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THE ECONOMIC IMPACT OF TRADE FACILITATION

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ABSTRACT

This paper 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 is part of a series of studies that analyse various aspects of trade facilitation and the objective is to contribute to discussions in the WTO Negotiating Group on Trade Facilitation (NGTF) and elsewhere in the trade policy community. The paper 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 paper demonstrates that facilitated cross-border movement of goods would have a positive effect on the ability of a country to attract foreign direct investment and better integrate in international production supply chains.

Key words: customs, border procedures, trade facilitation, foreign direct investment, government revenue, trade flows, trade transaction costs

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TABLE OF CONTENTS

EXECUTIVE SUMMARY 4
INTRODUCTION 6
PART I. THE OVERALL RELEVANCE OF TRADE FACILITATION 8
A. The comparative advantage of quick and predictable delivery 9
B. Traders' complaints about border procedures 11
PART II. THE ECONOMIC IMPACT OF TRADE FACILITATION 14
A. The impact of trade facilitation on trade flows 14
B. The impact of trade facilitation on government revenue 18
C. The impact of trade facilitation on foreign direct investment 23
D. Conclusions 26
REFERENCES 27

EXECUTIVE SUMMARY

The trade and customs procedures practices by different countries affect the price of traded goods, 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 trade transaction costs arising directly and indirectly from such procedures are substantial while the opportunity cost of maintaining inefficient customs procedures is equally high.

Weak and inefficient customs procedures have negative effects at both the national and corporate level. Countries may experience problems related to smuggling, corruption, customs valuation and tax collection while companies may suffer from slow and unpredictable goods delivery and direct costs in terms of rent payments and the compliance with strenuous customs procedures. There may also be significant indirect costs related to foregone business opportunities and the need to hold excessively high levels of stock. The WTO Negotiating Group on Trade Facilitation aims to address some of these issues and simplify and improve trade and customs procedures in WTO member states.

Quantitative studies have shown that reductions in trade transaction costs through trade facilitation measures may bring as significant welfare gains as tariff liberalisation. This paper 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 reviews recent quantitative work that has been conducted on border-related trade transaction costs and it presents the experiences of a large number of countries that have implemented customs modernisation programmes over the last fifteen years. The analysis also draws on information from business surveys, corporate case studies and various other sets of data.

Based on results from business surveys and modelling exercises, there are strong indications that improved border procedures would have a considerable positive effect on trade flows. Quantitative estimates indicate that fairly modest reductions of trade transaction costs may have a positive impact on trade in both developed and developing countries. Studies have also shown that unilateral action to improve customs efficiency has the potential to benefit both the importing country and its trade partners. Closer inspection suggests 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.

Experiences from a number of countries show 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 the successful introduction of such comprehensive programmes. These experiences indicate that even relatively modest reform initiatives have brought increases in customs revenue. However, the experiences presented in this paper also indicate that customs modernisation programmes can be challenging and time consuming to implement. Technical and financial assistance seem to have a key role to play 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 trade transaction costs which reduce a country's competitiveness in benchmark and standard cost-benefit calculations. Inefficient border procedures are

thus negatively affecting 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, this paper 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 of the initiatives 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 where many developing countries have a comparative advantage.

INTRODUCTION

1. The objective of this paper is to study the effect that trade facilitation and related reductions in trade transaction costs (TTCs) may have on: a) trade flows; b) government revenue; and c) foreign direct investment (FDI). The analysis draws on empirical data from country experiences and recent quantitative estimates of the economic impact of improvements in border procedures. It recalls and complements previous work conducted within the Trade Directorate on trade facilitation and business benefits (OECD 2002, 2003a), automation (OECD 2005a), costs of customs reform (OECD 2004a) and developing country experiences (OECD 2003b, 2005b). The Secretariat's work on trade facilitation aims to increase awareness of customs issues and the significant importance of border procedures to customs administrators and trade policy analysts. This particular paper also intends to provide background material to the Negotiating Group on Trade Facilitation (NGTF) and feed into the process of negotiations on trade facilitation which was launched in July 2004 under the Doha Development Agenda (DDA).

2. The International Chamber of Commerce (1999) argues that efficient customs administration is paramount for companies that compete on international markets. One of the aims of this paper is to examine available evidence of 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 which partly finance their public administrations with trade taxes. In addition, small and medium-sized enterprises (SMEs) create most new jobs in both low-income countries and high-income countries and surveys have shown that these companies are more negatively affected by inefficient customs procedures than are multinationals.

