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**INCOME DISTRIBUTION IMPACT OF TRADE FACILITATION IN
DEVELOPING COUNTRIES***

**Background Document for the
International Forum on Trade Facilitation**

DOCUMENT FOR INFORMATION

This document has been prepared as background material for the Second International Forum on Trade Facilitation, organized by the Committee for Trade, Industry and Enterprise Development (CTIED) and the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) on 14 and 15 May 2003 in Geneva.

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Contents

Executive Summary.....	3
1. INTRODUCTION.....	4
2. TRADE TRANSACTION COSTS IN DEVELOPING COUNTRIES.....	4
2.1 Components and Elements.....	4
2.1.1 Transport Costs.....	5
2.1.2 Procedural and Compliance Costs.....	6
2.1.3 Standards.....	6
2.1.4 Corruption.....	7
3. The Benefits of Trade Facilitation in Developing Countries.....	8
4. The Income Distribution Impact of Trade Facilitation.....	9
4.1 Trade Facilitation and Growth.....	10
4.2 Trade Facilitation and International Trade.....	11
4.2.1 Transaction Costs Theory.....	11
4.2.2 Production Effects of Trade Facilitation: Factor markets.....	12
4.2.3 Consumption Effects of Trade Facilitation: Price Transmission.....	15
4.2.4 Second-Round Effects of Trade Facilitation.....	16
4.3 Government Revenue.....	16
4.4 Other Factors Influencing Poverty.....	17
5. CONCLUSIONS AND RECOMMENDATIONS.....	18
6. REFERENCE LIST.....	21
Figure 1: Schematic Representation of Trade Facilitation and Poverty Linkages.....	10

Executive Summary

1. Openness to trade has long been seen as an important element of sound economic policy and trade facilitation is a necessary step for achieving it. Trading more efficiently tends to increase average incomes, providing more resources with which to tackle poverty. And while it may affect income distribution, it may not do so in a systematically adverse way.

2. This paper investigates the income distribution impact of trade facilitation in developing countries and makes a number of findings. Among them:

- Trade facilitation has an impact on income distribution and poverty in developing countries through its effects on international trade, economic growth and government revenue.
- Small and medium sized enterprises (SMEs), the dominant actors in developing countries, are the main beneficiaries of trade facilitation, since trade transactions costs fall disproportionately on small firms.
- While trade facilitation may or may not reduce income inequalities within developing countries, trade facilitation can enhance trade-induced growth, which increases average incomes providing more resources with which to tackle poverty. Trade facilitation measures applied within a closed (or at least less liberal) trade environment can still have a positive impact on exports and foreign investment.
- Trade facilitation may increase employment which may help some move out of poverty.
- Improvements in infrastructure allow the poor to trade more easily and profitably in domestic as well as in international markets.
- Trade facilitation can increase government revenue which can benefit the poor if used to finance social expenditures

3. A number of policy recommendations can be made if trade facilitation measures are to benefit the poor. In particular:

- To reduce income inequalities in developing countries trade facilitation measures should be targeted at lowering trade transactions costs in those sectors where employment of the poor is concentrated.
- The provision of effective safety-nets may be necessary if alternative forms of employment are not rapidly available for any displaced workers.
- Increases in government resources brought about by trade facilitation should be used to support pro-poor or social expenditures.
- SMEs need access to capital, trade information systems and capacity-building to comply with international standards under trade facilitation programmes if they are to trade efficiently.
- Infrastructure can be particularly beneficial for the poor if they are actively employed in its development.

1. INTRODUCTION

4. Recently, increasing emphasis has been placed on the importance of non-tariff barriers to export expansion in developing countries. One of such constraint that is gaining in prominence is the role of trade transactions costs or the issue of trade facilitation. Trade facilitation encompasses “a wide range of areas such as government regulations and controls, business efficiency, transportation, information and communication technologies and the financial sector” (UNECE (2002a), p.3). This paper aims to address the income distribution impact of trade facilitation in developing countries. We consider the matter from a general perspective, drawing on economic analysis and practical experience to construct a broad framework to explain the links between trade facilitation, income distribution and poverty.

5. The report outlines a number of ways through which trade facilitation can have a direct effect on income distribution and poverty in developing countries. Among them are:

- 1) International trade: Trade facilitation changes the prices of traded goods. This paper looks at how these changes are translated into prices faced by different sectors and how they affect the poor.
- 2) Economic growth: The weight of evidence is that increased openness to trade is good for growth and that growth increases the incomes of the poor. For its full benefits to be realised, tariff liberalisation needs to be accompanied by trade facilitation measures in areas such as procedures, and transport and communications infrastructure otherwise it will fail to generate the investment and productivity improvements needed for economic development.
- 3) Government revenue and spending: Trade facilitation measures such as customs reform may also affect income distribution and poverty through changes in the government’s fiscal position, particularly if trade taxation is an important source of revenue. Trade facilitation can increase revenue, boosting social and anti-poverty programme expenditures.

2. TRADE TRANSACTION COSTS IN DEVELOPING COUNTRIES

2.1 Components and Elements

6. Transaction costs associated with international trade in goods are numerous. OECD (2001) classifies these costs into two forms: direct costs (costs of compliance associated with the collection and processing of information¹ and charges for trade-related services e.g. for freight, insurance, and handling) and indirect costs

¹ There are in an average trade transaction between 27 and 30 different parties involved, handling approximately 40 documents, not only for government authorities but also for related businesses. 200 data elements are required, 30 of which are repeated at least 30 times (APEC (1996)), of which 60-70% are re-entered at least once (ETPAD (1998)). In addition these costs may be multiplied by data-entry errors incurred during the process (SITPRO (1991)). Similarly, Messerlin and Zarrouk (1999) p. 12 find that the average customs clearance transaction in the Middle East and North Africa takes between 25 and 30 stages to complete and takes between 1 day to several weeks, with border corruption being evident in the process too.

(time-sensitive costs brought about by administrative processes and customs procedures² which delay goods in the warehouse leading to an increase in transportation fees and inventory charges). Other direct and indirect costs can be brought about by a lack of transparency or of uniformity in the interpretation of regulations and contracts which increase the effective cost of producing the necessary trade and procedural information.

