	ASYCUDA 2.7	USD 938 7851 (1994)	USD 770 440[1] (ASYCUDA++)	n.a.
Thailand	✓	n.a.	n.a.	n.a.	n.a.
Uganda	partial	n.a.	n.a.	n.a.	n.a.

n.a. Figures not available.

-- Not applicable; the measure has not been introduced.

1. Costs covered by donor assistance.

2. Average maintenance expenses 1993-99

Source: Based on data provided by the national administrations.

Although electronic lodgement of goods declarations does not have to take place on line (before Latvia set up its computer system in 1999, customs already allowed the declaration to be lodged on a floppy disk prior to the arrival of the goods), checking the data does require some IT infrastructure. Cambodia is the only exception among the countries reviewed; it provides for entirely manual advance lodgement and processing of data, without any IT support. However, this is only possible at Sihanoukville seaport for government imports, imports of raw materials, machinery and accessories of investment firms, or if the importer is awaiting administrative letters. A request for advance lodgement and processing is submitted for approval by the director general of customs on the assumption that it concerns urgently needed goods. The mechanism is further supported by the use of PSI and is in any event minimally used.

In other countries IT capacity conditions to a certain extent the possibility of lodging and processing data in advance. For instance, Zambia has not yet introduced advance lodgement and processing because electronic means are still uncommon in the land transport sector, which represents the bulk of the country's import flows. In Uganda, advance lodgement and processing are possible in the Kampala region, where the larger proportion of goods is cleared, but not at land boundary posts, where trade flows are too small to justify computerisation, even in the foreseeable future. Thus, although there are no identifiable additional costs for establishing advance lodgement and processing of data other than the automation costs incurred for enhancing the efficiency of customs controls and operations, this trade facilitation measure is very difficult to implement in the absence of automation. However, even partial implementation of advance lodgement and processing of data in Uganda has generated important savings by reducing the number of staff engaged in clearance work. In Chile, customs estimated that advance lodgement and processing of data with the support of the IT system ISIDORA has allowed them savings in 2003 alone of USD 678 333 (which corresponds to 4.53% of that year's budget).

A number of countries operate systems for advance lodgement and processing of data based on various versions of ASYCUDA or other systems. The purchase of an off-the-shelf system is generally less expensive than the development of a new system; however, adapting existing systems to local conditions can be expensive. Some of the countries that have relied on off-the-shelf systems subsequently experience difficulties in upgrading the system to changed circumstances or to incorporate new functionalities; the lack of local expertise and insufficient access to information on the architecture of the system keep some customs administrations dependent on the initial providers of the system or on private service providers. With funding from UNCTAD, Tanzania introduced ASYCUDA 2.7 in 1994 for a

cost of USD 938 785. Customs are now migrating to ASYCUDA++ over a period of four years starting in 2004 for a total cost of USD 770 440, also funded by UNCTAD. Tanzania has also moved away from the previous PSI-based system to destination inspection; customs presently utilises the services of a destination inspection company (Tiscan, a subsidiary of COTECNA) for document checking (valuation, classification and origin) and for scanning. Tiscan uses its own IT-based customs risk management system (CRMS) and issues a single bill of entry (SBE) document upon completion of the checking process, which is lodged by the agent or importer with customs when the goods arrive. Although the overall clearance process will be greatly enhanced by the move to ASYCUDA++, benefits will be below potential as long as an electronic interface between ASYCUDA and CRMS does not exist. In Barbados the current ASYCUDA 2.7 version, introduced in 1993, does not allow for fully paperless operation, but the system is being upgraded to permit the electronic processing of supporting documents, such as transport documents.

Mozambique uses TIMS, provided by Crown Agents for a symbolic USD 4 in the framework of the reform project entrusted to the company since 1997. Customs continues to rely on Crown Agents to maintain the system (for an annual cost of USD 50 000, included in the company's contract) or to carry out any necessary modification, extension or upgrading, but the capacity to operate the system locally is now gradually being built up. The recent extension of the coverage of TIMS beyond the Maputo region to border posts was budgeted at USD 200 000 in 2005; this included the strengthening of the team in charge within the customs IT unit from five to 32 staff.

Jamaica's CASE (Customs Automation Services) was also based on TIMS, but has now moved to an online Web application and was recently expanded to allow e-payment of duties. The new system, which permits lodgements on a 24/7 basis, now covers 98% of entries, with 95% of customs brokers on board. The project, including the overall requirements analysis, the development of software, data communication equipment and computers, cost approximately USD 5.5 million, which was funded by the Jamaican government; a World Bank loan and additional government funding were devoted to follow-up work to develop and implement e-manifests, online release and warehouse control. E-payments are an important functionality of such automated systems, not only because they reduce opportunities for proposing illegal payments but also because they accelerate the clearance process: once duties have been paid, goods can be released upon arrival. The possibility of e-payment is also provided by the Thai system, which allows online payments through seven private banks on

a 24/7 basis and now covers more than 90% of export entries and 81.5% of import entries.

Argentina's *Sistema Informático María* (SIM) was developed locally based on the French SOFI (*Système d'ordinateurs pour le fret international*), which was provided at no cost by the French customs in the framework of the countries' Cultural, Scientific and Technical Co-operation Agreement and the Customs Co-operation Agreement. The system was adapted to local conditions by staff from the two customs services and enabled the progressive expansion of automated registration to all Argentine customs offices over 1993-98 with financing from the Inter-American Development Bank (IADB) loan that supported the establishment of Argentina's Revenue Authority (AFIP). A Web-enabled version of the system is currently being developed by AFIP staff.

Senegal is among the few developing countries (and the only one in the sample) to have developed entirely on its own an automated system for advance lodgement and processing of data. Its customs system Trade X (also known as GAINDE – *Gestion automatisée de l'information douanière et économique*), was developed locally from the mid-1980s and became operational in 1990. In 2000, the migration of Trade X to a Web-based system cost around USD 1.79 million, which included the central infrastructure that is shared with Senegal's single window, ORBUS (see below). The system employs ten people and has a yearly maintenance cost of USD 715 000.

Depending on the sophistication of a country's systems, the customs administration may be able to apply risk assessment (see below), which greatly enhances the efficiency of advance processing. Risk assessment techniques allow customs to determine in advance what steps to take when the goods arrive. If the information in the goods declaration satisfies the customs requirements, the goods are either cleared and released upon arrival or are selected for physical examination, as the case may be. Another factor that may affect the effective use of advance lodgement and processing of data is the valuation of imported goods, which still presents difficulties for a number of countries.

Online systems also call for some degree of connectivity between different posts. They also imply that traders or their representatives are themselves properly equipped and connected. The adoption of new technologies may allow bringing connectivity costs down, thereby enabling customs to make better use of scarce available resources. For instance, Mozambique currently envisages moving the automated network connecting customs locations from satellite to optic fibre support, so as to be able to

connect 30 instead of the current 20 locations (approximately 25% of all customs locations) for the same monthly rental fee of USD 25 000.

Finally, it should be kept in mind that the use of advance lodgement possibilities also depends on the involvement of private users, as well as of other concerned authorities (see the section on co-operation and co-ordination). In the Philippines, although pre-arrival lodgement is technically supported by ACOS, the declaration has to be supported by the vessel manifest, which most carriers do not submit until after arrival of the vessel, as allowed by the system. A JICA-UPECON time release study conducted in 2003[4] reveals a gap of about 1.5 to 2.9 days, depending on import type, between the time cargoes are discharged from the vessel and the time the importer lodges a trade declaration. In fact, this period accounts for about two-fifths of the time between the arrival of the vessel and the release of the cargo to the consignee. Pre-arrival lodgement in the Philippines currently only works for air express cargo at the Manila international airport; cargoes are issued a separate airway bill they can lodge at the time of take-off from the port of origin.

In all of the countries, the electronic declaration needs to be supported subsequently by paper documents, as there are currently no provisions for the acceptance of electronic signatures. Chile is in the process of enacting the relevant legislation, while Thailand has already enacted the law but not yet the necessary implementing regulations. In Argentina the introduction of digital signatures is under study by AFIP, which, along with all federal government authorities, must fully implement them by the end of 2006 at the latest.

Procedures for the assessment, collection and repayment of duties and taxes

The payment of duties and taxes may be deferred in most of the countries (Barbados, Cambodia under the new law, Latvia, Mozambique, Morocco, Senegal, Uganda, Zambia), subject to the provision of appropriate security. In some countries this only applies in specific cases: in Chile, deferred payment applies in the context of duty drawback schemes for capital assets; in Argentina, it applies to exports, or, in the case of imports, to temporary operations or when payment is conditioned on the subsequent submission of complementary documentation. Mauritius and Tanzania only

4 UPECON Foundation (2003) "A study on the measurement of the time required for the release of goods in the Republic of the Philippines", report submitted to the Japan International Co-operation Agency (JICA).

allow deferred payment for petroleum products. Deferred payments are not possible in the Philippines.

Security usually takes the form of a cash guarantee or a bank guarantee or caution. Mozambique also allows traders with good records to provide security in the form of a letter of responsibility. Countries that allow deferred payment report that it does not involve additional expenses for customs.

Among the countries reviewed, only Zambia provides for the grouped payment of duties and taxes for multiple entries spread over a period of no more than ten days. The provision is available solely to traders entitled to "special status".

Minimum value provisions are not widespread, but among the countries that do not have such provisions some are in the process of considering their introduction (Latvia, Morocco, Uganda). Duties and taxes are not collected below the minimum duty amount of USD 10 in Chile, or around USD 24 in Thailand, or for goods values that do not exceed USD 20 in Jamaica, or USD 183 in Senegal. In Argentina minimum value provisions only apply to commercial samples up to USD 100 FOB for imports and USD 2 000 FOB for exports; in Zambia they apply to personal effects up to USD 250 and postal parcels up to USD 100. Moroccan customs does not collect sums found payable subsequent to the release of the goods if they do not exceed MAD 200 (approximately USD 22.5). The countries envisaging the introduction of minimum value provisions estimate that the legislative cost of introducing such provisions and the subsequent loss of revenue will be marginal.

Most of the countries already define the value of imported goods in accordance with the WTO Agreement on Customs Valuation. However, Cambodia was allowed a five-year transition period until 1 January 2009 to replace the current valuation system with the WTO transaction value method provided for in the Cambodian draft customs law. The phased implementation has been linked to the launching of a post-clearance audit programme and the provision of appropriate training on valuation techniques, the cost of which will be partly borne by donors (see below).

Risk assessment

Risk analysis and management have been among the most complex trade facilitation measures considered here, mainly because of their infrastructure and training requirements. At the same time, the country reviews highlight their importance in enhancing the efficiency and facilitating the implementation not only of the main customs tasks and

controls but also of the other trade facilitation measures examined, such as advance lodgement and processing of data, the separation of release from clearance or the special procedures for authorised traders.