3. 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 of international commerce since the mid-20th century. [1] Some of this growth is attributed to increasing trade flows within multinationals and an important result has been a heightened visibility of unnecessary 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 consequently 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, sanitary and phytosanitary matters. Rules of origin attached to preferential trading arrangements also impose new demands on customs resources.

4. "Trade facilitation" in the following analysis is used in accordance with the WTO definition which refers to *"the simplification and harmonization of international trade procedures"*. Trade procedures are here the *"activities, practices and formalities involved in collecting, presenting,*

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

communicating and processing data required for the movement of goods in international trade".[2] This definition implies that trade facilitation is affected by GATT Article 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 paper will particularly focus on analysing measures that are covered by these three GATT articles. However, the following analysis draws heavily on surveys and sources of earlier work which were not restricted to such a narrow definition and the empirical and quantitative review will thus focus on border procedures in general. This includes customs procedures. Port services will occasionally be mentioned as well.

5. 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. The reader of this paper should thus be aware that all the cited studies are not necessarily providing data strictly relevant to the negotiations in the NGTF. The extended picture of border procedures is nevertheless of relevance in discussions of trade facilitation. There are significant inefficiencies related to weak customs practices and administrative capacity at borders but poor infrastructure and capacity at seaports and airports are sometimes even more of a problem to traders. Inadequate road and transport infrastructure often add substantial costs to traders but these types of inefficiencies will not be addressed in the paper.

6. The first part of this paper surveys some studies and empirical evidence of TTCs, with an effort to distinguish factors that affect customs performance. It also reviews some country surveys that have examined traders' views of customs' impact on business performance and refers to some estimates of global welfare effects from adopting trade facilitation measures. The second part takes a closer look at the empirical and quantitative evidence of links between customs efficiency and trade flows, government revenue and FDI. The final part concludes.

[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

PART I. THE OVERALL RELEVANCE OF TRADE FACILITATION

7. The studies surveyed in OECD (2002, 2003a) suggest that TTCs involved in import and export procedures range between 1 to 15 percent of trade transaction value. This significant discrepancy is mainly attributed to differences in the levels of efficiency in different countries' customs administrations and to the definitions used for trade facilitation (and thus the scope of relevant TTCs).[4] Most estimates are in the low or middle range. While the upper-end of the range would be relevant for the world's more inefficient customs administrations, developed countries generally operate capable customs administrations where gains from customs modernisation are likely to be found in the lower-end of the range.

8. 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) (OECD, 2003a).

9. Subramanian and Arnold (2001) have examined the transportation 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 percent 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 handling costs in port other than loading and unloading vessels, were about 20-25 percent of total costs. Limitations of working hours at the customs, the lack of customs officers, the shortage of gates for receiving cargo, and the transparency of procedures for inspection and valuation were some of the problems. 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 product type. Agricultural produce was found to be especially sensitive and this finding is in line with that provided by OECD (2003a).

10. Several studies have tried to estimate the potential welfare gains that can be realized from trade facilitation. Most of these studies use CGE modelling to estimate the welfare effect of marginal reductions in TTCs. Table 1 presents the findings of some recent exercises and the conclusions are coherent: lower TTCs – for instance from faster and more efficient border crossings of goods – would significantly increase global welfare. The study by APEC (2002) concluded that the current aim to cut TTCs by 5 percent in the APEC region would add around USD 154 billion to member economies. Another study by APEC conducted in 1997 estimated that the average gains from trade facilitation in the Asia-Pacific region were almost twice the size of potential gains from tariff liberalisation.

[4] This study 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 (see e.g. Messerlin et al. (2000) and Wilson et al. (2004)).

Table 1. Welfare effects from trade facilitation measures

Author	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 percent (3.0 percent) 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-percent reduction scenario. All countries/regions would benefit in the 3.0 percent, or "full liberalisation", scenario.
OECD (2003a)	Based on a CGE (GTAP) model exercise, the authors estimate that a 1-percent reduction of 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 & North Africa (0.27 percent), Non-OECD Asia Pacific (0.25 percent), OECD Europe (0.19 percent) and Sub-Saharan Africa (0.18 percent) would be particularly well off.
APEC (2002)	Based on a CGE model exercise for APEC economies, the authors estimate that a 5-percent reduction in TTCs for goods trade will raise APEC's GDP by USD 154 billion, or 0.9 percent.
Commonwealth of Australia (2002)	The authors estimate that in terms of annual increases of 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-percent reduction in the cost of maritime and air transport services in developing countries could increase global GDP by USD 7 billion (1997 value).