2.1.1 Transport Costs

7. Transport and logistics are one of the more critical trade facilitation problems facing developing countries (see appendix 1 for a summary of studies in this area). A large part of the disadvantage in trade faced by Southern Africa, in particular, has to do with the transport sector, which is a critical variable in determining competitiveness. To remain competitive, exporting firms that face higher shipping costs must pay lower wages to workers, accept lower returns on capital, or be more productive. An example of this in the case of developing countries are the labour-intensive manufacturing industries such as textiles, where high transport costs are likely to translate into lower wages for workers, directly affecting the standard of living of workers and their dependents.

8. Amjadi and Yeats (1995) find that freight rates for Sub-Saharan African countries are often considerably higher than on similar goods originating from other countries and thus have contributed to the region's poor trade performance over the last decade. This problem is particularly acute for those African countries which are landlocked. Limao and Venables (2000) find that being landlocked raises transport costs by more than 50%, but that this extra cost is not fully explained by the extra overland distance that must be overcome to reach the final destination. They put forward several possible reasons for this, including: border delays, transport coordination problems, uncertainty, higher insurance costs and direct charges that may be incurred (e.g. Kenya charges a road transit goods licence of \$200). The rise in cost is due to the fact that almost all consignments from landlocked countries need to transit across neighbouring countries, thus multiplying transportation costs. For Latin America, Guasch and Spiller (1999) report on inter-country differences in inventory levels. They report the very large disadvantage of Latin American economies vis-à-vis the US with respect to inventories: on average these countries hold twice as much raw material and finished products as the US. According to the authors, higher transaction costs explain a relevant part of these inventories discrepancies: Latin American countries faced with uncertain demand, longer delays, and larger costs for small frequent shipments, choose to maintain larger reserves. Considering the cost of capital is normally higher in Latin America than in the US, the authors point out that these high inventory levels translate into considerable costs and ultimately in lower competitiveness and diminished growth.

9. High transportation costs are also due to anti-competitive policies, such as cargo reservation schemes maintained by a large number of African countries and international shipping cartels and legislated monopoly providers in both industrialised and developing countries (Francois and Wooton (2001); Fink *et al.* (2002)). Fidler (2001) finds that shipping costs and port restrictions of US shipping cartels hinder Latin American and African exports to the US more than tariffs do.

² Customs procedures are only one aspect of improving the overall efficiency of the cargo clearance process. APEC (2000) cites a WCO study of clearance times at Indonesian ports which 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, including problems with incomplete documents, red tape involved in releasing goods from warehouses, and payment hold-ups even after the release of goods by customs officials. Mikuriya (2001) shows that the biggest delay from cargo arrival to release is in the plane-to-warehouse and time-in-warehouse stages of the process.

10. Although being landlocked is a challenge, problems can be overcome. UNECE (2002b) suggests a number of practical solutions – transit corridors, regional integration efforts, legal and regulatory reforms, and institutional / administrative overhauls.

2.1.2 Procedural and Compliance Costs

11. Having discussed the types of trade transactions costs faced by developing countries we now turn to discuss the effects of these costs on firms. In developing countries SMEs are the dominant actors. With respect to trade transactions costs related to compliance, there may be asymmetric effects on SMEs and, therefore, on enterprises in developing countries.

12. A number of factors deter firms in developing countries from seeking to expand in international markets. First, Ernst and Whinney (1987) for the EU suggest that compliance costs have very little relationship with the value of goods traded. They find that compliance costs per consignment are 3% - 45% higher for firms with fewer than 250 employees. By extension to developing countries, this leads to the conclusion that the export of small value consignments, and by small firms, bears disproportionately high cost burdens.

13. Second, when trade procedures are complicated, demand for labour to complete these activities is high. Two types of trade operators might be particularly adversely affected by such a requirement: small firms who lack human resources, and firms whose productivity in carrying out trade procedures is lower than other competitors. For these two types of firms, trade formalities might require spending significant resources on internal transactions. This could result in disproportionately high compliance costs.

14. Third, lengthy processing time also affects the capital standing of firms, since capital delayed at the border bears interest. For those operators whose capital reserves are thin, such as SMEs and enterprises in developing countries, lengthy processing might constitute a prohibitive trade barrier.

15. Finally, lack of predictability also entails significant disadvantages for enterprises in developing countries (IECC (1996)). When the necessary information on applicable regulations is not readily available, trade operators have to spend additional resources in order to obtain information. Enterprises operating in an untransparent environment, as is often the case in developing countries, need to spend more resources to obtain regulatory information. Furthermore they will frequently have to add expenses for bribes, penalties and administrative or judicial appeals. As these additional expenses do not usually vary according to the value of the goods or the volume of the sales, they serve to increase the operational costs per unit and put firms in developing countries in a weaker position than larger enterprises.

2.1.3 Standards

16. A third category of transaction costs includes those related to standards. As technological advances help developed countries improve their inspection capacities developing countries are beginning to face more stringent standards requirements in industrialised markets. Developing countries have fewer resources to advance as quickly, and the costs for compliance seem to be increasing. Known and agreed standards benefit international trade through ensuring predictability, but overly-restrictive standards can function as technical

barriers to trade (either by protectionist design or as an unintended consequence). A difference exists between countries that see standards as an opportunity to gain 'market edge' (through meeting the requirements) and others that perceive them as deliberate protectionist measures designed to restrict their exports. The former group is highly represented in Asia and expend resources in upgrading certification bodies and technical training whilst some Sub-Saharan African countries lobby for derogations or special treatment for their exports (Cerrex (2002)). The costs of technical standards and regulations requirements have been estimated in the EU as being equivalent to a tax of 2% of the value of the goods traded. The high dependency of African exports on European markets makes them even more susceptible to European regulatory reforms (Otsuki *et al.* (2001)).