Risk analysis and management have already been put in place in Argentina, Chile, Jamaica, Latvia, Mauritius, Morocco, Mozambique, the Philippines, Senegal, Tanzania, Thailand and Zambia. They are also prominent in the reform programme of Barbados, Cambodia and Uganda (Table 6.3). Most operational risk management systems include databases of risk profiles for goods and entities/traders, and in Latvia, Mauritius, Morocco, Senegal, Tanzania and Zambia they are supported by a compliance methodology programme (*i.e.* random checks to verify/update the risk indicators). Risk assessment covers tariff classification, valuation and origin, goods declarations and cargo declarations,[5] and, in those countries where such procedures are available, special procedures for authorised traders (except Argentina, where the criteria for operating under the *Aduanas Domiciliarias* are not related to risk, see below).

In the case of Thailand, the system's efficiency was further enhanced by designing it to connect customs seamlessly with other agencies with border responsibilities (see the section on co-operation and co-ordination among different authorities below). Mechanisms like the Co-operation Agreement with the Port Authority of Thailand offer customs more comprehensive tools for identifying areas of non-compliance (shippers, goods) and for directing attention and resources (surveillance, x-ray, selectivity and inspection) to them. On the contrary, in the case of the Philippines, the Risk Management Group (RMG) does not have good information links with either customs examiners in the field or other government agencies that could provide feedback and intelligence data useful in updating traders' profiles and selection criteria. As RMG has to accommodate the requests of other government agencies to apply blanket controls to certain types of imports, today more than 70% of transactions are flagged yellow or red (*i.e.* targeted for document and/or physical examination), up from 26% at the inception of the system in 1997. This percentage far outnumbers green channel transactions and clearly defeats the principle of "intervention by exception" of the selectivity mechanism.

5. Argentina does not currently apply risk management to cargo declarations.

Table 6.3. Introducing risk management capacity

	Introduced	IT support	Inception cost	Staff (%)[1]	Timeline	Inspection rate before/after
Argentina	✓	partial	n.a.	0.17%	n.a.	n.a./32.8%
Barbados	planned	--	n.a.	1.45% (2)	--	85%/--
Cambodia	planned	--	USD 40 000	--	--	80-100%/--
Chile	✓	partial	USD 333 350 [3]	0.9%	7 years	n.a./5.17%
India	ongoing	✓	USD 789 510[3]	n.a.	8 years	n.a.
Jamaica	✓	partial	n.a.	0.54 %	n.a.	n.a.
Latvia	✓	partial	n.a.	n.a.	n.a.	n.a.
Mauritius	✓	✓	n.a.	2.4%	n.a.	80%/20%
Morocco	✓	✓	n.a.	n.a.	n.a.	100%/10%
Mozambique	✓	partial	n.a.	0.77%	6 years	n.a.
Philippines	ongoing	partial	n.a.	n.a.	5 years	100%/26%/70%[4]
Senegal	ongoing	✓	n.a.	0.46%	2 y ears– n.f.o.	100%/23%
Tanzania	ongoing	partial	n.a.	2.82%	n.f.o.	100%-10%
Thailand	✓	✓	USD 1 071 042	n.a.	n.a.	100%/21%
Uganda	planned	--	USD 170 000[2] [3]	0.66%[2]	--	n.a.
Zambia	✓	partial	n.a.	1.45%	7 years	95%/30%

n.a Figures not available.
n.f.o. Not fully operational.
-- Not applicable; the measure has not been introduced.
1. As a percentage of total customs staff.
2. Planned.
3. Shared with audits.
4. Before/at the inception of the system in 1997/currently

Source: Based on data provided by the national administrations.

Among the countries that already apply risk management, Mauritius, Morocco, Senegal and Thailand rely on a fully automated system, while that of other countries is only partially automated. Some countries operate, or plan to operate, risk management systems based on the risk assessment module of the IT programme (ASYCUDA or other) in use by the customs

administration. This is the case for the ASYCUDA++ used in Zambia and the Philippines, and Jamaica's CASE, operated by a team of 11 (1% of total staff), out of which six officers (0.54% of total staff) are in charge of maintaining and updating the risk indicators. In Barbados, where, in the absence of a risk management system, the physical inspection rate is currently 85%, the customs administration plans to start introducing risk management following the migration of the customs EDI system to ASYCUDA++, scheduled for completion by the end of 2005. The plan includes setting up a risk management team of seven officers (1.45% of current total staff) with good salaries (approximately BBD 13 500, or USD 6 800 per month) to ensure their competence and integrity.

Other countries rely on the IT system operated by the PSI or DI (destination inspection) company. In Senegal risk management is part of the IT system used for PSI, which is provided and managed by COTECNA.[6] It is operated by two COTECNA officers, assisted by seven Senegalese officers (0.46% of total staff), of which two are in charge of IT, three are anti-fraud officers and two are stationed in the port of Dakar. The system draws, among other things, on the national litigation file (*Fichier national d'identification* – FNID) which lists traders involved in litigation with the administration. In Tanzania, customs have already established a Risk Management Branch, composed of a Risk Assessment and Targeting Unit and an Information and Intelligence Unit, and staffed by 28 people (2.82% of total staff). However, as ASYCUDA++, which would make it possible to operate an IT-sustained system, is not yet fully introduced, the administration still has to rely on the DI company in respect of classification, valuation, origin and goods documentation.[7]

Cambodia is the only country which already undertakes some sort of risk management despite the absence of supporting IT. The customs administration currently applies a rudimentary risk management system whereby importers are informally classified as low, medium or high risk at the ports, using intelligence information that is not available at headquarters. At Sihanoukville seaport, risk assessment is used to classify cargo for examination purposes as follows: sealed PSI cargo is not examined unless suspect, and a detailed check is done on 5% of such cargo; 100% of cargo that bypasses PSI is examined, and 80% of investment company imports are subject to a detailed check. Customs also use a TC-Scan to determine whether goods should be subjected to detailed inspection. Under the ongoing reform strategy, an automated risk management system is being

6. The cost is included in the COTECNA's USD 10.87 million annual contract.

7. Risk management does not yet cover cargo declarations.

developed, including a compliance methodology programme, and 20-40 people undergo risk management training every year. The adoption of risk management capacity is currently financed by the World Bank with an International Development Association (IDA) grant (the related grant component is USD 40 000).

Risk assessment systems have taken several years to be set up because of their requirements in terms of appropriately trained staff. Quite a few countries report that fewer staff currently deal with trade risk assessment and analysis than what the customs administration consider appropriate to match its needs. Countries find it difficult to speed up the process: external recruitment is constrained by the limited availability of experts in the field and "off-the-job" training is necessarily small in scale, not just because of funding problems but also to avoid major disruption of daily operations. In Chile risk assessment work involved a group of 4-5 people when it was launched at the end of 1997; they were 12 in 2004 (0.9% of total staff). In Argentina, the risk management sector currently employs eight people (0.17% of total staff) in the Division of Customs Selectivity, but a new structure based on a separate Risk Management Division with functional separation of staff and tasks is under consideration by the federal senate. In Senegal the current risk management system took two years to introduce but customs has not yet fully mastered it and still heavily relies on the PSI company. Nonetheless, physical inspection rates have been reduced to 23%, not very far from the targeted rate of 17% defined at inception. Zambia took seven years to achieve the current level of operation of their risk management system, which now comprises eight officers (1.45% of total staff). In Tanzania more than 30 staff have received training on risk management and analysis but still experience difficulties in the everyday operation of the system.

In Mozambique an intelligence unit was created in 1997 by Crown Agents, which also managed it until 2002 when it was handed over to Mozambican staff. The unit started with 19 people and covered the Maputo and central regions; it now has around 60 staff, including local officers, in all three regions, and an anti-smuggling team of 20 was created in 2003. Customs reckon that 30 more staff would be necessary for optimal operation. A core team of 11 is responsible for risk assessment (0.77% of total staff), five of whom are in charge of preparing intelligence data. The intelligence database was built at the creation of the Intelligence Unit by Crown Agents, which also provides two on-site trainers (three when the system was launched).

Latvia currently employs 25 people at the national level and 69 at the regional level and is further considering the possibility of merging the Enforcement Division and the regional enforcement group into a single

control unit which would be better staffed. Training of the additional staff would be provided locally, mainly on the job, to avoid additional training costs. Mauritius currently employs 23 people (2.4% of total staff) in an intelligence unit which gathers and analyses data and maintains and updates the risk selection criteria; they have been recently supplemented by a flexible anti-smuggling unit and a 24-hour hotline for collecting information on potential offences from citizens.

In Chile, the current system was put in place progressively (starting with classification and valuation, followed by the training of officers in regional customs offices in 2000, and adding origin in 2001) with technical assistance from Canada, the United States, Japan, the IMF and the IADB. In 2002, the IADB programme of technical assistance for introducing risk assessment paid out USD 200 000, of which USD 45 071 for counselling on risk management and compliance control and evaluation and the same amount for counselling on audit (see also below), USD 39 158 for training intelligence analysts and USD 70 700 for purchasing software to assist information analysis. The Chilean customs further backed the programme with another USD 133 350. Thai customs have benefited from a series of training and technical assistance projects, including a US-Thailand Trade Information Project in 2001, APEC risk management training sponsored by Canada Customs and Revenue in 2002, training by the Korean Customs Services in 2003 and an AUD 1.4 million programme in the framework of the ASEAN-Australia Development Co-operation Program in 2005.

The efficiency-enhancing role of risk management systems is highlighted by the positive experience of several of the countries. Moroccan customs were not in a position to specify the costs involved in developing the risk assessment programme over time but are satisfied that the costs are clearly outweighed by the operational and fiscal advantages, including the reduction of inspection rates from 100% to 10%, which made it possible to transfer customs inspectors to other duties within the administration. In Jamaica, risk management has made it possible to bring average customs clearance time down to 5 minutes and average time required for physical inspection down from 60-75 minutes to 30-40 minutes per cargo. The Chilean customs found that the implementation of risk management to identify higher-risk entries has made it possible to gradually reduce documentary controls of import and export entries, while increasing the number of offences detected from 0.35% in 2000 to 15.89% in 2003 (Table 6.4). Assuming that the cost to exporters of physical examination of cargo was USD 730 000 in 2000 (at an average cost of USD 28.11 for packing and unpacking a 20-foot container for physical examination of export cargo), the reduction in the rate of physical inspection of exports meant savings for exporters of USD 298 333 in 2003. Thailand reports that

risk management has allowed customs to drastically reduce the inspection rate from 100% to around 21% in terms of entry numbers and 18% in terms of value of the shipments (Table 6.5). At the same time, the number of detected offences remained roughly the same as when all entries were inspected, which indicates the effectiveness of the risk profiling.

Table 6.4. Documentary controls in Chile

	2002	2003
Import/export declarations	1 360 177	1 423 991
Documentary controls	86 525	73 619
% of controls/declarations	6.36	5.17
% of offences / controls	13.42	15.89

Source: National Customs Service of Chile.

Table 6.5. Import entries flagged for inspection in Thailand

CIF values in THB millions and %

	Inspected		Not inspected		Total	
	Value	Number	Value	Number	Value	Number
2000	488 970 [19.7%]	247.895 [15%]	1 994 207 [80.3%]	1 405 565 [85%]	2 483 177	1 653 460
2001	573 943 [20.9%]	302 715 [17.6%]	2 177 419 [79.1%]	1 421 075 [82.4%]	2 751 362	1 723 790
2002	577 960 [21%]	356 598 [18.1%]	2 173 474 [79%]	1 615 376 [81.9%]	2 751 164	1 971 974
2003	660 455 [21.1%]	391 752 [18.3%]	2 469 217 [78.9%]	1 747 035 [81.7%]	3 129 673	2 138 787

Source: Customs Department of Thailand.