A. The comparative advantage of quick and predictable delivery

11. 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, which in turn lowers the competitiveness of a country's producers. Hummels (2000) estimated that the average *ad valorem* equivalent of a 1-day delay of manufactured goods is around 0.5 percent. This approximation is frequently used in quantitative exercises even if the author in a revised draft raised this estimate to 0.8 percent (Hummels, 2001).

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

[5] Customs clearance time can be reduced with help of different means such as appropriate use of 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. This paper is not studying the various tools and strategies that can be used but previous OECD (2003b, 2004a, 2005a, 2005b) work provide further information on the topic.

13. Table 2 compares the logistical and dutiable costs involved in shipping textile and clothing products to the US market from seven exporting countries under various trade arrangements. While the cost calculations are not only relevant to border procedures, it still provides an overview of the extreme disadvantages that countries with inefficient customs operations, inadequate port services and logistics systems suffer. It also highlights the new business opportunities that countries which manage to modernise their customs operations and port infrastructure may enjoy. The table shows for example the considerable disadvantage experienced by Kenyan garment producers which are hampered by long delays in customs clearance and the poor linkages to international transport networks. The time disadvantage is even more pronounced if consideration is given to the fact that many textile and clothing producers are dependent on foreign inputs which have to be transported to, and clear customs in, the country of production.

Table 2. Transit, freight and duty cost on US imports of textiles and clothing

Country of origin	Outbound from USA [days]	Inbound for USA [days]	Transit days [days]	Time factor 0.5%/day*	Freight cost*	Customs duty*	Total cost*	Relative to China*
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 Republic								
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%

* in percent of import value.
Source: OECD (2004b)

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

15. Another illustration is provided by Cadot and Nasir (2001) of a Malagasy garment exporter whose prospective gains from reduced port clearance time to one day would equal a labour cost saving of

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

20-30 percent for producing a long-sleeved shirt. The World Bank has estimated that the average time required for customs clearance for sea cargo in Africa is 10.1 days. The equivalent clearance time is 2.1 days in OECD countries (KPMG, 2004). According to Hummels (2001) this would represent an additional cost of approximately 8.1 percent and 1.6 percent 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 percent if the number of days required to clear customs were halved in Ethiopia. In Nigeria, fraud, corruption and poor security at customs are estimated to increase the cost of imports by approximately 45 percent.

16. The potential cost savings owing to cutting customs clearance times are small in countries like Canada where the standard clearance time was 0.75 hour in 2000. Australia is another example where 98% of electronically lodged import entries were processed within 0.25 hours in 2000-01. Similar customs clearance times were reported for Spain (4 hours), Greece (0.5 hours) and France (0.23 hours) (OECD, 2005a). Some developing countries have managed to reduce customs clearance times for most goods to less than 24 hours (OECD, 2003b). Japan's experience also shows that substantial gains can be realized in large trading nations. Nomura Research Institute (2004) estimates that Japanese trade facilitation measures cut average lead time by 56 percent between 1991 and 2001 for cargo.[7] This time reduction saved cargo owners, shipping companies, terminal operators and customs brokers some estimated ¥39 billion.

17. Table 3 provides a number of estimates of customs clearance times for imports and exports in a number of reported countries. The table reveals that border barriers are significant for exporters even before their products reach their target markets. While the time to clear imports is 1-2 weeks in most countries in the table, the time to clear exports at the sending country' border reduces the competitiveness of its own export industry. The average clearance time is 8 days for imports (median) compared to 4.5 days for exports.

Table 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)

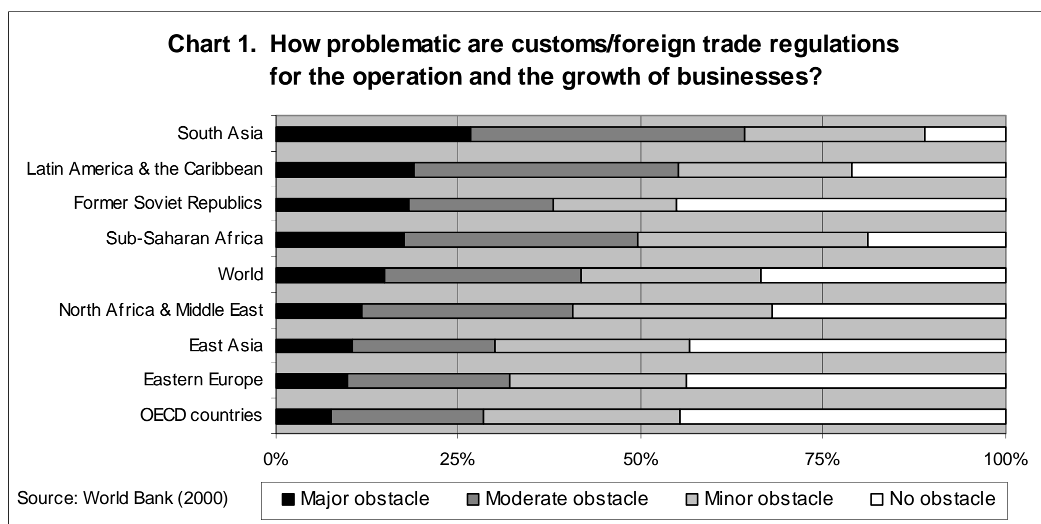
B. Traders' complaints about border procedures