2.1.4 Corruption

17. In a number of developing countries it is common for there to be significant delays at the border when trying to achieve customs clearance. In addition to complex customs formalities and capacity constraints given limited facilities this can also be due to corruption at the border. Hare (2001) in a recent piece states "it is often asserted that inadequate physical infrastructure... inhibits trade. More often, the real barrier to trade is again institutional, taking the form of unreasonable customs delays at many borders... accompanied by widespread demands for bribes to expedite the movement of goods". In a Mozambican survey of traders Biggs *et al.* (1999) find that 45% of those surveyed had been solicited to pay or had paid a fee not otherwise required by law or regulation. Most paid between \$4 and \$40, but 9% paid between \$40 and \$400. For Thailand, according to results of a survey on 1024 individuals, 74.4% of respondents answered that they had paid bribes in order to facilitate customs clearance (Thai media (2001)). There are, therefore, potential links between corruption and trade facilitation. If developing country producers, domestic or foreign owned, pay costs associated with corrupt practices their competitive position in both domestic and foreign markets is reduced. If they do not pay, the consequent delays or inherent uncertainties also harm their competitiveness (Cudmore and Whalley (2002)).

18. Some trade facilitation measures are designed to increase transparency and those measures, in particular risk assessment screening and post-clearance audit, have deterrent effects on duty evasion and corruption in customs. For example, in 1996 the strengthening of customs procedures and the implementation of trade facilitation measures by the Mozambique Government selected Crown Agents to manage customs operations, to train customs staff, and to provide other support as needed. One of Crown Agent's tasks had been to reduce corruption and related problems affecting revenue collection and national reputation which has had a continuing effect for example in the first half of 2000, 130 staff members were charged with serious offences (USAID (2002)).

19. A number of other measures have been taken by countries in an attempt to curb corruption at the border. First, pre-shipment inspection (PSI) refers to the verification of unit prices and to the examination and reporting of the quantity and quality of exports before they are shipped to the importing country. PSI can help to control over- or underinvoicing of imports, misclassification of imports and undercollection of taxes on imports and can assist with monitoring of origin, compliance with national regulations and tariff exemption schemes and consumer protection. The most common reason that governments use PSI is to deal with inefficient or corrupt customs administrations. The effectiveness of PSI in this regard depends on how well it is implemented. Although reported revenue savings generally exceed PSI fees, case studies suggest that the information provided by PSI companies has often been disregarded and customs administrations often do not

want the services because they reduce available rents. Furthermore, importers claim that PSI fees are costly to businesses and that the PSI process is time-consuming in the country of origin (Staples (2002)). For example, at the WTO Trade Facilitation Symposium, the Director of the Chilean Customs revealed that the costs of pre-shipment inspection to external trade was equivalent to raising average tariffs by one percentage point (WTO (1998)). In its most recent Recommendation on Pre-shipment Inspection, UNECE (1999) discourages the use of PSI and proposes that it should not be made a regulatory requirement. Where in certain circumstances there is interim recourse to PSI measures it is recommended that these are maintained for less than five years and that procedures should be kept under review (every 12-18 months) to ensure fulfilment of their objectives. In addition, where PSI is being used to carry out customs-related activities, UNECE (1999) recommends that this be combined with a comprehensive programme of customs reform and modernisation.

20. Anti-bribery rules in industrialised countries are also another means to combat corruption in developing countries. The Anti-Bribery Convention (signed in 1998) has resulted in a tightening of rules across the developed world, outlawing widely condemned practices such as allowing companies to count bribes to overseas officials as tax-deductible expenses. However, international inconsistencies in the application of anti-bribery rules could put countries at a competitive disadvantage to those who fail to adopt them. The OECD has recently encouraged its members to comply with their obligations under the Anti-Bribery Convention; pressure that must be maintained if consistency in application of the rules is to be achieved.

3. The Benefits of Trade Facilitation in Developing Countries

21. Since firms in developing countries suffer the heaviest burdens of trade transaction costs the benefits from the removal of these costs are high. A number of studies have suggested that the potential gains from investment in trade facilitation measures are substantial for developing countries. A recent assessment on the impact of trade facilitation, undertaken for the case of APEC, is Wilson *et al.* (2002). Seven indicators of trade facilitation are generated to measure the efficiency of port logistics, customs procedures, regulatory environments, standards harmonisation, business mobility, e-business use and administrative professionalism and transparency in each APEC economy. The analysis considers how much trade in the APEC region might increase under various scenarios of 'improved' trade facilitation. A practical scenario calculates the increase in trade that would be associated with bringing those APEC members that have trade facilitation measures below the APEC average halfway up to the APEC average. The results show that for APEC as a whole there would be an increase in intra-APEC trade by about \$280 billion. Among the study's findings, exports would rise in Indonesia by \$2.9 billion (5%), Thailand by \$3.9 billion (5%), Malaysia by \$6.3 billion (6%), Mexico by \$1.9 billion (1%) and China by \$32 billion (11%) with investment on trade facilitation in the region. The study also finds that gains from trade facilitation exceed those in tariff cuts on manufactured goods. The greatest gains to developing countries come from improvements in ports and customs efficiency.

22. There is also evidence to suggest that trade facilitation measures can benefit less liberal economies with higher tariff barriers. USAID (2003) discusses the export successes of Mauritius and Costa Rica which have experienced dramatic growth in exports over the last three decades, shifting from export of agricultural products to export of manufactures and services. Exports from Mauritius grew from \$89 million in 1970 to \$2.8 billion in 2000. For Costa Rica, the growth over the same period was equally as impressive – from \$276 million to \$7.4 billion. Costa Rica and Mauritius clearly achieved what most developing countries want – a dramatic change from production of one or a few primary products to competitive production of manufactures

and services in world markets. Costa Rica and Mauritius followed broadly similar macroeconomic policies during the period under study: devaluation of their currencies to improve competitiveness of exports; aligning of labour costs with worker productivity; adoption of tight fiscal and monetary policies. Neither country had a liberal trade policy. In both countries, an import-substitution manufacturing sector protected from world prices co-existed with another manufacturing sector that depended entirely on its capacity to export to world markets at world prices. In addition, however, both countries did implement a number of trade facilitation measures which reduced the cost and risk of exporting.

