# Impacts of trade facilitation measures on poverty and inclusive growth: Case studies from Asia

## A STUDY BY THE ASIA-PACIFIC RESEARCH AND TRAINING NETWORK ON TRADE (ARTNeT)

Edited by Ravi Ratnayake, Rajan Sudesh Ratna, Martina Francesca Ferracane and Yann Duval



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## A study by the Asia-Pacific Research and Training Network on Trade

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# Contents

# Abbreviations and acronyms

| | |
|---|---|
| ADB | Asian Development Bank |
| AEO | Authorized Economic Operator |
| ANOVA | ANalysis Of VAriance |
| APEC | Asia-Pacific Economic Cooperation |
| ARTNeT | Asia-Pacific Research and Training Network |
| ASEAN | Association of Southeast Asian Nations |
| ASYCUDA | Automated System for Customs Data |
| BAAC | Bank for Agriculture and Agricultural Cooperatives |
| BFVAPEA | Bangladesh Vegetable and Allied Fruits Exporters Association |
| BMI | Body Mass Index |
| BOI | Board of Investment |
| CBN | credit bills negotiation |
| CBTA | Cross-Border Transport Agreement |
| CBTA | Cross-Border Transportation Agreement |
| CCC | Customs Coordination Commission |
| CCI | Chamber of Commerce and Industry |
| CEPT | Common Effective Preferential Tariff |
| CGAP | Consultative Group to Assist the Poor |
| CGE | computable general equilibrium |
| CUSDECs | customs declaration forms |
| DRC | domestic resource cost |
| EBC | export bill collection |
| EDI | electronic data interchange |
| EDI | Electronic Data Interchange |
| EGS | environmental goods and services |
| EPB | Export Promotion Bureau of Bangladesh |
| EPF | Employees' Provident Fund |
| EPZs | Export Processing Zones |
| ESCAP | Economic and Social Commission for Asia and the Pacific |
| ETF | Employees' Trust Fund |
| FDI | foreign direct investment |
| EWEC | East-West Economic Corridor |
| GATT | General Agreement on Tariffs and Trade |
| GCEC | Greater Colombo Economic Commission |
| GDP | gross domestic product |
| GMM | Generalized Method of Moments |
| GMS | Greater Mekong Subregion |
| GPP | gross provincial product |
| GSB | Government Savings Bank |
| GTAP | Global Trade Analysis Project |
| HACCP | hazard analysis and critical control points |
| HVC | high-value crops |

| | |
|---|---|
| IBC | inward bills collection |
| ICT | information and communications technology |
| IPR | intellectual property rights |
| L/C | letters of credit |
| LATR | loans against trust receipt |
| LDCs | least developed countries |
| LEs | large enterprises |
| LLDCs | landlocked developing countries |
| MFN | most favoured nation |
| MIEs | micro enterprises |
| MP | Member of Parliament |
| MSMEs | micro, small and medium-sized enterprises |
| NGOs | non-governmental organizations |
| NSEC | North-South Economic Corridor |
| OECD | Organisation for Economic Co-operation and Development |
| OLS | Ordinary Least Square |
| OTOP | One Tambon One Product |
| PPP | poverty rate at poverty line per day |
| SAARC | South Asian Association for Regional Cooperation |
| SASEC | South Asia Subregional Economic Cooperation |
| SEC | Southern Economic Corridor |
| SEs | small enterprises |
| SITC | Standard International Trade Classification |
| SMEs | small and medium-sized enterprises |
| SPS | sanitary and phytosanitary |
| UN/CEFACT | United Nations Centre for Trade Facilitation and Electronic Business |
| UNCTAD | United Nations Conference on Trade and Development |
| UNDP | United Nations Development Programme |
| VAT | value-added tax |
| WCED | World Commission on Environment and Development |
| WCO | World Customs Organization |
| WIPO | World Intellectual Property Organization |
| WTO | World Trade Organization |

# Chapter I

# Introduction

International trade has been the main engine of economic growth for the majority of economies in the Asia-Pacific region, enabling them to significantly reduce poverty during the past two decades. In the long term, trade liberalization is likely to foster improvements in technology, foreign direct investment (FDI), business networks, competition as well as efficient and cost-effective production, all of which go a long way towards promoting economic growth. In turn, economic growth is regarded as a key determinant of sustained poverty alleviation. The rapid growth of the Asia-Pacific region since the 1950s has been supported by a favourable external economic environment and the opportunities arising from globalization. However, the 2008 global economic crisis exposed the vulnerability of the region to external shocks originating (at least initially and in a greater intensity) from outside the region. The crisis had significant effects on exports and growth prospects and, in some cases, the progress made in poverty reduction. While the region has recovered from the crisis it has not yet reached the pre-crisis growth rate; therefore, the new growth and poverty reduction drivers need to be found in order to reduce such exposure in the future.

The region has made tremendous progress towards meeting the Millennium Development Goal of halving extreme poverty. Between 1990 and 2009, Asia and the Pacific reduced the proportion of people living on less than US$ 1.25 per day from 50 per cent to 22 per cent – from 1.57 billion to 871 million people.[1] The driving force behind this significant and rapid reduction in extreme poverty has been the sustained economic growth in the countries with the greatest number of poor, supported by a favourable external economic environment. That growth, in turn, can be largely credited to the adoption by many Governments of bold trade-led development strategies, combined with: (a) improvements in communications and transport technology; (b) the development of a rule-based multilateral trading system; and (c) the recognition by the Governments of many developed and developing countries of the potential benefits associated with unilateral trade and investment liberalization.

However, the region is still home to more than 800 million people living in extreme poverty, 563 million people who are undernourished and more than 1 billion workers in vulnerable employment, while income and social inequality as well as economic insecurity is continuing to increase in many countries.[2] Other statistics of poverty and deprivation are equally shocking.

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[1]    United Nations Development Group, 2011.

[2]    ESCAP, 2013, Economic and Social Survey 2013 (available at www.unescap.org/pdd/publications/ survey2013/download/Economic-and-Social-Survey-of-Asia-and-the-Pacific-2013.pdf).

Undoubtedly, poverty reduction remains one of the most urgent areas in need of attention in the region, especially in the light of the slowdown of economic growth prompted by the 2008 global economic crisis. The crisis has highlighted the vulnerability of the region to external shocks, with many countries witnessing a collapse of up to 40 per cent of their exports in early 2009.[3] When looking at the export-gross domestic product (GDP) ratio, the decrease has, on average, been lower but still significant. During the first year after the start of the crisis, the export-GDP ratio in the region decreased by around 20 per cent. Since then, it has been recovering substantially even though it has yet to reach the pre-crisis level.[4] In terms of GDP growth, the slowdown in the region has been considerable (0.6 per cent growth in 2009) but contained compared with the average for the overall world (-2.1 per cent in 2009). By 2010, the region had already recovered the pre-crisis level of GDP growth.[5]

With some of the world's most dynamic economies located in the region, there is large potential for an expansion of intraregional trade and investment in Asia and the Pacific, making the whole region more resilient to external shocks. Unfortunately, many barriers prevent intraregional movement of goods and investment, affecting in particular the opportunities for small and medium-sized enterprises (SMEs) to directly participate in international trade. Removal of those barriers and deepening regional connectivity can therefore be a strong driver of growth and poverty reduction.

While sufficient literature exists with regard to establishing a direct and positive correlation between trade and poverty reduction, very little study has been done on the linkages between trade facilitation and poverty reduction. This book attempts to address this gap and features a compilation of specific case studies that explore the linkages between a number of trade facilitation measures and poverty.

Given the complexity of the issue and the limited work done in the past, it was essential to put the topic in perspective. Therefore, chapter 2 looks first at the definitional aspect of trade facilitation and at the indicators for poverty. It then presents a conceptual framework for the analysis of the transmission channels of trade facilitation measures that can have an impact on the reduction of poverty. The presentation of this conceptual framework is accompanied by empirical evidence from the existing literature, including studies that are compiled in this book. The following chapters of the book feature individual studies by researchers from various developing countries in the region, using case studies and other approaches to better understand how trade facilitation affects the poor.