18. 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] Chart 1 shows that companies in mostly developing

[7] Average lead time in this case was average requisite time from port entry to permit issuance.

[8] The bundling together of both customs procedures and trade regulations reflect the wide definition of "trade facilitation" that the World Bank often uses. This definition includes both at-the-border and behind-the-border measures.

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



19. Another survey conducted by 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 percent of total respondents described customs procedures as a serious or very serious problem and 69 percent of developing country respondents were particularly concerned (39 percent in developed countries). Of the specific issues concerning customs procedures, *complexity of customs regulations* (52 percent); *lack of information on customs laws, regulations, administrative guidelines and rulings* (49 percent); and *problems with the mechanism of appealing customs decisions* (43 percent) received the largest share of “serious or very serious” replies. Table 4 shows the customs issues ranked in descending order of seriousness for developed and developing countries.

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

Table 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

Source: APFC (2000). * Replies from companies in Australia, Canada, Chinese Taipei, Hong Kong China, Japan, Korea, New Zealand, Singapore and United States of America. ** Replies from companies in Brunei Darussalam, Chile, China, Indonesia, Malaysia, Mexico, Papua New Guinea, Peru, Philippines, Russia, Thailand and Vietnam.

PART II. THE ECONOMIC IMPACT OF TRADE FACILITATION

21. 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 of increasing importance.

22. 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 potentially positive effect on domestic production. *Efficiency effects* arise from distortions in the allocation of resources in the economy, which may be reflected e.g. in FDI flows. The effect on FDI flows is somewhat ambiguous however. TTCs decrease efficiency-seeking FDI while they at the same time may increase market-seeking FDI for tariff-jumping purposes in large markets. A large share of FDI is today aimed for establishing production capacity for export markets and TTCs are thus most likely to have a negative effect on FDI. Both price and efficiency effects generate welfare losses for consumers and producers in importing and exporting countries.

23. 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 such as refrigeration, chemicals, etc. If the product has a limited window of usefulness, then prolonged stays at the border could push the product out of the market. If the delay or actual costs of bringing production inputs into a market cannot be anticipated, investors may find the market less attractive.

24. While TTCs may be analysed as *ad valorem* tariffs, it should be noted that TTCs 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 while reducing smuggling and corruption. 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 reductions in direct customs fees.

25. One of the challenges in quantifying the effect of customs modernisation on trade flows is the causal link between them. Increased levels of trade and FDI flows are likely to lead to increased pressure on customs administrations to provide efficient services[9]. Another challenge in estimating the effect from an empirical point of view is that customs reform usually is implemented in steps and over a long period of time. In some of the country cases that are presented in Table 7, reform measures were introduced over a ten-year period.

A. The impact of trade facilitation on trade flows

26. Table 5 presents the main findings of nine recent quantitative estimates and surveys, each exploring the link between trade facilitation and trade flows. Most of these exercises use either gravity

[9] See Wilson et al. (2003) for a discussion.

models (4 cases) or computable general equilibrium (CGE) models (3 cases) to estimate the effect on trade of increased efficiency in customs procedures and ports. Four studies model the outcome of trade facilitation in the APEC region and although this region only covers 21 countries, it still represents around half of world trade and includes a number of both developed and developing countries.[10]

27. 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 provide 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.