23. For Costa Rica, changes in government procedures eased the burden of paperwork for exporters; firms supporting exporters with specialised documentation and packing services were established; contractual arrangements providing clear rules for liability and spoilage en route between producers and shippers were developed; and producers established industry associations in a number of sectors, increasing information flow and making possible cooperative approaches. An illustration of the success of these trade facilitation measures was the establishment of an Intel chip fabrication plant in Costa Rica in 1995. This \$300 million plant employs 3500 Costa Ricans and is the country's largest exporter. The decision to locate in Costa Rica was due to the improved capacity of the country to produce in world markets, promote investment and satisfy infrastructure requirements. For example, Intel wanted its high-value chips routed to their destinations as their manufacture was completed, requiring 12 flights daily to the US. Air traffic capacity had been made possible over the previous decade arising from increased shipments of cut flowers, apparel and other new exports, and from the increased tourist flow to Costa Rica.

24. For Mauritius, the Mauritius Export Development and Investment Authority (MEDIA) was established in 1984 and this organisation has become an efficient tool for attracting foreign investment and improving the domestic conditions faced by new businesses. Improvements in procedures for exporters and infrastructure upgrading have also reduced the cost of exporting. With these policy and institutional improvements employment has risen and large numbers of new workers (mainly women) have entered the labour force.

4. The Income Distribution Impact of Trade Facilitation

25. The case of vegetable exports from Zimbabwe (landlocked but with reliable air and land transport, chilled storage and good communications networks) illustrates the enormous possibilities when transport and related services are efficient. In the early 1990s, farmers near the capital supplied fresh vegetables to the London market by picking them, immediately trucking them to the airport and flying them overnight to London where they were put on the shelves ready for sale in the morning. This required cheap and reliable air transport and modern telecommunications because the shipments were delivered to order (Krugman (1998)). Demand increased especially for female labour involved in picking, sorting, selecting and packing of fruits and vegetables (Bennathan (1989)). Equally, for Chile, shipping deregulation eliminated restrictions on foreign shipping companies to supply international transport services. Monopoly rights in cargo loading operations in Chilean seaports were abolished, allowing the entry of new private operators and the development of a competitive market for cargo handling services. In addition, the government tripled port capacity by obtaining labour flexibility. It did this by paying the union for the right to use workers not under union contract which allowed it to move from a union-constrained eight hour day to 24 hour cargo handling. This led to a significant cost reduction and an increase in exports, particularly time-sensitive agricultural exports that were intensive in rural labour.

26. In theoretical terms trade facilitation has a positive impact on the efficiency of the trading environment which increases average incomes providing more resources to tackle poverty. However, as with most trade reforms, trade facilitation may adversely affect some groups in society even if it increases incomes in total. Trade facilitation potentially affects poverty through the following chain of linkages. Trade facilitation influences: international trade flows which modify the prices of goods and factors of production (capital and labour); government revenue which can be used for pro-poor and social expenditures; and economic growth. These changes alter income distribution and poverty levels.

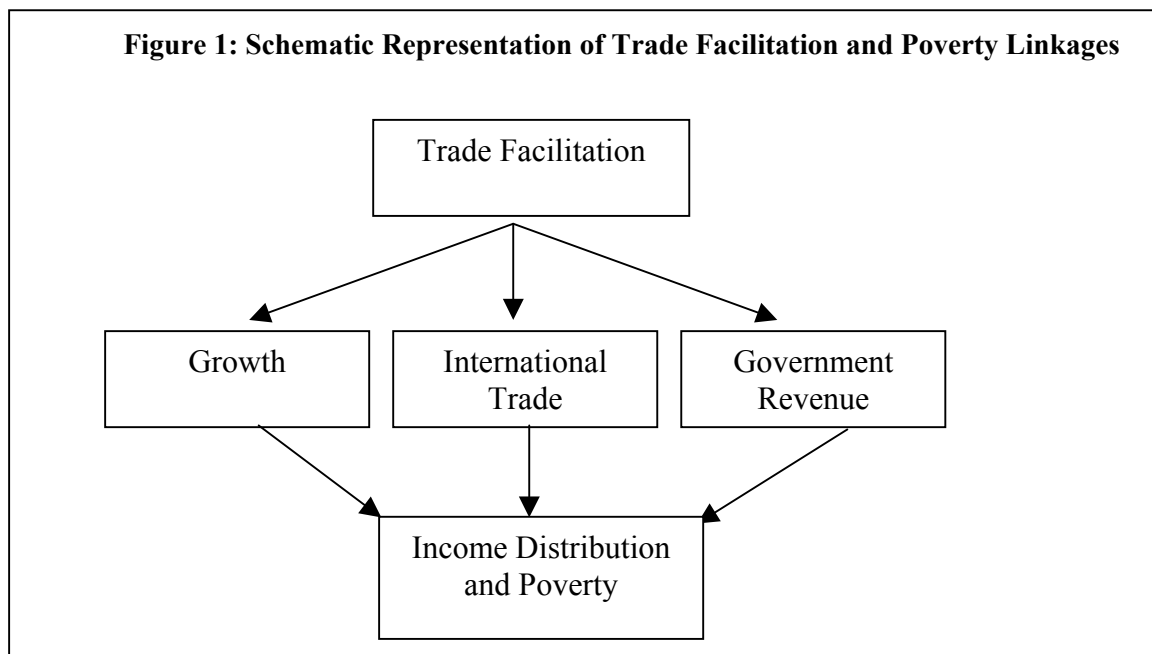


Figure 1 schematically represents these linkages, ignoring a series of other important issues such as feedback effects of increased poverty and inequality on growth and trade. The following sections describe in detail the influence of trade facilitation on income distribution and poverty via each of these linkages in turn.