Audit-based controls

Audit-based controls are closely linked to risk assessment, as described above, and have generally been developed in parallel in most of the countries that already apply risk management systems. In Uganda risk assessment and audit-based controls were part of an introductory programme to be launched before the end of 2004. In Cambodia audits are part of the current reform strategy and will benefit from technical assistance from Japan under the ASEAN customs co-operation programme. The lack of qualified staff has delayed the creation of a post-clearance audit unit in Mozambique, which hopes to establish first a centralised structure with

training assistance from the South African Revenue Service and decentralise over time to main ports of entry as resources become available.

The plan to introduce risk assessment and audit-based controls in Uganda may provide an interesting illustration of the resource requirements of these two areas. It involves an upgrade of the customs computer system, recruitment and training of an anticipated four experts for the corporate risk management office and 30 staff for post-audit clearance plus some additional equipment including transport. Funding for training will be shared between the Ugandan administration and the UK government (provision of trainers at no cost), probably with some assistance from US customs sponsored by the Private Sector Foundation in Uganda. The Ugandan inland tax administration has experts and training facilities that could lower training costs, but there has yet been no experience with operational co-operation and co-ordination between these two sections of the Uganda Revenue Agency. The plan anticipates the creation of six audit teams carrying out a total of about 20 audits a month. Staff redeployment, mainly from the Kenya border as a consequence of further development of the customs union, could provide the additional personnel needed to staff these teams. It also provides for external recruitment of qualified auditors, as long as the necessary resources can be secured. Estimated costs would be of the order of USD 150 000-170 000 in the first year. The estimate includes new recruitment, training and the acquisition of additional IT and transport equipment (four cars), but does not take into account the possibility of staff redeployment.

In Cambodia a Control Office set up in 1983 performed audits on a limited scale which focused on reviews of declaration forms, the description/nomenclature, tariff and origin. It could not evaluate the trader's commercial records systems, as customs does not have the authority to visit company premises or access company records and lacks the capacity to examine financial and IT systems. The Control Office assigned better-trained staff to audit sensitive shipments (such as garments and cigarettes) at the major ports of Sihanoukville and Phnom Penh airport where declarations are in English, and less experienced staff to checkpoints with lighter traffic and documents in Khmer. A Post-clearance Audit Office was created in 1999; it obtained the legal basis to operate in 2003 but is still not fully functional. It lacks the properly trained staff and computerised processing necessary to apply risk management. The reform strategy includes plans for a post-clearance audit programme supported by an automated customs processing system. Their introduction will benefit from technical assistance from Japan, offered in the context of the ASEAN customs co-operation work programme and covering training, the preparation of a manual of procedures and case studies and a blueprint for implementation.

Tanzania makes limited use of audit-based controls for clients with a good compliance history and reliable company records. In 2004, a special unit for post-clearance audits composed of nine people (0.91% of total staff) was established with the help of technical assistance from international organisations, which has made possible the training of more than 50 officers to date. Under the Customs Modernisation Plan, the scope of post-clearance audits will be expanded and audits will be supported by currently developed risk management and analysis resources. In Zambia a unit of eight officers (1.45% of total staff) established in 1998 performs a limited number of audits, including the evaluation of the traders' commercial records systems.

In the Philippines, despite the adoption in 2000 of the transaction value method and the institution in 2003 of a Post-entry Audit Group (PEAG), meant to be staffed with 68 officers skilled in trade information risk analysis and compliance audit, several posts were still not filled by the end of 2005. Skilled candidates proved difficult to attract because of the salary levels provided by the standard government salary scale and several customs officers without auditing background had to be pulled out of their units and trained. The existing customs database still needs to be upgraded to allow efficient targeting of companies for audit, based on criteria such as the relative magnitude of customs revenue from the company, the rates of duties applied to the company's imports, and the company's compliance track record. A data warehouse should be developed shortly using USD 10 million in technical assistance committed by the Japan International Co-operation Agency (JICA). The development of the post-clearance audit system was further hampered by the negative reactions of business lobbies, which were able to defer the launch of the system on the grounds that they were not given adequate time to prepare for it.

However, even in countries which have had audit-based controls for some time, their generalised use has encountered resource problems. Latvia, Mauritius, Morocco and Senegal report relatively wide use of such controls but consider that staff assigned to this task are insufficient to cover customs' needs and anticipate the need to train additional staff in the near future. Chile describes staff availability and training problems similar to those encountered in the area of risk assessment, despite considerable efforts devoted to building audit capacity, especially in the area of valuation (476 officials trained for a total cost of USD 44.8 million during 2001-03).

Argentina indicates that although audit-based controls are now applied in all of the country's customs offices, the number of personnel assigned to such controls (currently 91, *i.e.* 1.97% of total staff) is still limited because of the scarcity of staff specialised in *ex post* and corporate audits. Value and documentary controls for imports and exports carried out by regional offices are complemented by documentary, destination and value controls at the

central level. These second-level controls should be reinforced in the context of the new structure for risk management and audits currently under consideration by the federal senate.

Thailand is the only reviewed country reporting no capacity problems in the audit area. The audit-based control system was planned in 2000 and introduced two years later, after implementing changes in the internal structure of customs, some reorganisation of staff functions, and capacity building of audit staff. The Thai Post-clearance Audit Bureau currently employs 157 officers and 43 temporary staff, of which 100 auditors (1.66% of total staff) checking issues of valuation, restricted items and privileges. The Bureau records 14 000 importer companies but concentrates on the 4 000 companies with good accounting systems that make up the majority of imports. Of these, the 500 companies whose imports make up 70-80% of total imports are audited by the Bureau every year. Small and medium-sized enterprises (SMEs) may be audited by the Investigation and Suppression Bureau and Regional Bureaus. Aside from enforced audit, 100 companies participated in a pilot project of voluntary audit with self-assessment. The trader's commercial records system is always evaluated before applying audit-based controls to ensure that customs understands the trading practices of the client and that the audit does not ignore systems (*e.g.* records, accounting, payments, etc.) that may be unique to the trader but comply with customs procedures.

Training is an essential prerequisite for launching successful audit programmes, as customs administrations often encounter difficulties for recruiting qualified accountants and auditors. However, opportunities for training other than on-the-job training are also scarce and are among the most pressing demands for technical assistance in many countries. In Latvia, training of additional staff in audit techniques will take place under the EU 2007 customs programme and customs wish to expand their post-clearance audit team from nine to 12-15 staff in the central administration, plus 103 people at the regional level. In Senegal, the unit in charge of post-clearance audits (*Bureau Enquête et Contentieux*, composed of 70 people, or 4.8% of total staff) has offered since 2001 regular audit and investigation training, with help from the police department and the French customs.

Thai customs has benefited significantly from technical assistance from other customs authorities and international and bilateral organisations, including two major programmes in 2003 sponsored by the Japan International Co-operation Agency (JICA) and the ASEAN-Australia Development Cooperation Programme, of USD 9 000 and USD 1.1 million, respectively. In Argentina, in addition to training on audit techniques for tax and customs staff, the Federal Administration of Public Revenue (AFIP) has prepared a manual for *ex post* customs control (*Manual de Fiscalización*

Aduanera Ex Post) as a way to unify control methodologies. The manual contains general control guidelines for *ex post* audits, including typical types of fraud and suggestions for tackling them. It should be complemented shortly by additional material on specific types of fraud, depending on the special customs regimes applicable to the goods. Both work tools are based on the previous experience and texts of the Argentine tax authority as well as other sources like the WCO and the customs services of France, Spain and other countries.

A way around the resource problem is to seek assistance from other parts of the administration with the necessary expertise, such as the tax authorities, which may also help through limited personnel transfer and on-the-job training. This is a common feature in countries where customs administrations are, alongside tax administrations, part of a single revenue authority. In Latvia, the customs service works closely with the tax administration of the State Revenue Service (National Tax Board). Such enhanced co-operation is also planned in Uganda and in Mozambique, where the customs and tax authorities will become part of a single Revenue Authority in 2006. In Barbados a team of 21 officers (4.37% of total staff) performs audit-based controls for value-added tax on both imports and domestic transactions; the team will be strengthened at the end of 2005 with an additional 10-15 people in charge of audits for excise tax.

Special procedures for authorised traders

Special procedures for authorised traders rely extensively on the availability and efficient operation of risk assessment and audit techniques. This is why only seven out of the 16 countries reviewed have such procedures in place at present, not all of which are fully operational. Uganda envisages introducing special procedures for authorised persons, but will not be in a position to do so until the planned risk assessment and audit-based control programmes are up and running. Given present circumstances, the special procedures are likely to begin on a limited scale only and Uganda foresees no additional resources for introducing them other than the resources scheduled for the risk assessment and audit-based control programmes. Tanzania and Cambodia are in a similar situation. As noted above, Zambia has "special status" provisions that allow for grouped payment of multiple entries but has not introduced any other special procedures. Barbados, Chile, Jamaica and Mauritius currently have no plans in this area.

In Morocco a range of special procedures is available to authorised persons, including periodic entry, self-assessment and lodgement of the declaration by entry in the records. Around 60 companies have partnership

agreements with customs for such procedures, subject to compliance with requirements concerning good revenue record, a reliable commercial records system, provision of security, etc. Such simplified "partnership" procedures were first introduced on a limited basis in 1983; the arrangements have been upgraded in 1986, 1992 and particularly in 1997. Costs for these procedures were absorbed in expenses for setting up risk assessment and audit procedures.

Latvia first set up local clearance arrangements in 2001 with Riga warehouse operators. The arrangements provide for agreed simplified declarations, examination at approved premises and periodic entry but not for self-assessment of duties and taxes and lodgement of the goods declaration by means of an entry in the traders' commercial records system. As a result of these arrangements, the customs administration hopes to reduce the number of officers working on border inspection and thus obtain significant savings. To make these arrangements possible, a quality assurance group of three people at the national level and six people in the regions work on compliance in close co-ordination with the staff in charge of physical inspections. Training in quality management techniques is provided locally and in Sweden and will need to continue. Costs for training staff in border posts are LVL 8 300 (approximately USD 14 300).

Argentina has recently introduced a system of domiciliary and factory customs controls (*Aduanas Domiciliarias, Aduanas Factorías*), under which clearance of goods can take place outside customs premises or be deferred in view of re-exportation. Under the system of domiciliary controls, clearance at the beneficiaries' private warehouse or specific fiscal warehouses allows for swift movement of goods between arrival and clearance at no extra cost to the customs authority, reduces the time goods spend in fiscal warehouses (and the associated expenses for the trader) and improves productivity by easing congestion in customs' facilities. This procedure, granted to traders with significant volume, covers 28 corporations in Argentina and has been strengthened in 2005 by the creation of a Commission for Domiciliary Customs Control, in charge of implementing *ex post* controls on selected corporations. The factory controls regime addresses the export-oriented industrial sector and allows for the transformation, packing, repair or modification of goods at the beneficiary's premises under a temporary imports regime for up to one year. Only two corporations are currently authorised to operate under that regime. None of the above procedures allows for periodic entry arrangements, self-assessment of duties or lodgement of the goods declaration by an entry in the trader's commercial records. The customs administration reports that the establishment of special procedures did not entail additional costs, as the system is run by specialised staff that was already part of customs.