28. Five key conclusions can be made on the findings presented in Table 5:

1. 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.
2. The studies also indicate that trade in both rich and poor countries stand to gain from trade facilitation. In relative terms, trade gains would be higher in developing countries than in developed countries. This finding reflects their comparatively less efficient customs administrations and ports.
3. Both the country improving its customs procedures and the countries exporting to this country stand to benefit from the efficiency measures. The country that improves its border procedures benefits most and this underscores the value of unilateral action.
4. The potential gain from increasing port efficiency is considerably larger than for increasing efficiency of customs procedures. Still, improved customs procedures would significantly increase trade flows.
5. The quantitative results echo the results from business surveys: inefficient movement of goods across borders is a serious impediment to trade and growth.

29. These key conclusions are further supported by the country case studies presented in part II.C where customs reform in many cases has led to considerable increases in trade flows. Some quantitative exercises show that trade effects from trade facilitation can vary widely between product categories. For example sectors characterised by constraints related to seasonality, perishability or JIT production are likely to be more sensitive to inefficient customs procedures. This includes textiles and clothing where seasonality and the need for quick deliver heighten the value of efficient border procedures and access to transport networks. The previously presented case of Fijian garment producers illustrates this case. For agricultural produce, perishability is of uttermost importance and for instance the successful export experiences of cut flowers in Kenya, and mangoes in Mali, demonstrate that improved border procedures and logistics systems may open up new business opportunities for developing countries (World Bank, 2003, 2004b).

[10] The APEC region's share of world trade was 48.8 percent, and growing, in 2000 (APEC, 2004b).

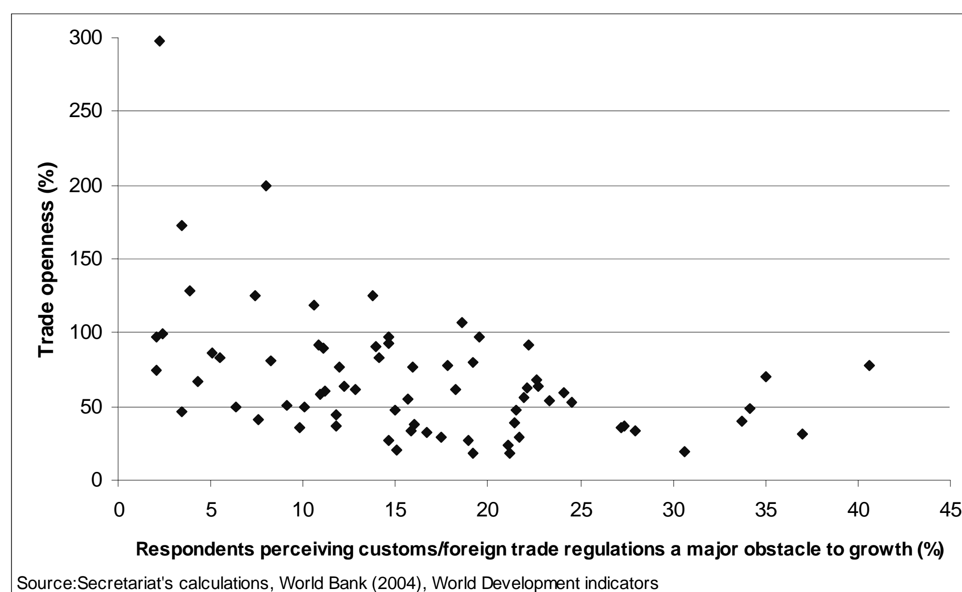
Table 5. The impact of trade facilitation on trade flows

Author (year)	**Key findings**
APEC (2004a)	Based on a *gravity model* exercise for APEC economies, the authors find that improved trade facilitation by 10 percent boosts intra-APEC imports by a minimum of 0.5 percent 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 an improvement in customs procedures performance by 50 percent would increase imports by 1.7-3.4 percent in industrialised APEC economies, 2.0-4.5 percent in newly industrialised APEC economies, and 7.7-13.5 percent in industrialising APEC economies.
Wilson et al. (2004)	Based on a *gravity model* exercise for 75 countries, the authors find that improvements in port efficiency and customs administration for below-average efficient countries half-way up to the global average 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 percent 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 in border crossings (delays) 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 the effects of ports improvements. If port efficiency and customs environment in below-APEC-average members were brought half-way to the initial APEC-average, intra-APEC trade is estimated to increase by 11.5 percent. A 9.7 percent gain (USD 117 billion) is expected from increased port efficiency and 1.8 percent (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 US will source from the country by 1–1.5 percent for manufactured goods while no effect is found for commodities. Each day saved in shipping time is worth 0.8 percent *ad valorem* for manufactured goods.
APEC (1999)	Based on *CGE analysis*, the authors find that a 1 percent reduction in import prices (from reduced TTCs) for the industrial and newly industrialising countries of Korea, Chinese Taipei and Singapore, and a 2 percent reduction for the other developing countries yield an increase in APEC merchandise trade of 3.3 percent.