4.1 Trade Facilitation and Growth

27. A large literature emphasises the important role that openness to trade may have in boosting economic growth (Grossman and Helpman (1991); Romer (1992); Barro and Sala-i-Martin (1995); Obstfeld and Rogoff (1996); Greenaway *et al.* (1998)). Empirical evidence confirms that developing countries applying more open trade regimes have enjoyed higher growth rates than those implementing restrictive policies (Dollar (1992); Sachs and Warner (1995); and Edwards (1998)). This conclusion, however, depends crucially on how openness is defined (Harrison (1996); Harrison and Hanson (1999); Rodriguez and Rodrik (1999)). When it is strictly limited to include only measures taken at the border e.g. tariffs, then growth appears to be almost unaffected by greater openness. When openness is measured by a wider range of policies falling under the trade facilitation agenda – including the level and variability of non-tariff barriers, effective infrastructure, level of international competitiveness, degree of state monopolies etc. – then growth appears to be boosted whenever a country moves towards a more open regime. In sum, although a liberal tariff policy is

beneficial because it enlarges the set of opportunities, a long-term effect on growth almost certainly requires such a policy to be combined with trade facilitation measures. For example, investment in public goods, such as transport and communications infrastructure, can greatly enhance the ability of firms and individuals to take advantage of the opportunities that may be created by tariff reduction. Others, however, claim that openness has played a relatively minor role. Indeed, some researchers argue that the high levels of protection and interventionist industrial policies adopted by some East Asian economies promoted an environment conducive to investment and technological learning and that these, rather than openness, may have been the real reasons for growth (see Wade (1990); and Rodrik (1999)).

28. Assuming trade facilitation contributes to positive growth in developing countries the ‘trickle down’ effect should lift some of the poor above the minimum poverty levels. In addition, Solow’s model predicts that poorer countries will grow faster than richer ones or, in other words, that through this process of convergence to the same level of growth, inequalities across countries’ income levels will decrease. Therefore, unless growth seriously worsens income distribution, the proportion of the population living in absolute poverty will fall as average incomes increase. The balance of the evidence seems to be that although growth can be associated with growing inequality, the effects on poverty tend to be dominated by the advantageous direct effects of growth (see Demery and Squire (1996) on Africa). The effect also appears to generalise to the very poor, defined as those who live on less than \$1 a day (see Chen and Ravallion (1996); Bruno *et al.* (1996)). In recent work, Dollar and Kraay (2001) found that, on average, the incomes of the poorest fifth of the population grew proportionately with GDP per head in a sample of 80 countries over four decades. This was as true of growth induced by openness to trade as that due to other stimuli.

4.2 Trade Facilitation and International Trade

4.2.1 Transaction Costs Theory

29. In contrast with growth economics, international trade economics, with its general equilibrium multi-sector and multi-factor apparatus, has always been a standard tool to study income distribution and poverty. Trade facilitation can be incorporated into models of international trade through the introduction of trade transaction costs. The key aspect to this is an alteration to the notion of ‘price’. In these types of models there is a buyer’s and a (lower) seller’s price and the difference yields an income which compensates the real resources used up in the trade transaction (the cost of trade facilitation). When the operation of a market needs intermediaries that provide information or other services to buyers and sellers so that they can realise an exchange, then these intermediaries would receive the income generated by charging a transaction fee (=cost).

30. Another form of transaction cost has been considered in international trade and explicitly incorporated into models since Samuelson (1954). The basic concept here is that trade involves transaction costs and that these may be simply thought of as a fraction of the traded good itself, as if “only a fraction of the ice exported reaches its destination as un-melted ice.” This ‘iceberg model’ shows a reduction in transaction costs saves real resources and makes an economy more efficient.

31. These models highlight that among the benefits of trade facilitation are:

- 1) *More efficient production and allocation of resources:* Trade facilitation increases the degree of competition faced by domestic producers through reducing transactions costs associated with

import and export. This may result in closures and consequent unemployment, but can increase welfare in the long term by allowing a country to improve its efficiency of production in three ways:

- Increasing the efficiency with which existing resources are used;
- Encouraging specialisation and the reallocation of resources towards those activities that reflect the country's comparative advantage;
- Allowing exploitation of economies of scale through exports to the world market.

- 2) *Cheaper consumption*: Trade facilitation, by definition, reduces inefficiencies and obstacles to trade. In general, when markets are functioning efficiently, this will result in a reduction in the domestic price of goods, by making either cheaper foreign goods available or reducing the rents that may have previously been captured by domestic producers.

32. In sum, trade facilitation, through reducing trade transactions costs can lower the price of imports and import substitutes and reduce the cost of exports and exportables. The effects on incomes depends on whether labour is a net consumer or producer of each class of good and whether labour assumed to be mobile within countries. It is to a discussion of these effects that we now turn.

4.2.2 Production Effects of Trade Facilitation: Factor markets

33. In terms of production, trade facilitation will have two likely effects. As the price of imported inputs goes down and exports become more price-competitive, due to the more efficient trading environment, demand for labour to produce exports is likely to grow. At the same time, sectors that compete with imports will be exposed to more intensive competition and demand for these goods will decline. Consequently, demand for labour in import-competing sectors is likely to fall.

34. Crucial to the effects on income distribution of trade facilitation is the transmission of changes from output prices to wage rates, such as labour and intermediate goods and services. Depending on the situation, this transmission is enhanced, diminished or distorted by the labour market³. Labour markets allow the demand for labour to be matched with supply. This is typically done through movements in wage rates, with the result that employment and wages – the two variables of most relevance to poverty – are determined. The movement of labour between sectors plays a crucial role in the poverty effects of trade shocks. There are two opposite assumptions that can be made about the movement of labour: 1) that total employment is fixed but wages are variable and 2) wages are fixed but employment is variable.

35. Under the first of these assumptions price changes, including those emanating from trade facilitation measures, affect the incentives for firms to produce particular goods. The Stolper-Samuelson theorem proves that under particular conditions⁴, an increase in the price of a good that is labour-intensive in production will

³ Two characteristics of developing countries play an important role in this context: the first is the presence in their labour markets of institutional rigidities and the second is the segmentation of these markets. For instance, minimum wages may only operate for specific groups of workers or specific sectors. In the presence of these rigidities and imperfect compliance, it is easy to show that a trade facilitation-induced price shock which adversely affects a labour-intensive sector, may not be felt by those (often more skilled) workers who are protected, but it may exacerbate the negative impact on the non-protected (less skilled) workers.