In Thailand, special cargo processing procedures for traders were introduced in 2000 and fully implemented in 2001, together with related reforms in the areas of risk management and audits. Their use is based on eligibility criteria such as financial status, reliability and past record of offences and on systematic accounting records to satisfy the post-clearance audit process, and is supported by risk analysis and management. The beneficiaries of the system ("gold" cardholders) tend to be large companies with high trade values, particularly those whose trade value per entry is high; for imports they average 20% of the total number of entries and 26% of total value, and for exports 11% of the number of entries and 18% of value. The administration does not allow periodic entry arrangements or blanket declarations for a single trader within a specified time period. However, it provides for the self-assessment of duty and tax liability based on the authorised trader's commercial records, and attaches particular importance to these records when deciding about the qualification of a trader for special procedures.

In the Philippines, a "super green lane" (SGL) was introduced in 2001, formally providing for a cargo clearance time of about four hours (7.75 hours in reality). SGL allows for end-to-end automated cargo processing and immediate release of goods upon the receipt of the bank's notification that the duties due have been paid. If customs decides to physically inspect the goods, the examination is conducted at the importer's premises. Interested companies must go through an accreditation process based among others on reliability and good compliance records, and can only use SGL procedures for goods they import regularly. However, the SGL fee, considered too high compared to regular processing fees, and the ineligibility of certain types of imports, such as agricultural products subject to quarantine, have deterred importers from a wider use of SGL. SGL imports account for a mere 4% of total imports in terms of value and out of 83 SGL-accredited companies 19 choose to subject their imports to regular processing.

Mozambique currently applies special procedures for authorised traders to three companies, the most important of which is MOZAL, to which customs has assigned a team of six people. In Senegal such procedures have been pilot-tested since 2002 with a single petroleum company. Although neither country identifies inception costs beyond those related to the introduction of risk management and audits, the operation of special procedures on such a limited scale presents a considerable resource challenge: if countries wish to rotate specifically trained staff so as to avoid collusion between the traders and the officials assigned to them, they have to develop capacity beyond what is necessary for servicing the limited number of authorised traders.

Separation of release from clearance

Customs in the countries reviewed operate on the principle that goods should be released as soon as possible provided that customs are satisfied that all their requirements will be met within a specified period and that traders have made available the agreed minimum information necessary for calculating the applicable duties. Argentina, Chile, Morocco, Senegal and Thailand report having had no difficulties and having incurred no additional expenses in putting this principle into practice, with the condition that anticipated duties and taxes are deposited as a condition of the early release of goods prior to clearance. In Latvia, although there are no legal difficulties, there remains a practical problem with respect to declarations lodged electronically, as the current customs computer system cannot accept incomplete declarations, a problem that may exist elsewhere as well. Latvia is reviewing the possibility of changing the computer system set-up, which, in addition to a possible software upgrade, would entail a training expenditure of around LVL 800 (approximately EUR 1 200).

However, Jamaica, Mozambique and Uganda indicate that separation of release from clearance complicates the task of their customs administration. Jamaica and Mozambique report difficulties for obtaining the completion and submission of final entries by traders once shipments have been released, so that they may have to cash the guarantee provided prior to the release. Although the guarantee may shield customs from lost revenue, incomplete documentation impedes updating trade statistics and risk management databases. In Uganda separation of release from clearance is put into practice on a limited scale because there is not enough confidence between traders and border authorities; in addition, the law needs to be strengthened to ensure that official requirements can be properly enforced. Confidence building may benefit significantly from enhanced mechanisms for transparency and consultative and feedback mechanisms.

In Zambia the high incidence of undervaluation, misclassification and errors in declarations has discouraged the introduction of this measure. Likewise, separation of release from clearance has not been introduced in the Philippines and in Tanzania. In Barbados, Cambodia and Mauritius the trader has to submit all required documents and data before the goods can be released; deferred calculation and payment of duties is then possible upon deposit of an appropriate guarantee (see below).

Security for duties and taxes

Security for duties and taxes is used in varying degrees in all the reviewed countries. In Latvia since 1998, security has replaced the obligation to transport excise and sensitive goods in convoy under customs

escort; the measure is self-financed as staff previously used in escort teams have been redeployed. In Mozambique, this is used particularly to allow swift release of perishable goods; periodicals and press; dangerous goods requiring special handling; temporary imports, including commercial samples for fairs and exhibitions; in cases of conflict about the value of the goods; and for authorised traders. In the Philippines, where no consignment can be released to the consignee if the applicable duties and taxes have not been paid, a security has to be paid to obtain tentative release status for consignments whose assessed transaction value is contested. In Argentina, Barbados, Jamaica, Mauritius, Senegal and Thailand the use of security is a longstanding practice, subject to the usual security legislation and practices. Acceptable forms of security are usually cash deposits, bank or insurance company guarantees, bank checks and bonds.

In Mauritius security is not required for goods in export processing zones or admitted under a temporary admission regime (*carnet d'admission temporaire en douane*) or for small and medium-sized industries. However, in Argentina, Cambodia, Jamaica and Thailand security is required to cover duties and taxes that are potentially chargeable; there are no exceptions.

Most countries report that the use of security for duties and taxes does not entail costs or pose particular problems for their administration. In Morocco, management of security is the revenue section's job, so that implementation costs are absorbed in its operating budget. Barbados customs has established a special team of bonds officers, for which it spends about USD 18 000 a year.

Co-operation and co-ordination among different authorities

In most of the countries (with the notable exception of Cambodia), informal co-operation between customs and other state agencies with border-related responsibilities (including national security forces, agencies dealing with SPS controls, health protection, standards and conformity assessment, environmental management, agriculture, fisheries and forestry, and inland revenue) is a longstanding practice. While no formal requirements specify that inspections should be carried out by the different agencies at the same time, inspections are in fact co-ordinated in the field. In Barbados, procedural instructions have been issued to this effect. In Chile, Morocco, Mozambique and Tanzania the relevant border authorities have staff at the main international ports, airports and land border offices, who physically share offices with customs and co-operate to arrange joint physical inspections or co-ordinate inspection times. In Mauritius co-ordinated inspections can be arranged at the request of the customs broker. As these working methods are not recent, the administrations could not

identify any costs related to their establishment, but estimated that they may result in cost savings in terms of physical infrastructure.

In most countries, customs does not carry out examination of goods on behalf of other authorities, although in Barbados and Uganda this can happen on an *ad hoc*, informal basis. In Zambia authorities in charge of border controls may delegate investigative powers to customs; however this possibility is constrained by the ability of customs officers to perform particular technical functions such as drug or phytosanitary controls. In Thailand, the adoption by customs of selective inspections has pushed the Food and Drug Administration to develop a system of risk-based selectivity. In the absence of centralised inspection arrangements, Mauritius is currently working to introduce a tracking function in its customs management system that will enable importers to identify the reasons for release delays.

Co-ordination is all the more important when additional interveners are used as a safeguard against corruption. In the Philippines, while co-ordination of physical controls between various border agencies has proved relatively straightforward, controls may also involve as many as five different customs units, members of the Presidential Security Guard, as well as an observer from the private sector (the Port Users Confederation, the Chamber of Customs Brokers or other business chambers), nominated to avert irregularities and dealings between the trader and government representatives. Each of the five customs units has the authority to issue a physical inspection order without any obligation to co-ordinate, so that the same shipment may be inspected as many as five times.

In Cambodia, where burdensome and duplicative controls still plague both the export and the import process, the nomination of customs at the single overall inspection agency is now under discussion as part of the new Action Plan. For the time being, co-ordinated inspection is only practiced at Sihanoukville. The introduction of an electronic single window, including the deployment of IT to automate customs functions, is currently financed by the World Bank with an IDA grant (the related grant subcomponent is USD 5.95 million). Furthermore a project to co-ordinate documentary controls and physical inspection at the border with Vietnam was designed with Asian Development Bank (ADB) support for implementation in 2005. The single-window concept of one counter for submission of documents, simultaneous processing by several agencies, and then return of documents to the declarant, has also been recommended by the prime minister for the garments sector.

Among the reviewed countries only Senegal has already put in place a formal co-ordination mechanism in the form of a single window. This system, called ORBUS, is an electronic platform for exchanging data among

the different private and public entities involved in trade, including the traders, customs brokers, banks, insurance companies, customs, exchange control authorities, sanitary and phytosanitary authorities and quality control authorities. It allows traders or brokers to submit the necessary documents electronically and the authorities to indicate missing data in return; concerned entities can access the data they need directly on line, while traders or brokers can follow the progress of their shipment in the same way. ORBUS was developed in Senegal over a period of six years using local expertise for a total cost of USD 1 087 000. It currently employs 18 people and entails yearly maintenance costs of USD 715 000. However, these costs are fully covered by the service charges collected for using the system (an annual average of USD 956 000). In 2005, a similar system, developed by Senegal in cooperation with the government of Kenya was launched by the Kenyan customs and border authorities.

Thailand has put in place a partial co-ordination mechanism, called "one day clearance" project in co-operation with the Port Authority of Thailand (PAT). The project requires completion of the inspection process within seven hours and of the overall clearance process within one day; other agencies have 17 hours to complete their tasks. It also involves risk management co-operation based on a shared electronic information system, which offers customs a more comprehensive perspective on areas of non-compliance. The "one-day clearance" project has already been implemented in three entry points: Bangkok port, Laem Chabang and Bangkok International Airport. A more ambitious project, covering all import, export and transit-related regulatory requirements, has recently been launched by the Thai government. The project, which is scheduled over a three-year period and is expected to cost USD 3 million was to enter a pilot phase at five border posts by the end of 2005.

Argentina launched in 2004 a "single agency" pilot project, involving a system of counters for the unified presentation and subsequent sharing of information among various control authorities. In parallel, a programme for information sharing between the tax and the customs department of AFIP is currently under study and development. Because both projects are at an early stage, their costs implications are yet unclear.

Annex 6.A1

Trade Facilitation Measures Considered in the Context of the Country Studies

The following is a brief description of the trade facilitation areas that were used as a basis for the country studies, with direct reference to related proposals made at the WTO Negotiating Group on Trade Facilitation.

Publication and availability of information[1]

Transparency is essential in international trade in order to allow commercial operators to fully understand the conditions and constraints for entering and operating in a market. It implies the systematic availability and ready accessibility of information on applicable border requirements and procedures to all interested persons. Information of general nature, including information about operational aspects, administrative implementation guidelines, or available special procedures, can usually be obtained by a variety of means, such as the official publication of laws and regulations, consolidated paper and online publications, customs handbooks, the press and trade publications, as well as enquiry points. The transparency and predictability of applicable requirements can be further enhanced by the comprehensive, accurate, prompt and cost-efficient provision of information and advice related to a company's specific operations, including advance rulings on tariff classification, value or origin, and motives behind administrative decisions or actions.