30. Clarke (2005) has studied factors that affect the export performance of manufacturing enterprises in African countries. The author 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 the second most restrictive country (i.e. Tanzania in his sample) to the level in the second least restrictive (Zambia) would increase exports as a share of production by approximately 4 percent for an average enterprise. This represents an increase in overall exports by one third since most production is for domestic consumption.

31. Chart 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 (2000) survey of more than 10,000 companies). The chart indicates that there is 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.

Chart 2. Trade facilitation and trade openness



32. A breakdown to country-specific gains of trade is provided in Table 6 which shows the outcome from Wilson et al.'s (2003) gravity model exercise[11]. The authors have 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. Increased efficiency of customs procedures would under this scenario increase trade flows by as

[11] The basic version of the gravity model relates the volume of bilateral trade flows to economic sizes 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 (2005c) for further discussion).

much as 30 percent in Russia and 22 percent 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 still increase by 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 port-improvement effect translates into an average 64 percent increase in the nine countries while the average customs-improvement effect is 12 percent.

Table 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)

B. The impact of trade facilitation on government revenue

33. In addition to the potential cost savings that trade facilitation can bring to traders, benefits can also accrue from more efficient and reliable tax collection, which is particularly important for many developing country governments that are dependent on trade taxes for financing their public administrations.[12] 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 (2005d) 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 percent), Lesotho (39 percent), Madagascar (36 percent) and Vanuatu (34 percent). To raise the efficiency of weak customs administrations is thus likely to have a positive impact on revenue collection.

34. Traders benefit from reductions in costs and delays at borders, and increased predictability and transparency of customs clearance procedures. Customs modernisation programmes in developing countries often aim to both reduce customs clearance times and to increase government revenue. "Actual revenue" can be much lower than the "potential revenue" because of corrupt and incompetent customs officials or because of inadequate and outmoded customs procedures as previously discussed. 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. Some of the case studies that are presented in this part will illustrate the dramatic increases in trade flows due to reductions in smuggling (as in the experiences of Angola,

[12] A recent paper by OECD (2005d) 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 experiences with trade-related fiscal adjustment.

Mozambique and the Philippines). Like any monopoly, customs administrations may have limited incentives to improve productivity in its operations. Introducing effective reform programmes requires time, resources and commitment at all levels – something that is seldom readily available.

35. 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. Those countries that are sceptical to new trade facilitation initiatives are generally not questioning the objectives of the proposals but rather worry about the costs of customs modernisation and question whether new commitments should be binding or not.

36. While there may be cases where costs have exceeded the benefits, the case studies in Table 7 prove that the benefits in many cases have 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).

37. Earlier OECD (2003b) work has pointed out that revenue enhancement appears to be one of the main incentives for customs reform. Revenue loss from inefficient border procedures has been estimated to exceed 5 percent of GDP in some cases. In addition, high TTCs have been found to offset the competitive advantage of some countries owing to 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 percent are reported to have occurred in some countries.

38. Experiences from several countries show that trade facilitation have had a net positive effect on customs revenue collection. Table 7 presents twelve country experiences and the fiscal outcome of various types of customs modernisation programmes. From moderate action plans implementing single-window automation systems (including Singapore) to the complete overhaul of the customs administrations (see the case of Angola, Bolivia or the Philippines), trade facilitation shows that the potential gains are substantial.

39. Developing countries with weak customs administrations have in many instances managed to increase customs revenue by a factor of two – or 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. Technical assistance has an important role to play here and this fact is evident from the country experiences in Table 7. Most countries received some form or combination of technical assistance from the World Bank or WCO, financial assistance from external aid agencies, or engaged in public-private partnerships.

40. Table 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 the more efficient employment of production factors. These effects are likely to be evident only in the medium and long-term. Several of the countries in Table 7 are also still in the process of implementing their customs reform programme. Design and implementation of ICT networks, training of customs

Table 7. Trade facilitation and government revenue: country experiences

Angola OECD (2005b)	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 information technology equipment. Half-way through the five-year programme, revenue receipts had increased by 150 percent 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 modernization 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 percent 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 percent 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 percent or 25 percent if account is taken for 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 the U.K. 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.