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[3]   *Asia-Pacific Trade and Investment Report 2009*.

[4]   Data from the ESCAP Statistical database (available at www.unescap.org/stat/data/statdb/ DataExplorer.aspx).

[5]   Data from the ESCAP Statistical database (available at www.unescap.org/stat/data/statdb/ DataExplorer.aspx).

Chapter 3 presents a cross-country analysis that examines the association between trade facilitation and poverty as well as inequality in low- and middle-income countries. For the analysis, regressions of poverty indexes, export volumes, levels of GDP per capita, and the Gini index are carried out on trade facilitation indicators. The specific trade facilitation measures used are the number of documents and time (measured in number of days) required for exports and imports. The study finds that improvement in trade facilitation is positively correlated with exports and per capita GDP, and negatively correlated with poverty and inequality. It further concludes that countries where a larger number of documents and more time are needed for imports and exports tend to have higher poverty (measured by the head count and poverty gap index) and higher inequality (measured by the Gini index) than other countries.

In chapter 4, another specific indicator of trade facilitation, i.e., port efficiency, is used in analysing the impact of trade facilitation measures on poverty. This indicator is interacted with data from the manufacturing industry and it is found to have a positive effect on the poor in China. The results show that 1 per cent increase in port efficiency is associated with a 1 per cent decrease of poverty index. Moreover, the contribution of trade to poverty reduction is examined using provincial panel-data in China from 2000 to 2008. The increase in agricultural exports is found to have had a positive effect on the alleviation of rural poverty in China. However, agricultural imports and poverty reduction are found to be generally negatively related, although the author finds different levels of elasticity for different geographical areas. The study also presents a comprehensive analysis of Chinese trade facilitation reform and development, and concludes with policy recommendations for the Government.

In chapter 5, the focus shifts to the role of economic corridors and microfinance development as trade facilitation measures, in the alleviation of poverty. In-depth interviews with several stakeholders are used to identify the impact of these trade facilitation measures on the poor in two Thai provinces (Mukdahan and Nakhon Phanom) and the obstacles facing the poor in attaining benefits from trade facilitation measures. The study reveals that many opportunities for the poor population and microenterprises are arising from trade facilitation measures in the provinces analysed, especially in agriculture, the service sector and investment. However, poor people and microenterprises face many obstacles in utilizing such opportunities due to their inability to access to finance as well as a lack of relevant skills and knowledge. A stakeholder analysis is also conducted to identify interest, impact, influence and importance of relevant stakeholders, in order to assist the poor and microenterprises in obtaining more benefits from trade facilitation measures. The study then explores the role of microfinance in supporting the utilization of the trade facilitation initiatives, and suggests that the Government and microfinancing companies focus more on the needs of the local communities so that they have better access to finance as that will enhance the chances of poverty reduction. The study also finds that the trade facilitation measures that enhance economic activities may bring certain social and economic challenges, which need to be adequately addressed.

The role of economic corridors is also analysed in chapter 6. The study proposes an up-side-down analysis that looks for those measures that people consider can most facilitate trade along the economic of South Asian Association for Regional Cooperation (SAARC) Corridor 1, which handles a considerable amount of overland trade between Bangladesh, India and Pakistan. Field survey data are used to assess the potential impact of trade facilitation on poverty reduction and econometrics is used for a quantitative assessment of the impact of specific barriers to trade. The findings are then presented in two categories – individuals and firms. All of the respondents agreed that the reduction of trade costs could reduce poverty through the creation of more jobs, higher levels of skills, more income-earning opportunities and increased local production, among others. As for specific measures, in the perception of the individuals interviewed only four trade facilitation measures were associated with the reduction of poverty – availability of banking services and other services facilities, more transparency in information and less cheating in transactions. In the perception of the firms, four trade facilitation measures affect the reduction of poverty – less red-tape, improved infrastructure and faster handling equipment.

The study presented in chapter 7 examines access to trade facilitation by export-oriented micro, small and medium-sized enterprises (MSMEs) in Indonesia. Through field surveys in two clusters of export-oriented MSMEs, the author finds that the benefits from trade facilitation measures are maximized by the large enterprises. The study finds that the MSMEs have not benefited from the trade facilitation measures, and the major impediments for many respondents are a lack of access to information on market conditions, trade policies and regulations/deregulations. The analysis also finds interesting differences in the trade facilitation measures of interest to MSMEs and large enterprises.

Chapter 8 contains a study that focuses on barriers to international entrepreneurship for the vegetable business in Bangladesh and emphasizes areas where trade facilitation measures may help in overcoming those barriers. Vegetable farming is considered to have high potential for reduction of poverty (Meena and others, 2009; Masashua, and others 2009). The study focuses on the concept of psychic distance as the function of personal characteristics of individuals, the local business environment and international regulatory framework. Through a semi-structured questionnaire and other interviews, the study attempts to identify trade facilitation measures that will reduce psychic distance of international entrepreneurs in global trading of vegetables. The study identifies the main barriers as: (a) low productivity and quality of vegetables; (b) complex health and hygiene standards applicable to vegetables; (c) inadequate transportation and storage facilities; (d) harassment by government and other agencies; (e) inadequate banking and financing support; and (f) a lack of market information. It also provides important suggestions for the Government and other implementers of trade facilitation measures on how to implement these measures as a tool for poverty reduction.

The last case study, presented in chapter 9, shows a comprehensive evaluation of the effectiveness of Export Processing Zones (EPZs) on poverty reduction. It also analyses how these zones can function as a mechanism of trade facilitation through processes such as simplification of customs procedures, streamlined administration and socio-economic

welfare in the immediate surroundings of these zones. The research analyses the impacts that EPZs have on poverty reduction, in particular employment generation, education and specialized training among the poor. The study carries out both a quantitative and a qualitative analysis in selected EPZs in Sri Lanka. The report finds that there are clear economic benefits of EPZs with regard to poverty reduction, but that these zones also have some detrimental impacts. EPZs are an important employment generator, providing jobs for more than 127,000 working individuals, as of 2012. They also create indirect employment by providing the opportunity for entrepreneurs to set up restaurants and hostels that cater to the employees in these zones. EPZs also create employment opportunities for women, with their proportion of the workforce in these zones being much higher than the national average (60 per cent compared with 33 per cent, respectively).

The benefits of trade facilitation for international trade are well known. Trade facilitation reduces trade transaction costs, and promotes a more transparent and efficient trade environment. Evidence is found in the existing literature on the contribution of trade facilitation to the enhancement of trade as well as to the promotion of GDP growth, FDI, welfare improvements and government revenue, all of which go a long way towards the reduction of poverty.

However, the poor can also be negatively affected by certain trade facilitation measures. Empirical and qualitative studies make it clear that the negative impacts on poverty reduction and inequality can be contained exclusively when governments carry out the implementation of the measures step by step, and provide safety nets to redistribute income during the adjustment process. Complementary measures by Governments might be needed not only to tackle the problem of raised inequality, but also for the poor to be able to effectively benefit from trade facilitation measures and engage in trade. These include social services (education, health-care etc.) and other measures that can be considered trade facilitation measures themselves (such as facilitating access to capital and capacity-building activities on trade and trade facilitation), which are expected to create the necessary conditions for the poor to effectively take advantage of the business opportunities brought about by trade facilitation.

Considering the complexity of the issue and the little work carried out in this area, the eight case studies presented in this book are a preliminary but significant contribution to the analysis of transmission channels from trade facilitation measures to the poor as well as highlighting the complementary measures of Governments. Given the limitations of these studies, which are carefully presented by the authors, together with their analyses, the book aims to prepare the ground for future, more comprehensive studies. Indeed, much work will still need to be done in examining the linkages between specific trade facilitation measures and poverty reduction.