⁴ Assuming two factors of production, two 'small' (i.e. price-takers on world market) countries, two products, perfect competition and perfect factor mobility within countries.

increase the real wage and decrease the real returns to capital⁵. If poor households depend largely on unskilled wage earners, poverty will be alleviated by the resulting wage increase. Trade facilitation reduces the cost of producing exportable goods (which are likely to use a country's abundant factors intensively) and reduces the price of importable goods (which are likely to use scarce factors intensively). Developing countries as a group are clearly abundant in labour, so that a more efficient trading environment raises their wages in general.

36. This result, however, cannot be generalised to all developing countries⁶. For example, countries in Latin America have abundant natural resources and much less labour than Asian countries and so would probably not be considered abundant in labour. Similarly, within individual developing countries, least-skilled workers may not be the most intensively used factor in the production of tradable goods (see Feenstra and Hanson (1995)).

37. The approach described above is based on the idea that the supply of labour is fixed. Consequently, an increase in the demand for labour increases its real wage. Another approach by contrast assumes that labour is not fixed in supply, such that any amount of labour can be obtained at the prevailing wage. If this is the case then the wage will be fixed and the adjustment to any change in prices brought about by trade facilitation will take place through changes in employment. If trade facilitation increases employment it may help some to move out of poverty.

38. Neither of the two extremes of perfectly fixed or perfectly flexible labour supply is likely to hold for most developing countries. However, an economy with a highly flexible and mobile labour force will conform more closely to the first extreme than to the second, making wage changes of particular importance. Conversely, an economy with many labour market rigidities and a large pool of unemployed workers may justify a focus on the employment effects of trade facilitation.

39. In the case of Mozambique, for example, labour regulation is an area of policy where firms often complain. Mozambican regulations require that firms file monthly reports containing large amounts of data on the names of workers they employ, what jobs they hold, and how much they are paid. Far more restrictive are the regulations governing layoffs and hiring foreign workers. While the law allows firms to reduce their workforce, employers are forced to make such high severance payments that firms often keep unproductive workers on the payroll. This policy leads many firms, especially smaller ones, to hire only temporary workers who do not benefit from the same job protection. As a result labour market rigidities in Mozambique add to

5 An increase in the price of any good will increase the incentive to produce it. This will raise the returns of factors of production specific to that good – for example, labour with a specific skill, specialist capital equipment etc. If the production of goods intensive in the use of unskilled labour increases, then unskilled wages rise. As these industries expand in response to higher output, they absorb factors of production from other sectors. By definition, an unskilled-labour-intensive sector requires more unskilled labour per unit of other factors than do other sectors, and so trade facilitation increases the net demand for unskilled labour and reduces it for other factors.

6 Outside the 2x2x2 framework, theory does not necessarily yield such clear cut predictions. If a third factor of production – natural resources – is included and if primary products require complementary inputs of natural resources and capital, then their expansion following trade liberalisation may bid up the rewards to both of these factors at the expense of labour. A similar result emerges if a country is assumed to be producing three commodities (export crops, subsistence agriculture and manufactures) using three factors (land, capital and labour) in different combinations. Assume export crops are more land-intensive and less labour intensive than subsistence agriculture and capital does not perfectly move across sectors: trade facilitation by raising export crops' domestic price causes an expansion of the export sector at the expense of subsistence farming. This lowers opportunities for labour and reduces wages.

the already considerable risks of doing business and act to discourage firms from expanding (Biggs et al. (1999)).

40. A number of other factors, in addition to those discussed above, are critical for poverty-reducing trade facilitation in the international trade framework. First, poor people need to interact with markets to benefit. Yet, they may rely on goods that have no explicit prices (e.g. the environment) or own factors that are not easily marketable. Second, positive trade facilitation effects may eventually relieve the poor, but in the short-term the adjustment process may be more harmful than helpful. The poor may experience increased income risks in the short-term when they switch from producing import-competing goods to producing tradable exports.

4.2.3 Consumption Effects of Trade Facilitation: Price Transmission

41. In addition to increasing exports, trade facilitation may also reduce the price of imports depending on the size of the trade transaction costs that are removed. If trade transaction costs have protected inefficient local production – then trade facilitation will result in imports becoming cheaper which will put pressure on local firms to increase their efficiency or contract their output sufficiently to reduce costs if they are to survive. Bussolo (2001) by attempting to model (and apply empirically to Colombia) the distributional effects due to a reduction in trade transaction costs finds that a reduction in transaction costs can have strong positive effects on private consumption and therefore on households' welfare and their absolute poverty.

42. However, it is also necessary to consider the extent to which competition and product differentiation exists within world markets. Competition in the world market may affect the price reductions caused by trade facilitation. For example, if production of a good is dominated by a small number of firms, then these firms may be in a position to 'price to market'; that is, to set prices above marginal costs according to what the market will accept. This situation is most likely to arise for goods that are strongly differentiated so that only one or two firms make a particular variety. Any trade facilitation measures taken in these markets are likely to be partly captured by increased company profits rather than being passed onto consumers. The same is true for goods whose world markets are truly monopolised, though in reality, there are relatively few of these.

43. These results only paint a partial picture of the consumption benefits of trade facilitation. One effect of a more efficient trading environment is that goods may shift from being not available to available. The welfare gains associated with the ability to obtain goods that were simply unobtainable before tend to be much larger than the gains associated with changes in the relative prices of existing goods (see Romer (1994)). This applies equally to the poor as Booth et al. (1993) document for consumers in Tanzania and Gisselquist and Harun-ar-Rashid (1998) show for agricultural inputs in Bangladesh.

44. It is also important to consider how price changes induced by trade facilitation are transmitted to the poor. This occurs directly through the distribution sector, but price changes may also be amplified or reduced due to the 'domain' of trade (McCulloch *et al.* (2002)). In determining the effects of a price change brought about by trade facilitation measures on the poor, it is vital to have a clear picture of these transmission channels and the behaviour of the agents and institutions they comprise. For example, sole buyers of export crops (that is, those to whom sellers have no alternative but to sell) will respond differently to price changes than will producers' marketing cooperatives. Domestic regulations that fix market prices by stockpiling can completely block the transmission of price reductions to the level of the poor.