Consultative and feedback mechanisms; communication with traders[2]

Consultative and feedback mechanisms are fundamental factors of facilitation because they enhance the predictability of the regulatory environment, improve public confidence and support, increase the prospects of compliance and provide a tool for improving regulatory quality. The timeliness and inclusiveness of these mechanisms are important for their

1. Points A and C in the Index of WTO document TN/TF/W/43/Rev.15.

2. Point B in the Index of WTO document TN/TF/W/43/Rev.15.

effectiveness. They imply targeting stakeholders/interested parties as widely and universally as possible; covering the whole range of policy-making activities, including proposed new regulations and procedures and the amendment of existing ones, as well as practical aspects of the daily operation of border agencies; and allowing sufficient time before entry into force of regulations.

Review and appeal procedures and due process[3]

The availability of appropriate mechanisms for reviewing and correcting administrative action related to customs and border matters is essential for persons engaged in international trade. Clear and fair review and appeal procedures should be accessible, impartial and efficient in offering redress. Avenues for appeal may include recourse to the customs administration, to an independent body and/or to the courts. An efficient and timely handling of the issue is important for customs and border matters which are generally quite time-sensitive.

Advance lodgement and processing of data[4]

The possibility to lodge the goods declaration and supporting documents, in agreed form, prior to the arrival of the goods can greatly facilitate their rapid release because it enables the authorities to process data, apply risk assessment arrangements and reach decisions as to the action required before the goods actually arrive in the customs territory. Provided official requirements are met, the great majority of goods can be released on arrival either immediately or very shortly afterwards, greatly reducing the time previously required for traders to obtain their goods, except in cases where goods need to be examined physically or additional documentary checks are necessary.

Procedures for the assessment, collection and repayment of duties and taxes[5]

In spite of the movement towards free trade and the reduction in customs duties, procedures for the assessment, collection and, where appropriate, the repayment, of duties and taxes remain a core customs activity, including the controls necessary for the correct application of trade agreements, quotas, origin, tariff classification, valuation, etc. Trade is

3. Point D in the Index of WTO document TN/TF/W/43/Rev.15.

4. Point J.1(a) in the Index of WTO document TN/TF/W/43/Rev.15.

5. Points F.1 and G.1(a) and (b) in the Index of WTO document TN/TF/W/43/Rev.15.

greatly facilitated by clear, possibly standardised requirements governing the amounts of duties and taxes to be paid, the time when payment is due, arrangements for deferring that date, or methods of payment, and by the application of such requirements in a uniform manner across the customs territory.

Risk assessment[6]

Risk assessment and management techniques allow customs administrations to properly target border controls, so as to correctly allocate limited resources. Controls are kept to the minimum necessary to ensure compliance without overburdening trade by downscaling physical inspection and quickly processing "low-risk" travellers and shipments and selectively targeting the areas of greatest risk for intensified controls. Effective use of risk management can be applied not only to the goods themselves but also to the trading companies, for example, to ensure that authorised trader status is fully justified.

Audit-based controls[7]

Audit-based controls can supplement the use of risk management techniques to ensure efficiency and effective compliance. They facilitate legitimate trade by moving documentary controls from the border to inland premises and reducing bottlenecks at border crossings. They also support the use of simplified clearance procedures for authorised traders. Before switching from controlling a trader's operations on a consignment basis to an audit basis, the authorities must be satisfied that their requirements regarding trustworthiness, records, payments, etc., are met. Audit techniques generally entail the availability of specially trained staff.

Special procedures for authorised traders[8]

For traders who meet specified criteria of trustworthiness because of their accurate declarations and timely payments, a range of facilitative arrangements can provide predictability and reduce time, work and costs in dealing with the authorities. Such special procedures include the provision of minimal information at the time of release of the goods; clearance at the trader's premises or other inland location; goods declarations covering multiple transactions over a specified period; self-assessment of duties and

6. Point J.1(c) in the Index of WTO document TN/TF/W/43/Rev.15.

7. Point J.1(a) in the Index of WTO document TN/TF/W/43/Rev.15.

8. Point J.1(c) in the Index of WTO document TN/TF/W/43/Rev.15.

taxes based on commercial records; and goods declaration by a bookkeeping entry in those records. Various combinations of these measures can be made to suit the particular needs of a trader in dealing with customs, leading to even greater trade facilitation.

Separation of release from clearance[9]

"Release" refers to making the goods available to the importer or exporter or his representative, while "clearance" refers to the completion of all official formalities. Separation of release from clearance allows the goods to be released as rapidly as possible even though all formalities may not have been completed. The special procedures … all operate on that basis but it is important that other traders (who do not use or do not qualify for those procedures) also can receive their goods as quickly as possible. Provided the authorities are satisfied as to the circumstances, this can be achieved even though, for example, some data or documentation is not available or there is difficulty in agreeing on the classification or value of the goods.

Security for duties and taxes[10]

Security for duties and taxes, the ways in which it can be provided, and the associated costs, become of increasing importance in the context of advance lodgement of data and the use of simplified release procedures. Sensible and straightforward methods of providing security play an important part in trade facilitation and the rapid release of goods, including through separation of the accounting (payment) process from the movement/importation of goods. Instances where customs may find it possible to release goods without requiring security for the duties and taxes, or acceptance of a general security covering all of a trader's operations in a given period instead of requiring a security each time goods are imported, can further facilitate trade.

Co-operation and co-ordination among different authorities[11]

Multiple regulatory prerogatives of customs and other border control agencies, dealing, for example, with agriculture, veterinary, health, phytosanitary and standards requirements, frequently lead to duplicative requirements and controls, generating increased compliance costs, risks of

9. Point J.1(e) in the Index of WTO document TN/TF/W/43/Rev.15.

10. Point J.1(e) in the Index of WTO document TN/TF/W/43/Rev.15.

11. Points G.1(e) and (h) and I in the Index of WTO document TN/TF/W/43/Rev.15.

error and delays when interfacing sequentially with different authorities. Enhanced co-ordination mechanisms between involved agencies, including single windows and integrated border controls, can greatly simplify border procedures and contribute to avoiding unnecessary restrictiveness. They may imply sharing information, concentrating documentary verification in the hand of a single agency, and co-ordinating inspections or integrating them in a single location and timing.

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Annex A

Report on the OECD Global Forum on Trade Facilitation Colombo, Sri Lanka, 18-19 October 2005

by
Evdokia Moise

The OECD Global Forum on Trade Facilitation was held in Colombo, Sri Lanka, on 18-19 October 2005, in order to provide an opportunity for representatives from government, business, research institutions, civil society and international organisations to discuss the implications of ongoing WTO negotiations on trade facilitation for developing countries. The Forum was organised by the OECD Trade Directorate, in collaboration with the government of Sri-Lanka. It was part of the OECD effort to contribute to the WTO members' endeavours to "seek to identify ... trade facilitation needs and priorities, particularly those of developing and least-developed countries, and ... also address the concerns of developing and least-developed countries related to cost implications of proposed measures", as set out in Annex D of the WTO July Package, setting the modalities for negotiations on trade facilitation. Around 85 people representing 45 countries from all parts of the world participated in the event.

The discussions explored various topics related to trade facilitation: *i)* the economic effects of trade facilitation, *ii)* the costs of introducing and implementing trade facilitation measures, *iii)* how to identify the needs and priorities of developing countries and design appropriate technical assistance and capacity building programmes, and *iv)* how to ensure a proper match between commitments and capacities. Moreover, presenters and discussants from national governments, international organisations and business representatives shared national experiences, information on donor support

programmes, private-sector positions, and views on implementation issues for developing countries.

Particular emphasis was placed on the role of developing countries in the WTO discussions and the state of play of the WTO Negotiating Group on Trade Facilitation (NGTF). While the discussion focused on issues related to the three core GATT articles (V, VIII and X) being negotiated at the NGTF, several presenters examined a broader and wider range of trade facilitation measures and issues.

Overall the discussion produced a wide-ranging and frank exchange of ideas with significant contributions by participants from international organisations and representatives from both developed and developing countries. There appeared to be wide agreement regarding the benefits of enhanced trade facilitation, both in the context of the three GATT articles and more widely, as well as a need to explore more ambitious measures. Furthermore, the conference allowed representatives from developing and least-developed countries (LDCs) to voice their concerns regarding the implementation costs of trade facilitation measures and engage in a constructive dialogue with donor agencies.

This report summarises the principal points and discussions, identifies recurrent themes, and concludes with a summary of the main themes and findings of the conference.

The economic effects of trade facilitation

The first session of the Global Forum discussed the potential economic effects of trade facilitation measures, particularly the influence of trade facilitation on trade flows; private-sector views on trade facilitation as a key factor in investment decisions; and country experiences on the relationship between trade facilitation and government revenue. The presentations and ensuing discussion highlighted the fact that by lowering trade transaction costs (TTCs),[1] trade facilitation measures can improve international trade flows, increase a country's investment attractiveness and improve revenue collection by increasing the efficiency of customs administrations.

Mr. ***Anthony Kleitz***, of the OECD Trade Directorate, gave a detailed review of the potential benefits arising from trade facilitation measures

1. Trade transaction costs are the direct and indirect costs incurred by traders when going through the commercial and official procedures at all stages of the physical movement of goods from consignor to consignee. These costs cannot, by definition, be fully eliminated, but they can be considerable reduced by measures aimed at improving the efficiency of border procedures.

proposed for inclusion in a WTO agreement. Trade facilitation has largely been considered a "win-win" scenario for governments, business and consumers; however there is debate regarding the costs and benefits of implementing trade facilitation measures. In order to better grasp the overall context, the OECD has examined various scenarios that could affect the extent of potential benefits and the parties that are most likely to reap them. Drawing on previous research, the OECD estimated that trade transaction costs range from 1 to 15% of the total trade transaction value. Models calculating the welfare effects of reducing TTCs demonstrate that benefits would not necessarily accrue equally among countries and would be influenced by a number of trade and geographical patterns, such as border process quality, the composition of trade and the size of trading firms. Countries that need to undertake greater efforts in order to close the gap with best practices, as well as countries that rely heavily on agrofood product trade or trade by small and medium-sized enterprises (SMEs), are likely to reap the greatest gains. In such a "diversity" scenario, developing countries would be the big winners even in the case of modest reductions in TTCs.

However, the models also found that welfare gains mainly accrue to countries that actively engage in implementing trade facilitation measures. An "OECD-only" scenario, whereby non-OECD countries would undertake no trade facilitation efforts, brought a surplus of benefits to OECD countries and losses to non-OECD and developing countries. Higher trade volumes generate increases in government revenue which can then be re-invested in institutional improvements, thus creating a "virtuous" cycle. There also appears to be a link between increased foreign direct investment (FDI) and improved trade facilitation as countries that fail to upgrade their customs regimes risk missing benefits derived from global supply chains.