Quantification of the impact of trade facilitation on poverty reduction is expected to remain particularly challenging, given that (a) impacts may often occur through indirect channels and spill-over effects, and (b) several other economic and social initiatives implemented by Governments and the private sector can also potentially lead to poverty reduction. This makes the attribution of impact to any single measure or initiative difficult.

Future studies may narrow the analysis to a limited number of specific and common trade facilitation measures across various developing countries in order to better understand their impact on poverty and inclusive growth. Trade facilitation measures targeting the agricultural sector may be particularly relevant, given the strong participation of the poor in this labour-intensive sector.

# Chapter II

# Trade facilitation and poverty reduction:
# Literature review and framework

*Rajan Sudesh Ratna and Martina Francesca Ferracane*

It is now widely recognised that trade can act as a powerful engine for economic growth and development, especially in Asia and the Pacific. Developing countries have long strived for a development strategy that will sustain high economic growth, create employment opportunities and eliminate poverty. Trade policy is being used by the developing countries as a tool for attaining their development objectives, which aim to combine higher economic growth with employment generation in order to alleviate poverty. Earlier, few would have believed that trade and development would become so inextricably linked, both at the economic and political levels. However, the successful experiences of several developing countries, especially in the Asia-Pacific region, that have achieved rapid economic development through trade expansion are testimony to the benefits from increased participation in international trade.

Trade is considered to be an important tool in the alleviation of poverty; trade facilitation can also have an effect on poverty reduction efforts as it enhances the opportunities to trade. However, there is no conclusive evidence of the linkages between trade facilitation and poverty reduction. This is due to the complexity of the different channels through which trade facilitation measures can operate as well as the different context in which they are implemented. In this chapter, a conceptual framework is attempted in analysing how a trade facilitation measure has an impact on the poor.

There is much debate about what counts exactly as poverty and how to best measure it. The result is a wide variety of indicators associated with monetary and non-monetary welfare variables. The same problem occurs with trade facilitation as there is no universally accepted definition of the term. International institutions differ on their perception of the extent of trade facilitation coverage and, therefore, the indicators used can narrowly focus on at-the-border issues or cover the entire trading process. In order to understand the linkages between trade facilitation and poverty reduction, it is necessary to examine how the definition of trade facilitation has changed over time as well as which indicators have been employed in the analysis of these linkages.

This chapter first looks at how poverty and trade facilitation are defined as well as the indicators generally used to measure them. A literature review is then presented as the background for the other chapters in this book. Given the variety of channels through which trade facilitation measures affect the poor, it is impracticable to derive simple empirical regularities. The literature agrees on the positive impact of trade facilitation on trade flows, which, in turn, is found to be beneficial to the poor. Trade facilitation is also found to have positive effects on gross domestic product (GDP), economic welfare and government

revenue, which may benefit the poor. However, most of the studies suggest the need for complementary government policies to (a) ensure that the poor benefit from trade facilitation measures and (b) contain the eventual negative social effects that might arise from the implementation of certain measures.

The existing literature does not present a clear and comprehensive framework of the transmission channels between trade facilitation and poverty reduction. Therefore, a conceptual framework has been developed that synthesizes the several transmission channels highlighted in the existing literature. This framework could be used in the assessment of the impact of specific trade facilitation measures on the poor.

## A. Defining and measuring poverty

Poverty is defined as living below the minimum requirements for food, living conditions or other essential well-being variables (Lok-Dessallien, 1999). For the measurement of poverty, it is necessary to identify the monetary and non-monetary welfare variables that allow assessing individuals' well-being, and to select the thresholds below which individuals are considered as being poor. Multiple thresholds can help in distinguishing different levels of poverty (World Bank, 2009a).

The most conventional view, and the starting point for most analyses of poverty, is to measure it in monetary terms. A person is considered to be poor if his/her consumption or income falls below a minimum level (usually referred to as the "poverty line") necessary to meet basic needs. What is necessary to satisfy basic needs, however, varies across time and societies. Therefore, when estimating poverty at the country level, poverty lines vary in time and place, and also accordingly to the country's level of development, societal norms and values. When estimating poverty worldwide, a similar reference poverty line is required that is expressed as a common unit across countries. For the purpose of global aggregation and comparison, the reference lines normally used are set at $1.25 and $2 per day, respectively (2005 Purchasing Power Parity terms).[6]

Summary indexes of the extent of poverty, based on measures in monetary terms, are:

(a)    The head count index (which measures the proportion of the population that is below the poverty line);

(b)    The poverty gap index (which measures the extent to which individuals fall below the poverty line or, put differently, gives the total resources needed to bring all the poor up to the level of the poverty line);

(c)    The poverty severity index (which adds to the poverty gap a measures for the inequality among the poor);

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[6]    See www.worldbank.org/en/topic/poverty/overview.

(d)     The Sen-Shorrocks-Thon index (which combines measures of the proportion of poor people, the depth of their poverty, and the distribution of welfare among the poor) (World Bank, 2009b).

Poverty is associated not only with insufficient income or consumption, but also with an insufficient level of well-being (for example, with regard to health, nutrition and literacy, social relations, security and self-confidence). These indicators may be thought of as reflections of utility, rather than inputs into the generation of utility as in the case of those based on monetary dimensions (World Bank, 2009a). To apply the tools of poverty measurement to non-monetary indicators, it must be feasible to compare the value to a threshold or "poverty line". Examples of indicators of well-being that satisfy this requirement (and are therefore generally used) include:[7]

(a)     Health and nutrition poverty

    (i)      Nutritional status of children;

    (ii)     Incidence of specific diseases (diarrhoea, malaria and respiratory diseases);

    (iii)    Life expectancy for different groups within the population;

    (iv)    Water supply and sanitation;

    (v)     Births attended by skilled staff;

    (vi)    Infant mortality rates.

(b)     Education poverty

    (i)      Level of literacy;

    (ii)     Level of learning outcome data;

    (iii)    Level of expenditures on education;

    (iv)    Number of primary school enrollment.

The phenomenon of poverty is clearly multidimensional. Together with the traditional approach to collecting multiple indicators of the various dimensions of poverty and analysing them together (as in the case of the Millennium Development Goals), the use of single composite indices has attracted growing attention. These are referred to as "multidimensional indices of poverty".[8] An interesting example is the index developed by Alkire and Santos (2010) for the Human Development Report (UNDP, 2010) (figure 1). They chose 10 variables for inclusion in the index: two for health (malnutrition and child mortality), two for education (years of schooling and school enrolment), and six for deprivation in "living standards" (cooking with wood, charcoal or dung; not having

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a conventional toilet; lack of easy access to safe drinking water; no electricity; dirt, sand or dung flooring; and not owning at least one of a radio, television, telephone, bicycle or car).

**Figure 1. Multidimensional Poverty Index**
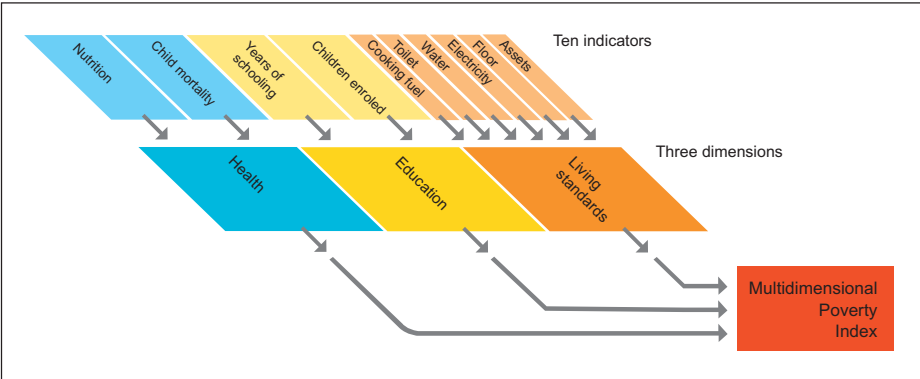
Poverty is often associated with, but distinguished from, inequality and vulnerability. Inequality focuses on the distribution of attributes, such as income or consumption, across the whole population. Vulnerability is defined as the risk of falling into poverty in the future, even if the person is not necessarily poor now. It is often associated with the effects of "shocks" such as a drought, a drop in farm prices or a financial crisis. Both these variables are often taken into account when analysing poverty.