45. Exactly the same applies for export goods and the price the poor will receive for their produce. This is well illustrated by the contrasting experience of markets in Zambia and Zimbabwe during the 1990s (see Oxfam-IDS (1999)). In Zambia, the government abolished the official purchasing monopsony for maize and the activity became dominated by two private firms, which colluded to keep prices low and abandoned purchasing altogether in remote areas leaving remote farmers with a huge problem. In Zimbabwe, by contrast, when the cotton industry was privatized, three private buyers for cotton emerged, including one owned by the farmers. Here, the abolition of the government sole purchasing requirement resulted in increased competition and prices, and farm incomes rose appreciably.

4.2.4 Second-Round Effects of Trade Facilitation

46. The overall effect of a trade facilitation-induced price change will depend on the poor's ability to adjust, switching consumption away from and production towards goods whose price has risen. But the act of substituting one good or activity for another necessarily transmits the shock to other markets that may not have been directly affected by trade facilitation. Thus, it sets off a whole series of 'second-round' effects, which may be an important part of the overall impact. For example, increases in farmers' incomes are often believed to have big 'spillovers' to employment-intensive local activities such as construction, personal servants and simple manufactures (see Timmer (1997); Delgado *et al.* (1998) and Mellor and Gavian (1999)). These are precisely the activities in which the poor have a large stake.

4.3 Government Revenue

47. The third major link between trade facilitation and poverty is via taxes and government spending. In addition to the benefits derived from better market access, trade facilitation may also benefit the national economy by increasing collection of import duties through improving the efficiency of and reducing corruption in tax administration. Such an adjustment to the fiscal structure of an economy can provide resources to increase social and anti-poverty programme expenditures which tend to protect the poor. Trade facilitation systems such as ASYCUDA are aimed at reforming the customs clearance process through the introduction of streamlined processes and computerisation. The objective is to increase revenue by ensuring that all goods are declared, duty/tax collections are correct and uniform throughout the country and exemptions are properly managed (UNCTAD (1996)). WTO (1998) reports ASYCUDA's success stories: following its introduction in the Philippines customs revenue increased by more than \$215 million, Sri Lanka by more than \$100 million and Panama by 3% in spite of a recent 50% cut in tariff rates. Similarly, Wafa (2001) reports that a mandatory evaluation of the implementation of ASYCUDA in Jordan found that revenue had stayed constant despite significant reductions in duty rates and that the system allowed trade statistics to be compiled more accurately and quickly.

48. Trade facilitation measures might also save on the costs borne by governments to pursue customs administration and enforcement. An increase in public sector efficiency through trade facilitation measures might enable governments to cut redundant resources or move such resources from resource-sufficient activities (such as document format verification) to more labour-intensive activities (such as physical inspection). Customs reform may, however, entail job losses for customs officials in developing countries. WTO (2001) report that in Costa Rica, which launched a customs modernisation project involving the development of a computer information system in the early 1990s, administrative restructuring resulted in a fall in the number of employees from 1268 in 1994 to 555 in 1997 and 612 in 2000.

4.4 Other Factors Influencing Poverty

49. Beyond the linkages between trade facilitation and international trade, growth and government revenue discussed so far, trade facilitation measures can also have an impact on income distribution and the poor in a number of other ways.

50. Trade facilitation activities such as increased provision of transport services and access to communications and finance can be vital determinants of the ability of the poor to market their production in domestic as well as in international markets. The incomes of the rural poor are strongly dependent on marketing and transportation costs and on the efficiency of transportation networks. High transport, marketing or communications costs lower the prices received by poor farmers and raise the prices of food to poor consumers. Larson (2000) finds, based on household surveys, that farmers' access to a public telephone is positively related to the price they receive in district markets for their output. Decreasing the distance to a telephone by 10% leads to a 1.6% increase in local prices. Even though rural villagers cannot afford a phone individually, they can afford one collectively (Lawson and Meyenn (2000)). Competition in these sectors is very important to poverty reduction, as are resources devoted to improve the efficiency of service networks. According to World Bank (2001a), "improving the road network...can accelerate the short- and long-run growth of agriculture and the economy" (p. 56). Stryker (1997) concludes that "increasing rural infrastructure, especially in the form of roads, is one of the most effective ways of reaching the poor." For Madagascar World Bank (2001b) is clearer still: "...build infrastructure". By way of example, Mozambique has a classified road network of approximately 17400 miles, of which only 22%, is surfaced and 65% is in good or reasonable condition. Many of Mozambique's poor live and work far from any road; they must have access to roads in order to sell their products to local or foreign markets. With the support of donor agencies, Mozambique has improved its road network since the end of the civil war in 1992, rehabilitating more than 1800 miles and keeping approximately 9500 miles under routine maintenance. This expansion has focused on improving the north-south route and access to rural farming and coastal communities which should improve trade opportunities for many of Mozambique's poor, most of whom live in rural communities that thrive on agriculture and fishing, the products of which must be transported to market or port quickly (USAID (2002)). In addition to these benefits, the process of developing infrastructure, and labour-intensive road construction in particular, presents an ideal opportunity to employ the rural poor productively in trade facilitation programs.

51. Liberalisation of services (e.g. transport, communications) under the trade facilitation agenda and the resultant competition is likely to lead to lower prices, greater availability and improved quality of services. In so far as the poor are consumers of these services, they are also likely to benefit. But, there is a twist. Frequently, pre-liberalisation prices are not determined by the market but set administratively, and are kept artificially low for low income users. Thus, prices of public transport may be kept lower than the cost of provision. The structure of prices is often sustained through cross-subsidisation within public monopolies or through government financial support. New entrants may focus on the most profitable market segments ('cream-skimming'), such as urban areas, where the cost of service provision may be lower and incomes higher. Privatisation could mean the end of government support. The result is that even though the sector becomes more efficient and average prices decline, the prices for low income households may actually increase and/or availability decline. In the case of agricultural exportables, increased domestic transport efficiency to the port will typically raise inland farm gate prices. This could worsen the welfare of low income

consumers of that product in inland areas. It is also important to ensure that privatisation does not simply replace public monopolies with private monopolies, which would most likely be anti-poor and income-concentrating.