Mr. ***Jae-Huyn Park***, of the Ministry of Foreign Affairs and Trade of Korea, presented the Korean experience with implementing a post-clearance audit system, which was introduced in response to rising import volumes in the 1990s and in order to facilitate trade. Previously, Korea used a pre-clearance audit system which tended to cause delays and strained relations between customs and importers. The post-clearance system[2] reviews only the basic import declaration to determine the accuracy of the tax amount filed, thus expediting clearance. There are different types of post-clearance audits, including the case-by-case audit, paper-based and using risk management principles; the planned audit, examining firms with a high risk

2. Some exceptions remain. For certain goods, pre-clearance audits are maintained, such as goods benefiting from tariff reductions, goods with large price fluctuations, and goods imported by untrustworthy firms.

of tax evasion and involving an audit in the firm's premises; and the self-assessment audit (SSA), which allows importers (pre-selected or approved by the government) to self-assess the accuracy of taxes paid.

Korea tried all three systems with varied results. The case-by-case audits did not facilitate procedures and lacked transparency. The planned audits were established to carry out strategic audits for items with a large risk of tax evasion but encountered difficulties involving low efficiency, low compliance and more corruption. On the other hand, the SSA system led to greater co-operation, a reduction in logistics costs, greater motivation for importers, and facilitated trade at a relatively low cost. SSA helped establish a customs-business partnership with incentives for both sides to ensure accuracy and increase efficiency through mutual co-operation. Korea was able to implement the SSA without significant investment in information technology infrastructure or manpower, a potentially attractive option for developing countries. Finally, the Korean government indicated its willingness to assist developing countries to implement systems akin to SSA.

Following the presentations there was a lively discussion in which the important beneficial role of trade facilitation, particularly for landlocked countries, was acknowledged. A participant stressed that landlocked countries are among the world's least competitive economies: their geographic disadvantages are intensified by high transit costs that undermine their export performance and can result in greater poverty. Several participants stressed the benefits of grouping trade facilitation measures on a regional basis, as seeking bilateral arrangements with immediate neighbours is often insufficient for solving problems that often have a wider, regional scope. Furthermore, the ongoing WTO negotiations offer the opportunity of a global forum in which landlocked countries should adopt an aggressive negotiating position.

However, several developing country delegations expressed concerns regarding the implementation costs of various trade facilitation proposals and the technical assistance and capacity building needed to help developing countries face those costs. Participants asked whether the OECD models adequately accounted for infrastructure needs in their assessments. The OECD Secretariat clarified that its work was based on the same narrow definition of trade facilitation underlying WTO negotiations but that each country's situation would need to be analysed when reviewing TTCs.

Many developing country representatives expressed interest in adapting the Korean model to their own situations. Some questioned how SSA could be applied in their countries and asked about the criteria used by the Korean government to select firms that would be able to use SSA. Others praised the

merits of post-clearance audits as critical tools for developing countries and a way to increase competitiveness. The Korean government representative noted that SSA is similar to several "green channel" systems in place in various counties and that Korean Customs always maintains oversight on firm accreditation to SSA. Regarding selection criteria, while this information is sensitive and not publicly available, he indicated that selection criteria generally involve firms' history of compliance and import volumes over a period of time. On the other hand, concerns were raised regarding the level of technical assistance and the need to ensure co-ordination of the many government agencies with technical oversight on imports which can lengthen clearance times. Mr. Park stressed that the system may not be applicable in all situations, as Korea only developed a need for SSA once its trade volumes began to rise. He also reiterated Korea's willingness to assist developing countries who wish to learn from its experience.

The second set of presentations dealt with the influence of trade facilitation programmes on the geography of trade, the relationship between trade facilitation and FDI, and the incidence of trade facilitation on government revenue. Mr. ***Jan Hoffman***, of UNCTAD, highlighted ten global trends which strongly influence the geography of trade. Developing countries increasingly trade in manufactures; intra-firm trade has expanded and so has trade in intermediate goods and South-South trade; land transport dominates intra-regional trade; logistics expenditure has decreased relative to transport expenditure; transport technology upgrades have outpaced government modernisation; privatisation and labour reforms have affected port operations; tariff reductions have brought average tariffs below transport costs; and WTO negotiations have attracted more attention to trade facilitation. Trade facilitation supports the positive effect of these trends on trade flows through a series of measures such as advance rulings, pre-arrival clearance, risk management, automation, right of appeal, publication, single windows, international standards, containerised trade, etc. A virtuous cycle is thus created that can lead to significant productive and institutional improvements: trade facilitation allows shorter transport times, which lead to larger trade flows, which in turn encourage further improvements in transport services and infrastructure. This is particularly important for developing countries in which reliance on aid should be replaced by reliance on trade. However, the presenter acknowledged landlocked countries' particular difficulties for implementing these measures.

Mr. ***Jayanta Roy***, of the Confederation of Indian Industries, gave a private-sector perspective on trade facilitation and FDI. Trade facilitation is, along with factors such as workforce reliability, political stability and sound macroeconomic fundamentals, a key determinant of FDI investment

decisions. Such decisions are guided by the ability of the market to allow the establishment of a manufacturing operation which can serve the regional market and produce for exports. Therefore, efficient transport and logistics systems can facilitate incorporation into global value production chains and create incentives for greater FDI inflows. The presenter stressed that in the APEC region alone, businesses rank customs procedures as the most important impediment to trade. If customs procedures are unpredictable because they lack transparency, or do not allow just-in-time processing because of border delays, fewer businesses will envisage locating manufacturing operations in the country. This inefficiency frequently offsets the competitive advantage developing countries enjoy because of low labour costs. On the contrary, efficient procedures that allow servicing markets beyond national borders help attract FDI to countries whose markets are too small to be interesting for their own sake. The presenter argued that FDI in India is below potential owing not only to a difficult investment climate but also to border delays, lack of customs authority over other agencies on border procedures and poor infrastructure: it takes three to five days to clear a cargo container in Indian ports compared to less than eight hours in Hong Kong, China.

Mr. Roy stressed that to improve customs operations there needs to be an active dialogue between the government and the private sector. Some areas for potential private sector involvement include institutional development through trade capacity building and training, focal points for the collection and dissemination of information on trade facilitation best practices, expertise in international legal issues, supply chain management and border transactions, support for an economic reform agenda, participation in international efforts to improve trade facilitation, and assisting in the implementation of trade facilitation measures. The presenter concluded by saying that FDI does not automatically translate into higher growth; it needs to be supported by good policies and strong institutions.

Mr. ***James Walt Sullca Cornejo*****,** of Peruvian Customs, described Peruvian Customs' revenue enhancements through institutional and human resource reforms and the modernisation of infrastructure and equipment. The main goals of the reforms were to shape a new institutional image, instil professionalism, develop new customs procedures at national level, adhere to international agreements like the WTO Customs Valuation Agreement (CVA), and improve revenue collection. Reforms were enacted in two stages and led to improved revenue collection, use of new risk management models, an increase in exports, reduction of dispatch times and greater use of information technology. By adopting these reforms and improving revenue collection Peru was able to continually reinvest and enhance the operations and technical capacity of the customs administration.

The discussion period enabled participants to explore specific measures they could undertake to reduce dispatch times and improve cargo clearance. Participants sought to learn more about the reforms undertaken in Peru and India and applying those lessons to their countries. Several stressed that co-operative action and dialogue with the private sector is gaining ground in their countries. On the other hand, the view was expressed that the narrow scope of current negotiations, exclusively focused on GATT articles V, VIII and X, needs to be complemented by advances in transport and infrastructure issues. Both aspects would call for technical assistance and capacity building as well as enhanced international co-operation to avoid geographically fragmented efforts.

However some participants linked progress on trade facilitation in the WTO to other issues currently under negotiation in the framework of the Doha Development Agenda (DDA), such as agriculture and non-agricultural market access. An LDC representative stated that although his country is interested in adopting trade facilitation measures to improve its export potential, particularly for agricultural commodities, he was concerned that trade facilitation measures coupled with other WTO DDA outcomes may increase imports and competitive pressures on domestic commodity producers.

As the Chair, ***Sarath Jayathilake*****,** Director General of Customs, Sri Lanka, stressed, the session highlighted the overall virtuous circle of trade facilitation measures, with widespread agreement that the greater the number of trade facilitation improvements undertaken by a country, the more benefits accrued either via increased trade, enhanced revenue collection, or expanding FDI volumes which can later be reinvested in institutional improvements. At the same time, participants felt that WTO trade facilitation discussions only cover a fraction of possible trade facilitation measures, citing in particular infrastructure as a potential future topic. Finally, there was widespread agreement that developing country concerns, needs and costs must be adequately addressed by developed countries and the donor community.

The costs of introducing and implementing trade facilitation measures

The second session of the Global Forum dealt with the implementation costs of trade facilitation, a subject of great interest to developing countries which was often raised during the earlier session. Despite a general acknowledgement that trade facilitation is in line with broader development goals, some participants have argued that the costs of trade facilitation may be difficult to justify in light of other development priorities. Accordingly, the Decision adopted by the WTO General Council on 1 August 2004

indicated that negotiations on trade facilitation "shall also address the concerns of developing and least developed countries related to cost implications of proposed measures". In response, the OECD Trade Committee sought to analyse the costs and challenges of trade facilitation, based on the experience of countries that have introduced and implemented trade facilitation measures. The session presented those findings, the experiences of several developing countries regarding cost implications, the challenges presented by the process of reform and the programmes organised by several international organisations.

Mrs. ***Evdokia Moise***, of the OECD Trade Directorate, presented the OECD Trade Committee work on the costs of trade facilitation measures, drawing on the experience of 15 developing countries which had recently implemented or were in the process of implementing measures similar to those proposed for inclusion in the future WTO agreement. The objective was to help draft WTO commitments that take into account countries' implementation capacities, to help countries understand what is involved in implementing new commitments and design appropriate technical assistance and capacity building. The main findings indicated that *i)* trade facilitation is generally undertaken as part of larger reform and efficiency enhancement projects and has generally been undertaken with existing resource; *ii)* it is important to understand a country's starting point in order to design appropriate measures and that countries can close the gap by incorporating international "best practices"; and *iii)* coherence is very important, since linkages between different types of measures make certain measures a prerequisite for the introduction of others. There generally appears to be a virtuous cycle between efficiency enhancements and trade facilitation, as launch and operating costs can be offset by subsequent savings and improvements in revenue collection. However there is a need for continuous implementation efforts after initial introduction to ensure the measures' sustainability.

The study found certain measures relatively easier to implement than others. Transparency measures are generally not very costly, yet bring important and wide-ranging benefits; at the same time making information available in a widely understood third language is more difficult to implement, whereas Internet publication costs are lower than widely believed. Enquiry points and binding rulings can be good candidates for technical assistance. Pre-arrival clearance can provide important savings but requires some level of automation. Risk management takes time to introduce and can be more difficult to implement in the context of informal trade, but offers large benefits by reducing waiting times and improving fraud control. Finally single windows and improved border agency co-ordination can take various forms with costs varying accordingly.

Mr. ***Gerard McLinden***, of the World Bank, presented the World Bank's Negotiating Support Project, which helps developing and least developed countries identify their needs and costs relating to trade facilitation measures. The project aims to support developing countries whose participation in negotiations is frustrated by their limited representation in Geneva and the lack of means to engage in complex, technical negotiating issues. It is essentially based on a Negotiations Support Guide and a series of pilot workshops aimed at enhancing co-ordination between Geneva-based negotiators and capital-based experts. Experience with the project shows that the review of negotiating proposals is a time-consuming process and requires ongoing and dynamic support. At the same time, it confirms that most countries already have some form of modernisation or reform programme in place and would in any case have implemented best practices in the long run.