## B. Defining trade facilitation

There is no uniform definition of trade facilitation. During the initial stages of GATT the focus was on harmonization and simplification of customs procedures and documentation. This was due to the fact that the cost of compliance at the border was high. However, with the strong reduction of tariffs during the past 60 years, more significantly due to the outcome of the Uruguay Round, the focus has gradually shifted to other significant costs that restrict international trade. Therefore, with the reduced tariffs, the focus has now shifted to addressing other measures that can reduce the trade costs, of which trade facilitation is one such measure that has gained importance in this regard. The minimization of these trade transaction costs has been widely recognized as the main objective of trade facilitation (ADB and ESCAP, 2009; Economic Commission for Europe, 2002; OECD, 2001), as it is expected to reduce uncertainties in the trade transactions and establish a more transparent regime for promoting the inclusive participation of the private sector in international trade (ADB and ESCAP, 2009). The existing literature confirms that cost

reductions from trade facilitation measures account for a high fraction of total trade transaction costs (Sohn and Yoon, 2001; ADB and ESCAP, 2009).[9]

Despite the general consensus over the main goal, international institutions diverge about the extent of trade facilitation coverage. The term lends itself to a variety of interpretations from a narrow focus on at-the-border issues to a broader coverage of issues that can cover the entire trading process. The WTO approach to the topic has been defined as "traditional" (World Bank, 2011) as it focuses on removing obstacles to trade in goods at, and in the vicinity of borders. Trade facilitation is, in fact, defined as "the simplification and harmonization of international trade procedures, where trade procedures are the activities, practices and formalities involved in collecting, presenting, communicating, and processing data and other information required for the movement of goods in international trade".[10]

Trade facilitation was first discussed at the WTO Singapore Ministerial Conference in December 1996. After several years of exploratory work, WTO members formally agreed to launch negotiations on this topic in July 2004.[11] New issues have since been discussed during WTO negotiations, such as documentary requirements, transparency of customs clearance and transit procedures, with the intention of clarifying and improving GATT Article V (Freedom of Transit), Article VIII (Fees and Formalities Connected with Importation and Exportation) and Article X (Publication and Administration of Trade Regulations). The negotiations also aim to enhance technical assistance and capacity-building in this area, and to improve effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues. Annex 1 to this chapter lists a number of trade facilitation measures consistent with the ongoing WTO negotiations on trade facilitation, together with the related GATT Article. The list was proposed by ESCAP and ADB (2009). In a recent study, the Organization for Economic Cooperation and Development (2013), using the ESCAP-World Bank international trade cost database, estimated that comprehensive implementation of all the measures negotiated in the WTO Doha Development Round would reduce total trade costs by 10 per cent in advanced economies and by 13-15.5 per cent in developing economies.

The World Customs Organization (WCO) also has focused on harmonization and simplification of customs procedures in order to enhance the efficiency and effectiveness of customs administration.[12] This approach has also been preferred by some other international institutions. The Asia-Pacific Economic Cooperation (APEC) group, for example, defines it as "the simplification and rationalization of customs and other

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[9]    Many other studies (e.g.: Hummels, 2001; Wilson and others, 2004; Hausmann and others, 2005; Nordas and others, 2006) show that the improvement of trade facilitation results in the reduction of trading time and transaction costs.

[10]    Global Trade-Related Technical Assistance Database, which falls under the WTO spectrum. Available at http://gtad.wto.org/trta_subcategory.aspx?cat=33121.

[11]    See http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm.

[12]    WCO defines trade facilitation as "to secure the removal of unnecessary restrictions by applying modern techniques and technologies, while improving the quality of controls in an internationally harmonized manner" (ADB and ESCAP, 2009).

administrative procedures that delay or increase the cost of moving goods across international borders" (ADB and ESCAP, 2009). Increasingly, however, the focus of the trade facilitation debate has shifted towards a more comprehensive approach that encompasses the transaction costs associated with the movements of goods along the entire international supply chain. The International Chamber of Commerce, for example, defines trade facilitation broadly as "to improve the efficiency of the processes associated with trading in goods across national borders". This more pragmatic approach is based on the assumption that trade facilitation measures applied at-the-border would be less effective if there were important barriers in other steps of the chain. Indeed, various ARTNeT studies on trade facilitation (e.g., ESCAP and UNDP, 2007)[13] have revealed that a narrow focus on customs facilitation does not meet the need of traders well in developing countries. The trade facilitation measures should, therefore, also cover behind-the-border issues, such as the costs of transportation and logistics, the conditions of physical infrastructure, e-commerce, business facilitation, trade finance, domestic policies and additional market entry variables. A sample of actions to promote trade facilitation, and which reflect this wider approach, is presented in annex 2. The list is an outcome of the Asia-Pacific Trade Facilitation Forum 2009 held at ESCAP (2009).

A broad approach has also been followed by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) which defines trade facilitation as "the simplification, standardization and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payments". Similarly, the Organisation for Economic Co-operation and Development defines trade facilitation as "the simplification and standardization of procedures and associated information flows required to move goods internationally from seller to buyer and to pass payments in the other direction" (OECD, 2001). Under this definition, trade facilitation covers all the steps of the "Buy-Ship-Pay Model" (figure 2), allowing optimization of regulatory procedures, government controls and an overall improvement of business processes (ADB and ESCAP, 2009).

ADB and ESCAP (2009), while opting for a balance between the narrow and broad approach, have included in the spectrum of trade facilitation all the policies and processes that reduce the cost, time and uncertainty associated with engaging in international trade, except traditional trade instruments such as tariffs, import quotas and similar non-tariff barriers. Similarly, in order to exchange information efficiently, the Economic Commission for Europe (2002) circumscribes the focus of trade facilitation to (a) the simplification (and elimination where possible) of formalities and procedures, (b) the harmonization of applicable laws and regulations, (c) the improvement and standardization physical infrastructure and facilities, and (d) the standardization of the use of information and communications technologies.

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[13]  Trade Facilitation Beyond the Multilateral Trade Negotiations: Regional Practices, Customs Valuation and Other Emerging Issues (ST/ESCAP/2466), available at <www.unescap.org/tid/artnet/pub/tipub2466.asp>

**Figure 2. Buy-ship-pay model**
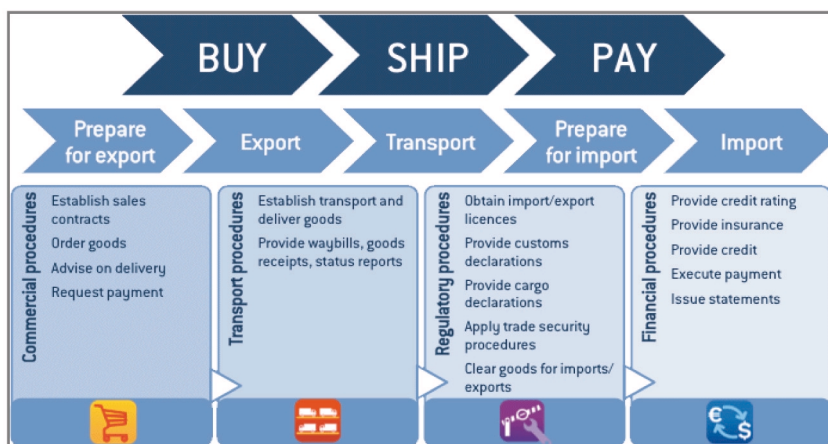


*Source:* UNECE website.[14]

Despite the various specifications of the term, trade facilitation measures are guided by the belief in the benefits of enhanced trade, especially for least developed countries (LDCs) and landlocked developing countries (LLDCs) that are struggling to integrate into international production networks.[15] Transit problems are especially severe for LLDCs, where impeded transit rights increase transportation and importation costs, and significantly slow down trade transactions, thereby also reducing their export competitiveness on world markets. Trade facilitation measures can greatly benefit those countries, especially when designed in a way that promotes inclusive growth.