52. Universal service or access goals are not contradictory with liberalisation of service markets. The handicap of providing services to low income households can in principle also be imposed on new entrants in a non-discriminatory way. Thus, universal service obligations can be part of the license conditions for new entrants into fixed network telephony and transport. But recourse to fiscal instruments has proved more successful than direct regulation – for example, through universal service funds or subsidies for providing services in rural areas. Another effective mechanism is to fund the consumer rather than the provider through vouchers, as has been the case for education and energy services in a number of countries.

5. CONCLUSIONS AND RECOMMENDATIONS

53. Openness to trade has long been seen as an important element of sound economic policy and trade facilitation is a necessary step for achieving it. In general trade facilitation is an ally in the fight against poverty: trading more efficiently tends to increase average incomes, providing more resources with which to tackle poverty. And while it may affect income distribution, it may not do so in a systematically adverse way. Nevertheless, it is important to recognise that, as with most trade reforms, some groups may be adversely affected, pushing them into, or deeper into, poverty, even while other groups may benefit as it boosts incomes in total.

54. The country evidence presented in this report makes a compelling case for the positive impact trade facilitation can have on increasing exports, incomes and employment of the poor in developing countries. There is also evidence to suggest that trade facilitation measures can benefit less liberal economies with higher tariff barriers, since they reduce the cost and risk of exporting and may attract foreign investment. Since small firms bear disproportionate trade transactions costs, trade facilitation is especially important for SMEs, the dominant actors in developing countries.

55. Trade facilitation potentially affects income distribution and poverty through its effects on growth, international trade and government revenue.

56. Growth theory does not unambiguously suggest that tariff liberalisation has a positive impact on growth in developing countries. However, those countries that have liberalised tariffs *and* adopted wide-ranging trade facilitation measures, have enjoyed higher growth rates than those implementing restrictive policies. An open and simple trade environment can foster external discipline, helping to reduce distortions on domestic markets, and to narrow the scope for wrong or unbalanced policies in other areas, as well as rent-seeking and corruption which do not normally favour the poor. Moreover, improvements in infrastructure allow the poor to trade more easily and profitably domestically as well as internationally.

57. In terms of trade theory, trade facilitation reduces the cost of competitiveness of exports and reduces the price of imports. In small economies that are abundant in unskilled labour and capital is scarce, unskilled labour gains at the expense of capital owners. This changes income distribution in favour of the poor. However, if trade facilitation measures benefit some sectors more than others, an unskilled labour abundant country pushing policies to reduce its trade transaction costs can indeed experience increased income

inequality whenever cost savings are *lower* for those sectors that use intensively the more abundant, labour, factor.

58. For government revenue, trade facilitation may benefit the national economy by increasing collection of import duties through improving the efficiency of and reducing corruption in tax administration. An increase in government resources can benefit the poor if they are used to support pro-poor or social expenditures.

59. Although trade facilitation measures through the channels discussed above can be expected to benefit the poor *as a whole*, in formulating trade facilitation programs developing countries should consider their impact on their poorest citizens and develop measures that will ease the transition for any who are adversely affected and least able to cope. Many of the poor in developing countries may not be affected by trade facilitation. This is especially true for subsistence households who do not produce crops that can be exchanged for goods and who do not sell their labour outside the family farm. Because their subsistence households are 'outside the market economy' they are not as affected by external economic circumstances. But most of the poor in developing countries are affected by the general economy. They sell products, cash crops, handicrafts and labour. Most stand to benefit from trade facilitation as a result of increased exports and lower priced imports of inputs and consumables. For some, however, trade facilitation could be disruptive. The poor do not have an asset base to cushion their consumption needs as they adjust their production or labour skills to a new economic environment. Even the near-poor can be thrown into poverty as formerly protected industries are forced to compete or close in a more efficient trading regime.

60. However, it is important to point out that failure to implement trade facilitation measures should not be justified as a direct pro-poor measure. To be effective policy instruments should be directly linked to their objective. Inefficient trading environments may benefit poor people only though protecting labour-intensive sectors from competitive imports, but they may also create a host of additional distortions (e.g. higher prices, barriers to export) that harm them.

61. A number of policy recommendations can be drawn from this report. In particular:

- To reduce income inequalities in developing countries trade facilitation measures should be targeted at lowering trade transactions costs in those sectors where employment of the poor is concentrated.
- The provision of effective safety-nets may be necessary if alternative forms of employment are not rapidly available for any displaced workers.
- Any increase in government resources brought about by trade facilitation should be used to support pro-poor or social expenditures
- SMEs, the dominant actors in developing countries, need to be able to access capital, trade information systems and capacity building to comply with international standards under trade facilitation programmes if they are to trade efficiently.

- Infrastructure can be particularly beneficial for the poor if they are actively employed in its development.

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Appendix 1: Summary of Transport Cost Studies for Developing Countries

Study	Countries/Region	Results
World Bank (1995)	African landlocked	Final prices of imported products are from 30%-80% higher than the f.o.b. value of goods
WTO (1998)	India	Compliance costs for export procedures are 10% of the value of traded goods
Guasch and Spiller (1999)	Latin America	Monopoly port service providers and inefficient regulation of port operations give rise to implicit tariffs of 5%-25% on exports
Henderson <i>et al.</i> (2001)	African Landlocked	Transport costs are 30%-40% of the value of trade
UNCTAD (2001)	Developing African	Freight costs as a proportion of total import value are 12% compared to 8.21% for all developing countries and 4.5% for industrialized countries
APEC (2001)	APEC	Moving to electronic documentation would yield a cost saving of 1.5%-15% of the landed cost of an imported item
Lamont (2002)	Africa	Freight costs as a proportion of total import value are 5 percentage points higher than the 8% average for all developing countries

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