Table 7. Trade facilitation and government revenue: country experiences, ***continued***

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 percent of Ghana's total trade flows and government revenue collected from airport traffic had increased by approximately 30 percent on a yearly basis when checked for currency changes and an increase in imports. In addition, customs clearing times were also 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 percent.
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 information and communication technology. The results were impressive. Imports (other than for home consumption) increased by 48 percent between 1996-02 while customs revenue increased by 8 percent between 1998-02 despite progressive tariff reductions. Customs clearance times were reduced to an average of 1-2 hours in 2001-03.
Mozambique OECD (2005b) 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 percent while customs revenue increased by 58 percent 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 percent of road imports and 62 percent 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.

Table 7. Trade facilitation and government revenue: country experiences, *continued*

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 2, 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 percent between 1990 and 1992 (327 percent in 1990-1995) whereas the value of imports increased by 37 percent over the same period (175 percent in 1990-1995). Customs release time dropped from a range of 15-30 days to 2 hours - 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. The initiation 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 and 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 the automation to 4 hours – 2 days following the introduction. The Philippine customs authority experienced significant problems during the implementation phase and the Asian financial crisis also affected trade in the country. 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 percent while revenue grew by 60 percent.
Singapore United Nations (2002)	In 1989, Singapore introduced TradeNet, a highly efficient electronic trade document system which cost the country S$ 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 percent 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 percent 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. The reform programme brought considerable results. Revenue of the Uganda Revenue Authority increased from 7.7 percent to 13.0 percent of GDP in the ten-year period to 2002.

staff and the use of such effective tools as risk assessment which is dependent on trade statistics take considerable time. Any reform programme – no matter how comprehensive from the start – is dependent on incremental improvements for which results often are seen in the long run.

41. There are several examples of failed customs reform programmes. This paper does not discuss the issues and reasons why some countries have failed but acknowledge the challenges and costs involved. The experiences of the twelve countries in Table 7 still show that successfully implemented reform programmes can bring impressive results of both reduced customs clearance time and increased revenue. One caveat is the difficulty to estimate the revenue effect of customs modernisation since tariffs in many of the country cases have been reduced or tariffs schemes simplified. Tariff reductions in line with customs reform lead to an understatement of the real revenue effect.

42. There are some general trends that can be observed from the twelve country experiences presented in Table 7.

1. Successful implementation of customs reform programmes can bring significant increases in customs revenue in countries with weak customs administrations.
2. Even moderate modernisation initiatives can bring quantifiable results on customs revenue.
3. Some of the customs reform experiences show that customs revenue remained stable after significant cuts in tariffs.
4. The financial results are not necessary immediate since reform programmes are implemented over time.
5. Technical and financial assistance were crucial components in many of the reform programmes in developing countries. Public-private partnership also worked for some countries to address their customs issues.

C. The impact of trade facilitation on foreign direct investment

43. Global sourcing[13] represents a significant share of international investment flows and international production chains are increasingly dependent on manufacturing in developing and emerging market economies. The manufacturing industry is highly dependent on 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 which are included in cost/benefit calculations that companies use to evaluate alternative locations. Inefficient border procedures can thus be regarded as a potentially high opportunity cost. 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[14]. The authors also note that in a sample of ninety developing countries, there were no landlocked countries among the fifteen largest manufacturing exporters during the period 1965-1990.

44. The positive effect of trade facilitation measures on FDI is to a large extent taken for granted in the economic literature. There is little empirical work that has attempted to verify it. Earlier studies have e.g. shown that good governance and open markets have positive impacts on FDI flows (see e.g. Kinoshita and Campos, 2004). 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

[13] As in multinationals locating production capacity in foreign countries.

[14] The TTC is here the equivalent to transport cost.

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

45. Box 1 illustrates how border procedures affect investment decisions at Philips Electronics and Unilever Plc. The case studies illustrate how costs related to border procedures are estimated and included in cost calculations used for the evaluation process. Multinationals have a relative advantage compared to SMEs when it comes to circumventing some of the inherent inefficiencies at borders. Large companies have dedicated teams which work exclusively with customs clearance and trade procedures and these teams can sometimes negotiate special deals with the customs authorities in countries which they invest. For example, a European flower company which recently decided to grow and import flowers from Ethiopia negotiated a deal with the Ethiopian customs and airport authorities to have access and store the flowers in a hangar at the airport. The parties also organised so the European company would be able to clear customs and transport the flowers by airplane at any day of the week.

46. 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 under the sun in 35°C can make the flowers rotten upon delivery. This also holds for slow unloading and handling procedures at cold Dutch airports. Late delivery of flowers may render the products difficult to sell, especially 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 transportation. In addition, quick delivery is dependent on 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.