## C. Literature review

The linkages between international trade, development and poverty reduction have long received much attention. Generally, trade liberalization is characterized by the increasing openness of countries for international trade, which includes opening of markets through reducing or removing tariff and non-tariff barriers on goods and services. The debate on trade liberalization and poverty is not new and economists have different views on the linkages between the two. Several studies have suggested that trade liberalization can be utilized as an effective tool for poverty reduction as well as reducing income inequality, thereby leading to inclusive growth. On the other hand, others have pointed out

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[14] Available at http://tfig.unece.org/contents/what-involve.htm.

[15] According to the World Bank (2009), the cost of complying with all the procedures required to import goods is more than US$2,000 per container in sub-Saharan Africa, with the corresponding figures for Central Asia and Eastern Europe equally approaching the US$ 1,500 threshold. Also, in sub-Saharan Africa, the time necessary to comply with all required procedures for importing goods is an average 41 days (32.5 days for South Asia, 32 days for Eastern Europe and Central Asia, and 27 days for the Middle East and North Africa).

that though trade can be a tool for economic growth, its role in poverty reduction is debatable.

The studies on linkages between trade, development and poverty have been mainly through two approaches. In the first approach, the relationship between trade and growth (as an indicator of development) is analysed with the assumption that the latter exerts trickle down effects, benefiting the poor. The second approach is to analyse the effects of trade on income distribution. Extensive debates were held on these methodologies and questions were asked regarding the significance of overall economic growth reaching the poor, and whether trade liberalization and increased openness led to superior growth performance. Several empirical studies have attempted to explore the trade-growth relationship. However, it is now an accepted fact that, with the right policy mix, trade liberalization can enhance economic growth and thereby have a positive impact on poverty reduction as well as inclusive growth. In several cases, these studies have constructed certain measures of trade openness and then examined their statistical relationship to growth across a set of countries.

Evidence is found in the existing literature on the contribution of trade facilitation to the enhancement of trade as well as to the promotion of GDP growth, welfare improvements and government revenue, all of which go a long way towards poverty reduction. However, the government role is found to be crucial in ensuring that the poor fully benefit from the increased trade opportunities.

The reduction of trade transaction costs brought about by trade facilitation always brings an increase in trade flows. In turn, trade is recognized as a powerful engine for economic growth and poverty reduction. Dollar (1992), Edwards (1992), Sachs and Warner (1995), Greenaway and others (1998), Bhagwati and Srinivasan (2002), Acemoglu and Venture (2002) and Dollar and Kraay (2004) all reported the beneficial effects of trade on poverty reduction. Dollar (1992) observed that outward-oriented developing economies grew more rapidly than the inward-oriented economies. Edwards (1992) constructed indicators of openness (the way in which trade policy restricts imports) and intervention (the extent to which commercial policy distorts trade), and used a data-set for a cross-section of 30 developing countries; he observed that trade orientation indicators displayed expected signs and were statistically significance.

A study carried out by Frankel and Romer (1999) provided some strong evidence in favour of the relationship between trade and growth while investigating whether the correlation between openness and growth was because openness causes growth, or because countries that grow faster tend to open up at the same time. Controlling the component of the openness due to such country characteristics as population, land area, and geographic distance that cannot be influenced by economic growth, they found that an increase of one percentage point in the openness ratio increased both the level of income and subsequent growth by around 0.5 per cent. However, they also acknowledge that the trade effect could not be estimated with "great precision", and was statistically significant only "marginally" before concluding that "… although the results bolster the case for the benefits of trade, they do not provide decisive evidence for it" (Frankel and Romer, 1999).

In a case study of 22 developing countries, Santos-Paulino and Thirlwall (2004) observed that adoption of trade liberalization policies stimulated export growth but raised import growth even more, leading to a worsening of the balance of trade and payments. Thus, trade liberalization is likely to have exerted a net positive effect on income growth over the past three decades; however, it may also have reduced growth below what might otherwise have allowed a balance to be maintained between exports and imports.

As for the issue of inequality, there is no conclusive evidence of the relation between trade liberalization and inequality. Several studies have suggested that trade liberalization can be made an effective tool for poverty reduction as well as reducing income inequality, and thereby leading to inclusive growth. Some studies have confirmed that trade allows for a decrease in inequality. Among these, Isik-Dikmelik (2006) analysed the importance of different channels that link trade reforms and household welfare, and in a case study on Viet Nam commented that trade reforms had benefitted everyone but especially the poor.

Wilson and others (2003) estimated that intraregional trade in APEC could increase by more than US$ 250 billion (about 21 per cent), assuming that trade facilitation reforms in port and customs efficiency, domestic regulations and the e-business environment could bring Asian and Pacific countries with below-average performance closer to the regional average.[16] They also found these benefits to exceed those from tariffs cuts on manufactured goods. Engman (2005), in an overview of nine empirical studies on the effect of trade facilitation on trade, found a positive effect of even a very small improvement in trade facilitation. He also found that the effect of trade facilitation tended to be higher for developing countries than developed countries, and that the effect on trade of improvement in port efficiency was greater than the effect of improvement in custom procedures. This result was confirmed by Zhongying Sun (2009), who measured the trade facilitation levels of 52 countries and tested the impacts of major trade facilitation measures on trade. He found that port efficiency[17] had significant positive impacts on trade, with the elasticity of port efficiency on trade being 1.07 per cent for the importing country and 1.02 per cent for the exporting country.

Some studies have focused on the positive impact on export flows. Duval and Utoktham (2009) suggested that reducing direct export costs in Asia to OECD levels (a 14 per cent reduction on average across the region) could increase Asian exports by between 11 per cent and 14 per cent. Similarly, Iwanow and Kirkpatrick (2007) found that a 10 per cent improvement in trade facilitation could increase export volume by around 5 per cent. On the import side, Abe and Wilson (2008) suggested that bringing the importer transparency of APEC economies closer to the regional average could lead to a 7.5 per cent (US$ 148 billion) increase in intraregional trade.

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[16]   The greatest gains are associated with improvements in ports and custom efficiency.

[17]   Based on Wilson and others (2003), who improved the method for measuring trade facilitation and evaluation from four points – port efficiency, customs environment, regulation and rules, and e-commerce.

Several studies have gone a step further by providing evidence of the linkage between trade facilitation and economic growth. Using estimates of the effect of trade on per capita GDP by Dollar and Kraay (2002) and trade facilitation effects on trade by Duval and Utoktham (2009), ABD and ESCAP (2009) found that an expansion in trade due to trade facilitation alone could be expected to increase per capita GDP in Asian and the Pacific countries by about 2.5 per cent. OECD (2009) also found that decreasing direct and indirect trade transaction costs by only 1 per cent could lead to an average 0.25-0.4 per cent increase in GDP in non-OECD member countries in Asia and the Pacific. In the study by Wilson and others (2003) presented above, the positive effect on trade was then associated with an increase of 4.3 per cent in the per capita GDP. A study by APEC (2000) found that the elimination of trade facilitation costs could increase a country's GDP two times higher than tariff reduction. According to APEC, the reduction of trade facilitation costs could promote the real GDP of countries in the region by 0.25 per cent while an increase in trade liberalization could improve the real GDP by 0.16 per cent. Using a CGE model, UNCTAD (2001) showed that a 1 per cent reduction in the cost of transportation could increase GDP by US$ 3.3 billion in Asian countries.