Although technical assistance is often necessary, the pilot review workshops have brought out several measures that can be implemented with modest support. However, a number of implementation barriers, such as faltering political will or lack of inter-agency co-operation, are domestic in nature and not amenable to technical assistance and capacity-building support. The ambitiousness of the future agreement will clearly affect the difficulty of implementation, as provisions allowing for some flexibility in implementation will be less costly than language demanding tighter commitments or timetables. The challenge will be to conclude a meaningful agreement that delivers real benefits to governments and traders and leaves no countries behind, while taking into account legitimate capacity constraints and implementation issues facing developing countries.

The next presentation, by Mr. ***Yann Duval*****,** of the United Nations Economic and Social Commission for Asia-Pacific (UN ESCAP), presented preliminary findings from an ongoing study on trade facilitation undertaken by UN-ESCAP's ARTNeT initiative (Asia-Pacific Research and Training Network on Trade). The research is focused mainly on the costs of, and needs related to, implementation of selected trade facilitation measures relevant to GATT Articles V, VIII and X, as well as related macro-level benefits. Drawing upon the OECD work on the cost of implementing trade facilitation, ARTNeT conducted studies in Bangladesh, China, India, Indonesia and Nepal. The methodology involved an assessment of the current level of implementation of trade facilitation measures based on World Customs Organisation (WCO) self-assessment tools, the needs and priorities of the private sector, and the costs for government implementation. Preliminary findings indicate that many measures being discussed at the WTO have already been partially implemented, principally due to regional efforts through the Asia-Pacific Economic Co-operation (APEC) and other

regional trade agreements. However, the private sector has often indicated that customs regulations and procedures represent a significant additional cost burden and that while improvements in trade facilitation measures are reported in many countries there is still plenty of room for more improvement.

Some of the most problematic customs issues reported by the private sector go beyond what is being discussed at the WTO.[3] While it is difficult to cost specific measures it appears that the most costly measures to implement are those related to information technology requirements and off-the-job training of officials. Among reviewed countries, there seems to be a fair level of implementation of trade facilitation measures but the presenter argued that, to be effective, a future WTO agreement would need to specify expectations and might call for indicators measuring progress in implementation. The question also rises whether countries should implement commitments over the same timetable or whether there should be a sequencing of measures on a country-specific basis. Areas representing high priority for the private sector and entailing relatively limited costs for the government, such as timely and consistent publication of rules and regulations, simplification/harmonisation of trade documents and establishment of national enquiry points, should be in the core of the future agreement. Other commitments, such as single windows, risk management or pre-arrival clearance, would need to be carefully combined with appropriate technical assistance and capacity building.

Mr. ***Sachin Chaturvedi***, of the Research and Information System for Developing Countries (RIS), India, focused on research conducted in the framework of ARTNeT on India, against the backdrop of a growing information technology sector, improved time-related trade measures, and growing regional trade in India. The study found that trade facilitation efforts, including increased transparency, introduction of a pilot phase for risk assessment and automation, have started bearing fruit: processing stages for exports have been reduced from 18 to 6 and clearance time is improving gradually. However, problem areas such as customs valuation and tariff classification, which are outside the scope of WTO negotiations on trade facilitation, still hinder proper implementation of pre-arrival clearance. Other challenges to an overall trade facilitation endeavour include the lack of appropriately trained government officials, as well as the lack of

3. The eight most problematic areas reported by the private sector were, in order of importance, customs valuation, inspection and release of goods, tariff classification, submission of documents for clearance, obtaining of import licences, payment of fees and penalties, technical or sanitary requirements, identification of origin of goods.

preparedness on the part of the trading community. As in many other countries, the largest implementation costs were linked to automation, IT infrastructure and scanning equipment; however, implementation challenges were not so much linked to financial difficulties as to poor co-ordination among the agencies concerned, which has not made it possible to establish single windows for clearance in India.

The discussion period focused on countries' experiences with the costs and challenges of trade facilitation measures and how these relate to the ongoing WTO negotiations. For several developing countries with small delegations in Geneva, timely feedback from capitals is essential. Countries that have benefited from the World Bank Project have been able to participate more actively in the negotiations. Work to assess the implications of proposals for the countries' economy and to analyse gaps in institutional and resource capabilities with respect to potential commitments could further assist developing countries to make informed decisions about which negotiating proposals to adopt, which to reject and how to prepare for implementation. In order to schedule technical assistance and capacity building that appropriately address the cost implications of trade facilitation commitments, the text of the future WTO agreement needs to specify the level of ambition expected from members. This raises the question of whether the assessment of needs and capacities of members should take place during the implementation phase or earlier, while future commitments are still negotiated.

Some participants recalled that security concerns may further complicate trade procedures; identifying approaches that adequately take such concerns into account without unduly burdening trade flows will be one of the challenges for future trade facilitation endeavours. However, speakers stressed that trade facilitation and security need not conflict, as measures to enhance efficiency at the border have the triple effect of reinforcing security, improving revenue collection and facilitating trade. In prioritising measures, countries should take due account of the anticipated benefits. Trade facilitation measures that enhance efficiency and improve revenue collection for re-investment into further trade facilitation measures should be high on developing countries' reform agenda.

Another challenge is to plan and implement measures that rely to a certain degree on costly equipment and infrastructure. Although agreeing with the speakers that infrastructure expenses can be wasted in the absence of the political will to advance a reform agenda, several developing country representatives stressed that even widely endorsed reform agendas can languish for lack of adequate infrastructure. The cost of information technology and scanners often delays full implementation of measures such as risk management and post-clearance audits. Other measures, such as

direct trader input, which is significant for efficient pre-arrival clearance, are complicated by the lack of capacity not only in the administration, but also among the trading community and the country's trading partners. However, creative solutions to limited capacity can be found by mobilising the private sector through "build-and-operate" systems or through public-private partnerships. The private sector is often keen to support trade facilitating reforms financially because it costs them less than to support the inefficiencies imposed by red tape.

Participants noted that inter-agency co-ordination often seems to falter in the face of the reluctance of border agencies to relinquish some of their control activities, fearing that they may lose their prerogatives. National trade-facilitating bodies can play a valuable role in bringing together all concerned government agencies, as well as private-sector representatives, although this needs to be an ongoing endeavour, as staff turnover may weaken established co-ordination. Other participants cautioned that to make concerned agencies work together in a meaningful way requires strong political will.

Likewise, enhanced co-ordination among neighbouring countries can address transit issues more efficiently. Chair ***Rigoberto Gauto***, ambassador of Paraguay to the WTO, recalled that, while landlocked countries are heavily reliant on neighbouring transit countries to improve their access to international markets, transit countries are often not in a position to finance all necessary facilitation initiatives. Pooling technical assistance and capacity building requests at the regional level may be the most efficient way to mobilise donor support.

Identifying needs and priorities of developing countries and designing appropriate technical assistance and capacity-building programmes

The third session of the Global Forum presented available instruments for assessing the needs, priorities and implementation capacities of developing countries. Past experience shows that trade facilitation reforms must be tailored to reflect the particular circumstances and needs of each country in order to ensure ownership and sustainability. At the same time, a holistic approach to the reform of customs and border procedures can yield more sustainable results than a piecemeal approach. Narrowly focused reforms are not necessarily sustainable in the absence of a more comprehensive modernisation programme to enhance the capacity of the administration to cope with change.

The session also discussed best practices for the design and delivery of technical assistance and for efficiently harnessing such assistance to build up

the necessary capacities. Properly identifying needs, priorities and implementation capacities not only allows assessing where countries stand and measuring the "gap" between their current situation and the efforts they need to undertake in the context of a trade facilitation agreement; it also provides a platform for designing and implementing appropriate technical assistance and capacity building and allowing the necessary time to make implementation possible.

Mr. ***Ray McDonagh***, of the WCO, focused on the tools and approaches used by customs authorities for the diagnosis and implementation of trade facilitation. He stressed the difficult environment facing customs agencies worldwide. Customs agencies were essentially designed for revenue collection and protection but must now adapt to a complex global environment with issues such as "just-in-time" manufacturing, globalisation, paperless transactions and automation. A country's economic development is closely tied to its ability to trade effectively, which in turn is strongly affected by its customs agency's capabilities. Lessons learned during past customs capacity building efforts show that such capabilities are directly affected by the existence, or lack thereof, high-level political will and commitment, ownership and participation in customs reforms, accurate diagnosis of the current situation, realistic government and donor expectations, adequate resources and enhanced co-operation at all levels.

The WCO offers a whole array of tools to assist countries to develop and upgrade their customs capacity. For example, the WCO Diagnostic Framework improves the ability of customs administrations and practitioners to diagnose problems and weaknesses, distinguish possible solutions and improvement options, and identify needs and assistance priorities. It is backed by other instruments, such as the time-release studies, the revised Kyoto convention, the Arusha declaration on integrity, the Harmonised System, the integrated supply chain management guidelines, etc. While many of the instruments proposed by the WCO go beyond what is being discussed at the WTO, they provide the tools to implement the commitments that may be agreed in the context of a WTO agreement.

Ms. ***Caroline Lesser***, of the OECD Development Co-operation Directorate, presented the work of the Development Assistance Committee (DAC), a forum of 22 major bilateral donors plus the EC, which seeks to improve the effectiveness of aid and policy coherence. The DAC has launched a project on trade facilitation to review past donor activities and identify best practices, so as to ensure that the programming and delivery of technical assistance and capacity building for trade facilitation is part of broader development strategies and in line with aid effectiveness principles. The presenter reported that from 2001 to 2004 total aid commitments for trade facilitation more than tripled. Most support has gone to lower-middle-

income countries while LDCs received a smaller percentage. This may be due to the fact that while trade facilitation has been identified by potential recipients as a way to enhance their country's competitiveness, it has not necessarily been incorporated in their national development or poverty reduction strategies. In addition, many bilateral donors appear to have a geographical or regional focus, for example 70% of European Commission funding is for central and eastern Europe, the Balkans or the Community of Independent States.

A large share of aid is directed to infrastructure support, of which almost half was targeted at transport and storage. Furthermore, in addition to donor support for implementation of trade facilitation measures, technical assistance and capacity building funding are provided to support negotiations and integration into the multilateral trading system. The presenter indicated that the available support is likely to increase owing to predicted increases in national development plans and the "Aid for Trade" proposal. However, for such support to be efficient, it is necessary to properly identify needs and prioritise actions for both donors and recipients, in a way that reflects development programmes. There is also a need for long-term, coherent, flexible donor support co-ordinated with the recipient. Finally the presenter reiterated the importance of linking the WTO discussions with national development plans and goals.