47. One of the few studies that has empirically examined the importance of trade facilitation to foreign investment is offered 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.

48. Two recent studies by Dollar et al. (2003, 2004) also found considerable variation in customs clearance time from one location to another within countries. The work 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 et al. (2004) estimated that if the number of days required to clear customs were halved in Ethiopia, average firm-level productivity would increase by 18 percent. The authors reckon that since Ethiopia is in the middle of the range for surveyed least developed countries on customs issues, the returns to effective customs reform in more inefficient countries are substantial and have significant potential to raise investment attractiveness.

49. Volatile delivery forces companies to keep higher levels of stock. Gausch and Kogan (2001) found inventory holdings in manufacturing to be 200-500 percent higher in developing countries than in the United States. The authors estimate that halving inventories could reduce unit production costs by 20 percent. 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 produce goods aimed for export markets. Filmer's (2003) study concludes that the importance of customs administration to FDI decisions is not hypothetical. 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.

Box 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 € 30 billion in 2004. The company operates a fairly decentralised organisation and it is dependent on a large number of production units located around the world. These units are kept tightly together in a complex global supply chain.

Philips has established a specialised service unit consisting of 150 professionals whose purpose is to serve and assist the movement of goods across borders. Issues related to e.g. border and customs procedures such as customs declarations, customs invoices etc. are handled by this unit. Roughly 40 of the professionals are working strictly towards 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 only get high on the agenda in cases where production is outsourced and where short lead-times are critical and documentation requirements complex. Customs procedures are normally taken into consideration in the end of the investment evaluation process. Potential locations are first identified using a broad set of criteria and it is in the final stages of the evaluation process that the company investigates the efficiency of the candidate countries' customs procedures.

Customs procedures are less important for investment decisions in major markets. For example in China, Philips enjoys an early mover advantage where its dedicated service unit for border issues has since long 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 in the beginning of the 1990s, Philips invested in production facilities in Hungary and one of the company's preconditions was that the local authorities agreed on cutting 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.

Source: OECD Secretariat's consultations with Philips Electronics.

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 € 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 domestic or regional markets. This focus on production for domestic markets and the related dependency of raw material and inputs of imported goods in the supply chain highlight the relative importance of efficient border procedures in the countries where Unilever has production.

The size and characteristics of local markets matter most in Unilever's evaluation process of where to locate production capacity. However, investment decisions in emerging markets are also dependent on issues such as good governance, transport and logistics systems and economic and political stability since investment decisions concern long-term commitments. The investment decision is in the end based on a cost/benefit analysis of the locations that fulfil general requirements. Trade transaction costs stemming from inefficient border procedures are estimated and included in the overall calculations which also comprise a large number of other variables. These include e.g. import duties for the importation of raw and input material, transportation and logistics costs, production costs and costs related to SPS and TBT regulations.

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: OECD Secretariat's consultations with Unilever.

50. The European Round Table of Industrialists (ERT) recently conducted a survey among its members to examine their views on trade facilitation issues[15]. 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 no company had abandoned investment opportunities in the OECD area because of customs issues. Moreover, four-fifths of the companies answered that substantial improvements in trade facilitation would make them look more favourably at local new investments or added business activities in developing countries. Seven out of ten of the companies answered that this was the case in transition economies. Three out of ten also replied OECD countries would be more attractive FDI locations if they were to improve border procedures.

D. Conclusions

51. 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 paper has examined the link between trade facilitation and trade flows, government revenue and foreign direct investment.

52. A review of existing business surveys and quantitative estimates uniformly indicate that there is a significant and positive link between trade facilitation and trade flows. Even fairly modest reductions in trade transaction costs are shown to 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 reflecting their generally less efficient border procedures. The quantitative literature typically divides efficiency enhancing border procedures into improvements of customs procedures and port standards. Available estimates show that potential gains from increased port efficiency are relatively larger than for improved customs procedures.

53. 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. The country experiences also indicate that even relatively modest modernisation programmes have brought quantifiable increases in customs revenue. However, the financial return may take some time since modernisation programmes usually are implemented over an extended period of time.

54. The study also shows that there is a positive effect of trade facilitation on investment attractiveness. Corporate case studies illustrate how inefficient border procedures give rise to trade transaction costs (TTCs). TTCs 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 which produce goods that are time-sensitive or perishable. 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.

[15] The survey targeted multinationals and the results are likely to have been more pronounced if SMEs had been included as well.

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