Few studies have, instead, directly highlighted the linkage between trade facilitation and the poor. According to those studies, the poor benefit through enhanced economic growth, employment opportunities and other welfare gains. A CGE model was used by ADB (2006) to quantify the estimates of the likely effects of increased regional cooperation in transport and customs transit on the Kyrgyz Republic. It estimated a high cumulative increase in real GDP and also forecast a doubling of poor households' incomes in the Kyrgyz Republic during 2006-2015. ADB and UNCTAD (2008) conducted *ex ante* project appraisals, presenting a cost-benefit analysis of four different projects for upgrading existing cross-border infrastructure facilities. Assuming plausible scenarios for GDP and trade growth, and evaluating the time savings from better access to markets and other facilities (such as education), the net present value of the proposed projects was estimated to have an internal rate of return of between 19 per cent and 39 per cent. The benefits identified included reduced trade costs and increased trade as well as direct employment benefits, due to the labour-intensive component of road projects.

Using the GTAP model to assess the impact of trade facilitation on other economic variables of Thailand, Cheewatrakoolpong and Ariyasajjakorn (2011) found that trade facilitation measures in Thailand led to the expansion of real GDP, improvement in trade balance, and welfare gains. Stone and others (2010) employed the GTAP7 model, augmented by household survey data, to analyse the impact of transport infrastructure projects in the Greater Mekong Subregion (GMS) on poverty reduction. The study suggested that the improvement in transport infrastructure resulted in an increase in intra-GMS exports. The study employed poverty elasticities to show that there was a decrease in poverty, i.e., a 5-6 per cent income rise for the $1 per day group and a 3-5 per cent income rise for the $2 per day group. The simulation outcomes from this study illustrate that 400,000 people in GMS move out of the $1 per day group from transport infrastructure development and 1.75 million people move out of the $2 per day group.

Cook and others (2005) studied the impact of transport and energy infrastructure on poverty reduction in the case of China, India and Thailand. The study found many benefits for the poor from the improvement in transport and electricity. The main benefits were from greater access by teachers, health-care providers, security services and non-governmental organizations (NGOs), higher travel safety, more opportunities to access common resources and greater employment opportunities in other areas.

ADB (2012) examined the poverty reduction potential of regional cooperation in cross-border infrastructure within South Asia. Using cross-country data in a panel data estimation, ADB showed that road density was a significant variable in explaining the variation across countries in life expectancy at birth.[18] The study highlighted the fact that life expectancy was more responsive to road density in landlocked countries, as a proxy for poverty. Cross-border infrastructure was found to have a strong potential in those countries for accelerating the process of poverty reduction, and national governments should consider this potential when formulating their poverty reduction strategies.

Menon and Warr (2006) studied the effect that rural road improvement in the Lao People's Democratic Republic had on poverty incidence, using a general equilibrium modelling approach. It simulated the effect of upgrading dry season-only access roads to all-weather access roads, and then moving from no vehicular access to dry season access. The results indicated that both forms of road improvement would reduce poverty incidence, with the improvement from no vehicle access to dry season access roads reducing poverty 17 times more than the upgrade from dry season access-only roads to all-weather access. They did this by improving the income-earning opportunities of rural people and by reducing the costs of the goods they consume. Gilbert and Banik (2008) used a multi-regional competitive CGE model – covering Bangladesh, India, Nepal, Pakistan and Sri Lanka – and considered the effects of reductions in the road transport component of trade costs for intra-SASEC transport margins, assuming that improved roads and transit would reduce the time spent on transport and processing by 20 per cent. The results indicated that doing so would generate significant increases in GDP, trade and welfare benefits. In particular, it would create benefits for all households in Bangladesh and Sri Lanka, marginally pro-poor benefits in India and Nepal, and a drop in absolute poverty levels in Pakistan.

Calderón and Serven (2004) provided an empirical evaluation of the impact availability and quality of infrastructure on economic growth and income distribution, using a large panel data set encompassing more than 100 countries spanning 1960-2000. They found that income inequality declined with higher infrastructure quantity and quality, suggesting that infrastructure development could be highly effective in combatting poverty.

The establishment of EPZs has been found to create employment generation and infrastructure development as well as other positive social effects through education,

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[18]   Cross-country empirical analyses solve the problem of the lack of poverty data by using other indicators considered strongly related to the reduction of poverty. In this case, ADB (2012) chose life expectancy at birth, as it is the proxy with a higher correlation with the poverty head count for the $2 poverty line.

specialized training, information and technical support (Aggarwal, 2005). The World Bank (2008) estimated that EPZs had generated employment in the Americas amounting to 3.084 million persons, accounting for 1.15 per cent of total employment. According to the ILO Database on EPZs (Boyenge, 2007), the Middle East and North Africa host just over 100 zones and employ less than 2 million workers. Moreover, according to the database, Asia has the highest number of EPZs in the world, recorded at 900+, and employs more than 55 million workers out of a total 66 million EPZ employees around the world. Jenkins (2005) found low-skilled women to have particularly benefitted from employment opportunities in EPZs. He pointed that some EPZs had become an important link in the global production systems of certain sectors, such as textiles, clothing and footwear. In many countries they have contributed to improving employment opportunities, salaries and working conditions. However, it was also observed that the provisions of national labour legislation were often not applied and that working conditions often exploited the desperate need of many women and men for some type of job.

Micro-level studies are the most common in this area. They are based on household survey data in the form of project evaluations of particular projects, or evidence-based on project areas vis-à-vis the non-project areas and controlling for factors other than those related to the project. The micro-level approach is most useful in obtaining the direct impacts of a particular project. Phyrum and others (2007) conducted a field survey and personal in-depth interviews between September 2006 and February 2007. The field survey involved a set of questionnaires used to survey people living along the GMS Southern Economic Corridor in Cambodia, and personal in-depth interviews conducted with local and provincial authorities as well as border officials. The majority of respondents (94 per cent) reported that the general economic situation along the corridor had improved since the infrastructure was upgraded. Economic activities had increased, such as better transportation, an increase in tourists etc., which have contributed to the local residents' earning opportunities.

A study by Rattanatay (2007) showed how the completion of the East-West Economic Corridor in the Lao People's Democratic Republic had reduced the incidence of poverty by 35 per cent during 1998-2004, while per capita income increased from US$ 371 in 2001 to US$ 425 in 2005 in Savannakhet province. These figures were significantly higher than the national averages. Similarly, the Champasak road improvement project, linking the Lao People's Democratic Republic with Thailand and Cambodia, cut travel time in half, reduced the cost of public transport by 20 per cent and increased traffic at an average annual rate of 22 per cent. It also allowed about half of agricultural households interviewed to increase their incomes by selling larger amounts of their output at local markets. Chirativat and others (2003) considered the economic impact of East-West Economic Corridors on the north-eastern provinces of Thailand. The study found a rise in the number of business enterprises and factories, leading to higher employment and wages. The study also identified several high potential industries for the provinces, i.e., agricultural processing, food processing, sugar, tapioca, rice and tourism.[19]

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[19] Other studies suggesting positive impact of trade facilitation measures on poverty include: APEC, 1999; Kinnman and Lodefalk, 2007, Decreux and Fontagné 2006; Hertel and Keeney, 2006;

Improved efficiency at the border allows savings on the administration of custom activities and can also bring an increase in the volume of import duties collected. Therefore, increased government revenue could be devoted to social services and anti-poverty programmes. WTO (1998) reported that following the introduction of ASYCUDA (Automated System for Customs Data), customs revenue in the Philippines increased by more than US$ 215 million, in Sri Lanka by more than US$ 100 million and in Panama by 3 per cent despite a recent 50 per cent cut in tariff rates. Engman (2005) reviewed several studies that investigated the effect of trade facilitation on government revenue and FDI, and found a positive correlation between them.