In the discussion that followed a number of commentators stressed the importance of improved communication and co-ordination among donors and between aid donors and recipients. Parallel and duplicative operations of various donors in the same country have frequently been observed in the past and could be avoided through in-country co-ordination. Considerable amounts of donor funding have also been largely ineffective, owing to the lack of a more "strategic" approach towards aid. On the other hand, one participant argued that trade facilitation issues are often sidestepped in larger contexts, such as the Integrated Framework or Poverty Reduction Strategy Papers (PRSP), and advocated a separate, exclusive fund for trade facilitation that would allow taking up costs and challenges that go beyond the three GATT articles under negotiation. The speakers recalled that the donor community is currently rethinking tools like the Integrated Framework, and recent proposals on aid for trade advocate regional or cross-country funds for issues that are not addressed in national PRSPs. An improved co-ordination mechanism could also attempt to identify and address technical assistance and capacity-building gaps in countries or policy areas that are not receiving the necessary assistance. However, assistance is and should in any event be triggered by recipient request and not imposed by the donor.

Participants stressed again the obstacles to trade facilitation reform raised by the large digital divide and infrastructure gaps in many poorer countries. For instance, many developing countries have basic problems such as insufficient coverage in electricity or telecommunications, which make it difficult, if not impossible, to take measures such as automation or paperless systems. While acknowledging the challenge posed by material problems, the presenters recalled that customs agencies tend to be among the first government agencies to receive resource improvements. In addition, reduced clearance times due to trade facilitation will also ease shortages with respect to port, warehousing and equipment capacity. The obstacle to progress towards paperless procedures is often not the problem of automation but the lack of legislation to allow the acceptance of digital signatures. Other participants also recalled that assistance related to trade facilitation covers a wide spectrum which goes beyond the WTO negotiations and that significant amounts of investment are already channelled to these issues, much more than what is actually reported under the label of official development assistance (ODA).

The next speakers, Mr. ***Dayaratna Silva***, of the Mission of Sri Lanka to the WTO, and Mr. ***P. D. K. Fernando*****,** Director of Customs, Sri Lanka, focused on Sri Lanka's experience with the World Bank Negotiations Support Project. Through the programme, Sri Lanka was able to establish a co-ordinating group involving 11 stakeholder organisations to analyse and respond adequately to WTO proposals in a timely manner. In addition, the project facilitated Sri Lankan Customs officials' participation in WTO meetings in Geneva as well as the use of a procedural guide. Increased participation created greater awareness among key stakeholders in Colombo and clarified understanding of WTO issues, thus increasing support. Although there is still a need to increase private-sector participation and to advance more quickly, overall the World Bank Negotiations Support Project has been a very useful tool for Sri Lanka.

The final speaker, Mrs. ***Adelina Molina***, of the Philippines Bureau of Customs, gave an overview of modernisation efforts by the Philippines Customs. These efforts were reinforced by a parallel mobilisation of private-sector support and by close work with bilateral and multilateral donor agencies. Co-operation with the private sector was critical, as the government worked closely with industry groups to improve service delivery and banking groups to protect the integrity of the payment system. Through these reforms, the Philippines was able to evolve towards best practices, improve cargo clearance times, increase revenue collection and reduce documentary requirements. Moreover, Philippines Customs is now working with information technology companies located in economic zones to incorporate an automated export documentation system (AEDS).

However, there is still room for improvement in creating paperless transactions, full automation and reducing clearance times.

During the subsequent discussion several participants expressed their sympathy towards the problems of very small delegations trying to cope with the negotiations, and their appreciation of the benefits of negotiating support such as that enjoyed by the Sri Lanka mission in Geneva. They recalled that several small countries are unable to fund a permanent mission in Geneva and rely on infrequent trips by officials from other locations to participate in WTO meetings. Countries such as small Caribbean islands have pooled their limited number of experts and established a multiple-country mission, currently supported by donor funding, but rely on the life cycle of donor projects, which do not necessarily correspond to the life cycle of the negotiations.

Other participants commended the Philippines on its modernisation efforts. Chair ***Christina Rahlén*****, of** the Ministry of Foreign Affairs, Sweden, stressed how important it was to ensure sustainability of such efforts so as to enjoy their trade facilitating advances in the long run. Participants called attention to measures, in particular those relating to information technology, which require regular maintenance and updates to operate satisfactorily, as these imply regular expenses that require a funding solution. However, past experience shows that the enhanced revenue collection due to these measures can often cover maintenance and updating expenses. Other modernisation endeavours will call for a prior reform of institutional settings, as in the case of legislation on digital signatures. This is something that does not entail high costs but requires overcoming domestic inertia. Likewise, with respect to donor co-ordination, recipients have an important role to play at the domestic level, without waiting for co-ordination at the international level.

Concluding round table: How to match commitments and capacities?

The final session consisted of a lively roundtable exchange centred on the questions of how future commitments can best be linked to implementation capacities; what special and differential treatment provisions can best ensure that benefits from a trade facilitation agreement will be fully reaped by all WTO members; and how can in-built flexibilities appropriately reflect not only the costs and complexities but also the potential benefits of trade facilitation. Several themes emerged during the discussion, around an overall agreement that trade facilitation is beneficial for all countries. Participants recalled that any discussion about cost implications should not ignore the costs of "doing nothing": what is the

financial burden of current inefficiencies on the private sector and on the domestic and global economy?

However it was also felt that reaping expected benefits may call for a number of prerequisites that go beyond commitments as they shape up in the WTO context. Some participants called for including infrastructure in the trade facilitation negotiations. Ambassador of Nepal ***Gyan Chandra Acharya*** recalled that trade facilitation affects much more than procedures at the border and may be instrumental in determining a country's competitiveness and its access to international markets. Issues such as transport and productive capacity have also to be taken into account. Small and vulnerable economies or landlocked countries can use the trade facilitation opportunity to reverse the marginalisation of their economy. It is important to understand the proposals on the negotiating table in a comprehensive manner and to fully grasp their implications for the whole of the economy. Small country delegations will need better negotiation support to correctly assess the implications of proposed measures for their country, shape their negotiating position accordingly and prepare the ground for future implementation. Some developing country participants raised the idea of a separate fund dedicated to trade facilitation and the creation of a group of eminent persons to decide on the allocation of funds.

Mrs. ***Christina Rahlén*****,** Ministry of Foreign Affairs, Sweden, stressed that, in addition to financial costs, countries engaged in trade facilitation have to take into account a time factor: sustainable reforms do not happen overnight and it is not realistic to expect all commitments to be implementable immediately or even as soon as technical assistance has been provided. On the other hand, this makes strategic and step-by-step planning of reforms even more important. Some participants questioned whether Annex D organisations were in a position to provide adequate levels of assistance and capacity building. The World Bank representative pointed out that although there is still not enough money directed to trade issues, those issues attract increasing support. The critical issue now is to ensure the efficiency and effectiveness of donor support, for instance in the context of processes such as Aid for Trade, which are useful complements to assistance specifically targeted at trade facilitation. Possible effectiveness criteria include *i)* a robust process for identifying needs and priorities and matching those to available technical assistance; *ii)* donor flexibility; *iii)* ability to build on and complement rather than replace or duplicate existing local mechanisms; *iv)* reliance on regional economies of scale; *v)* reliance on available international instruments; *vi)* simplicity of administration; and *vii)* review and monitoring mechanisms.

Several participants stressed the importance of including all actors (private sector, other border agencies) not just governments or customs

agencies in the process. Mr. ***Owen Makuu***, Director for External Trade of the Ministry of Trade & Industry, Kenya, underlined that, as in many other countries, the progress achieved by the Kenyan Customs agency was not matched by all other involved players, such as port authorities, police or other government and private entities involved in the transit of goods to neighbouring landlocked countries. More work would be necessary to achieve a more balanced situation for the movement of goods as a whole. Furthermore, different government agencies in the same country may be working with different donors in an un-co-ordinated way that does not promote a comprehensive improvement of the logistic chain.

Another theme related to the need for better co-ordination between international donors and beneficiaries. The question of how developing country requests for donor assistance could be prioritised by the donor community and international agencies was raised. On the other hand, participants mentioned the importance of ownership among beneficiary countries and partnership between those countries and the donors: when technical assistance and capacity building programmes set by the donors reach an end and the experts leave the country, it is crucial for the recipient country to continue the effort and take it further forward. An important element for taking advantage of technical assistance would be to have capable project managers to administer support programmes.

Mr. ***Eduardo Tempone*****,** of the Permanent Mission of Argentina to the WTO, noted that the challenge is to develop the right approach to the ongoing negotiations. The discussant argued that Annex D of the July package has reversed the traditional logic of WTO agreements, which usually started by setting commitments supposed to be subsequently implemented, but paid little attention to the capacity to ensure the implementation. According to the modalities agreed for the trade facilitation agreement, implementation capacity and related needs should be addressed first, including via technical assistance; countries would be bound by the commitments contained in the agreement only when such capacity has been acquired. This calls for early self-assessment diagnostics to define technical assistance requirements. While technical assistance is not a binding commitment in the WTO, it would become a real prerequisite for the agreement to enter into force – the key issue then is how to create incentives for technical assistance and capacity building that reaches every country that needs them and not only countries that are attractive owing to their important trade flows.

Mr. ***Jonathan Claridge*****,** of the European Commission, recalled that GATT articles V, VIII and X are over 50 years old and badly in need of updating to reflect the needs of developing countries and the current international trading system. He stressed that any final agreement should be

inclusive, seeking to ensure that expected benefits accrue to the whole WTO membership and that no country would be forced to undertake commitments it cannot implement. Assessment and consideration of individual country needs and priorities will therefore be crucial for the success of the agreement. A developed country representative stressed that no agreement could be reached without acknowledgement of developing country capacity needs. Each member will have to decide what level of commitment it can achieve and how much it will cost. However, his own country's experience demonstrates that outside international pressure can help create momentum for internal co-ordination

On the other hand, Ambassador of Zimbabwe ***Chitsaka Chipaziwa*** recalled that progress in the trade facilitation negotiations is tied to developments on other WTO issues under negotiation, in particular agriculture and NAMA, and that the prospects of success will rely to a great extent on external factors. He also questioned whether developing country negotiators who are heavily reliant on developed country negotiating support can analyse and consider proposals in an independent way. Participants expressed hope that the highly contentious WTO issues will not derail progress in areas such as trade facilitation where there is relatively wide agreement on the benefits of moving forward. A developed country participant warned not to lose sight of the prize of trade facilitation by focusing on negotiating strategy or tactics.

Concluding remarks

The Chair, Jean-Marie Metzger, OECD Director for Trade, thanked all discussants and participants for a very interesting discussion. In summarising the main points raised during the session he stressed in particular, that *i)* all countries should look after their own best interests but should move away from a overly mercantilist attitude towards the negotiations and fully engage in them, *ii)* that the conclusion of the DDA will be the beginning and not the end of the process of trade facilitation, and *iii)* that developing counties should send a strong message to the donor community to be active, present and engaged, reminding them that much is expected from them.

The discussions at the Global Forum serve as a reminder that while there is wide agreement on the benefits of trade facilitation, questions remain on how best to achieve those benefits. Clearly any WTO agreement will need to be concluded in tandem with solid commitments on technical assistance and capacity building.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(22 2009 02 1 P) ISBN 978-92-64-05694-7– No. 56629 2009

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ISBN 978-92-64-05694-7
22 2009 02 1 P