Others have argued that trade benefits all the population to the same extent. For example, Dollar and Kraay (2002) found openness to international trade to be a determinant of growth, but no relationship between trade openness and inequality. Meschi and Vivarelli (2009) analysed intra-country income differences covering 65 developing countries in a period spanning 1980-1999. Using a dynamic panel data analysis, they found that trade did not significantly influence income inequality within countries, although some other control variables such as education (through skill-formation) and the inflation rate had a significant impact. However, others have pointed out that though trade could be a tool for economic growth, its role in inequality was debatable. For example, Harrison and others (2010) presented a review of a detailed account of trade and inequality literature, and indicated that trade could affect (and usually increase) income inequality mainly because of: (a) within-industry effects due to heterogeneous firms; (b) effects of the offshoring of tasks; (c) effects of incomplete contracting; and (d) effects of labour-market friction. Raychaudhuri and De (2012) analysed the impact in India of increased trade in services on inequality. They found that one major component of India's service sector growth comprised information and communications technology (ICT) services. The study showed that the ICT sector led the service trade in India. However, this type of increase in services trade has increased the inequality within the urban regions of India as well as greater income divergence between rural and urban incomes. In addition, the study by Gilbert and Banik (2008) found that even if the effects of reduction in the road transport component of trade costs for intra-SASEC transport margins appear to be pro-poor in an absolute sense, in many cases (e.g., Nepal), income inequality also appears likely to rise in several cases (e.g., Bangladesh).

The negative effects of certain trade facilitation measures on the most vulnerable were emphasized by Cheewatrakoolpong (2009), who considered stakeholder consultation and coordination problems in the implementation of Economic Corridor and CBTA initiatives in Thailand. The study found that policy formulation of the two initiatives lacked consultation with border communities and the poor, even though they encountered significant impact from the initiatives due to changes in ways of life, job characteristics, social structure, the environment and economic structure. Moreover, many of them had experienced negative effects from transport and trade facilitation improvement projects, such as land expropriation, for the construction of Economic Corridors and changes in occupation. This type of situation brings about adverse effect on border communities as they lose business or employment from their inability to compete. In her case study presented in chapter 5,

Cheewatrakoolpong also finds that trade facilitation measures can cause immediate changes in culture and ways of living that require local communities to adjust to the new environment. Among the social changes are negative impacts such as gambling, drugs, contagion and diseases, and prostitution.

Empirical and qualitative studies make clear that the negative impacts on poverty reduction and inequality can be contained exclusively when a Government goes along the implementation of the measures, step by step, and provides safety nets (income protection or insurance schemes) to redistribute income during the adjustment process (United Nations, 2003). Complementary government measures might be needed not only to tackle the problem of raised inequality, but also for the poor to be able to effectively benefit from the trade facilitation measures and engage in trade. For example, De (2009) affirmed that reducing trade costs and facilitating transit contributed to achieving a more inclusive growth through trade only when Governments provide adequate education and capacity-building opportunities. Government intervention is considered necessary for the alleviation of poverty to be guaranteed and the full benefits of trade to be realized. Perry and Olarreaga (2007), in an econometric study of 18 Latin American countries, initially found that openness did not have a significant effect on the income of the poor. However, when openness is combined with variables such as labour flexibility, ease of firm entry and exit, education and governance, they are found to have a positive and significant effect. Similar results were found by Goff and Singh (2013) in a study of 30 African countries where openness significantly reduced the poverty headcount only when coupled with education, credit access and governance.

Trade facilitation measures can address the problems of lack of capital and skills, which impede the poor to fully attain benefits from the projects. According to CGAP (2010), microfinance helps the poor in setting up businesses, building up assets, saving, consumption smoothing and reducing their vulnerability to economic stress. As a result, microfinance is a very powerful tool for reducing poverty. Cheewatrakoolpong (2009) showed that many of border communities and the poor were unable to attain benefits from transport and trade facilitation projects due to their lack of ability to adjust in areas such as finance and knowledge. Greeley (2003) also identified microfinance as a core need for the poor since they faced credit problems due to credit market failures. However, microfinance can be an effective tool for tackling poverty only when supported by other elements such as knowledge, health-care and social relations.

Phyrum and others (2007) considered the social and economic impacts of the Southern Economic Corridor on Cambodia. The survey from this study shows that 70 per cent of the local residents experienced a better standard of living after road rehabilitation. However, the majority of local residents were unaware of the potential benefits for their careers or businesses that the development of the corridors would provide. They found that the main reasons for the reluctance to switch jobs or start new businesses came from a lack of capital or skills. Microfinance is indeed an important tool for tackling poverty, as most of the poor have to deal with the lack of sources to face their financial difficulties. According to CGAP (2010), microfinance helps the poor in setting up a business, building

up assets, saving, consumption, and smoothing and reducing their vulnerability to economic stress. Greely (2003) also identified microfinance as a core need for the poor. However, microfinance alone might not be enough to pave the way for the poor to benefit from increased business opportunities; it needs to be complemented with capacity-building programmes and improvements in social services. Trade facilitation is seen in this context as a complementary policy that ensures pro-poor growth, together with other complimentary policies and contextual factors.

# D. Trade facilitation and poverty reduction: Transmission channels

From the literature review, it emerges clearly that there is no conclusive evidence of the linkages between trade facilitation and poverty reduction. This is due to the complexity of the different channels through which trade facilitation measures can operate as well as the different context in which they are implemented. As a result, an ad-hoc analysis is needed to estimate the net impact of specific trade facilitation measures on the poor. This section attempts to summarize in a comprehensive conceptual framework, the transmission channels from trade facilitation measures to the poor (figure 3), which are highlighted in the existing literature. The channels included are those of trade (both international and domestic), economic growth, FDI, government spending and other social impacts. This framework could be used in assessing the impact of specific trade facilitation measures on the poor, as it is the case of the studies presented in this book.

## 1. Channels of international and domestic trade

The reduction of transaction costs of exports and imports associated with trade facilitation measures is transmitted to the poor mainly through the channels of international and domestic trade, which operate both on the production and on the consumption sides.

On the production side, the competitiveness of exported goods is likely to increase in the short term due to the cheaper imported inputs as well as reduced costs to export. Therefore, wages and/or employment in these sectors are likely to increase. SMEs are likely to benefit the most from these measures as they generally bear disproportionate trade transaction costs, especially in developing countries. As trade procedures are streamlined, SMEs can be encouraged to become more involved directly in imports and exports.

On the consumption side, the channel of international trade also affects the poor through changes in the prices and variety of goods consumed. When markets are functioning efficiently, the domestic price of imported goods is reduced; furthermore prices of domestic substitutes may fall because of reduced opportunities to capture rents by domestic producers. However, prices of domestic goods could also increase on some occasions, for example, if these goods are also exportable and their price in the world market is higher than the domestic one. Consequently, a rush to export in order to capture the higher price will reduce supply in the domestic market and cause a rise in domestic

**Figure 3. Transmission channels from trade facilitation to the poor**
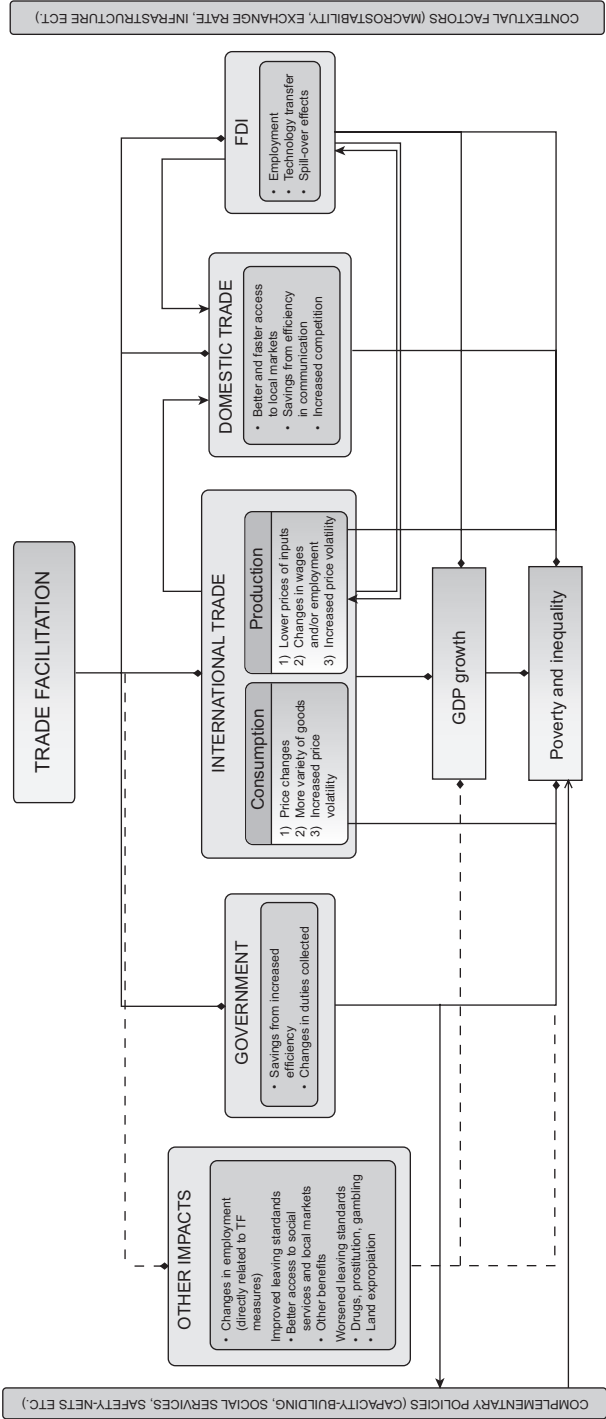


*Note:*   *The* bold green lines show the strongest impacts. The solid line shows that the impacts are also expected to be strong. The dotted lines show that the impacts are likely to be on a lower scale.

prices. Last, previously unobtainable goods or varieties could become available, with associated welfare gains. Ultimately, the extent to which the poor can benefit depends on the degree of competition and product differentiation within the markets as well as on the types of goods whose trade is facilitated.

The channel of international trade can also affect domestic trade and, in turn, the poor. As the competition faced by domestic producers in import-competing sectors increases and the price of imported inputs decreases, the same process of specialization and reallocation of resources towards activities that reflect the country's comparative advantage and exploitation of economies of scale is likely to occur in the domestic trade. Moreover, most of the exporters are likely to supply part of their production to the domestic market, and trade facilitation measures can therefore contribute to increasing their competitiveness in the domestic market. Trade facilitation measures can also benefit domestic producers due to the reduction in cost and the time to reach local markets (for example, in the case of upgrading infrastructure); this, in turn, can benefit the consumers. Trade facilitation measures involving the improvement of ICT can also help the poor producers to save time and money due to more efficient communications, the supply of strategic information on market prices, and enabling better planning and delivery of the goods to local markets.[20]

In the short term, the processes of adjustment can imply a fall in wages and/or employment in certain sectors. However, in the medium to long term a more efficient trading environment is likely to increase the welfare of the country. Firms would be encouraged to specialize in exporting goods that reflect the country's comparative advantage as well as the exploitation of economies of scale. According to the Heckscher-Ohlin model, wages and/or employment in the production of goods whose exports are cut (partially or totally) will decrease, while they will increase for goods whose exports increase. The effects on the poor depend on the mobility in the labour market and the characteristics of the distribution chain[21] as well as on the political willingness[22] of the Government to provide safety-nets along the adjustment process.

Finally, through the channel of international trade, price volatility is likely to increase as there will be more exposure to international price fluctuations (Winters and others, 2004). This can affect poor consumers as well as producers, who will respond by taking action to reduce risk exposure. For example, increased vulnerability to price fluctuations may lead poor farmers to diversify, at times to sub-optimal crops, to reduce risk (Bird and Vandemoortele, 2009). Also, the price to insure from increased exposure to price fluctuations is likely to be higher for SMEs.

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[20]   For example, Larson (2000) demonstrated, based on household surveys, that farmers' access to a public telephone was positively related to the price they received in district markets for their output, e.g., decreasing the distance to a telephone by 10 per cent led to a 1.6 per cent increase in prices received.

[21]   This range of factors includes the integration of markets over time and space, world prices, exchange rates, domestic taxes, transportation and storage costs as well as – where they exist – centralized marketing boards (sometimes also operating as cooperatives) (Higgins and Prowse, 2010).

[22]   This is connected to the government channel discussed in the following subsection.

## 2. Government channel

Another important channel through which trade facilitation measures can reach the poor is the government channel. Improved efficiency at the border allows savings on the administration of customs activities, even though these reforms could entail job losses for customs officials. Therefore, new government revenues could be devoted to social and anti-poverty programme expenditures (United Nations, 2003). As for the collection of import duties, a more efficient system of collection (for example, the implementation of a single window) could allow increases in the revenue for Governments because they reduce the possibilities for corruption, allow savings in the collection process as well as induce an increase the volume of imported goods.[23]

## 3. Channel of foreign direct investment

Foreign direct investors take into strong consideration a country's ease and cost-effectiveness of importing and exporting goods before making an investment decision. A significant share of FDI in developing economies is indeed in production facilities whose products are exported, and many of these facilities need to source some of their inputs from overseas. Attracting FDI will help a country to integrate into regional and international production networks (ADB and ESCAP, 2009), thereby increasing employment opportunities.

## 4. Other impacts of trade facilitation measures

In order to get a complete picture of the effects of trade facilitation on the poor, it is necessary to take into consideration the fact that certain facilitation measures bring about direct social impacts, and some measures require labour force in their implementation. In figure 3, this channel is indicated with a dotted line to show that it is weaker than the others highlighted. The impact on the poor is indeed assured only for certain measures, and the degree of impact is also likely to be weaker than the impact through the other channels.[24]

As for the social impacts, a better transport infrastructure can be used by the poor to reach schools and hospitals as well as local markets (thus lowering the cost of obtaining consumption goods). Increased access to communication can also be beneficial, for example the use of phones can contribute to spread risk warnings. The United Nations (2003) also points out how the poor can benefit from liberalization of services (e.g., transport, communications) under the trade facilitation agenda and the resultant competition that is likely to lead to lower prices, greater availability and improved quality of services.

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[23] However, the final volume of import duties will depend on which products are imported, as trade facilitation could bring a change in the basket of imported goods.

[24] Examples of labour-intensive measures are transport and communication infrastructure upgrade and maintenance.

**Figure 4. Relationship between road density and life expectancy at birth**
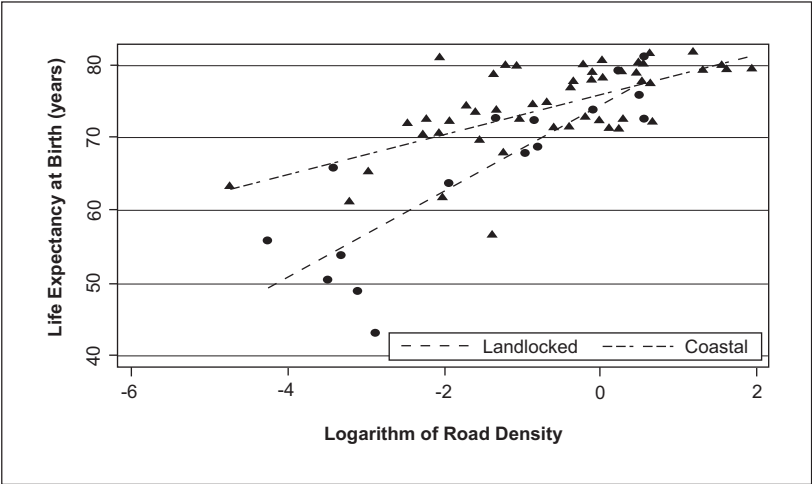
Some studies also point out negative social impacts of certain trade facilitation measures, which normally arise from a lack of consultation and coordination with the border communities (Cheewatrakoolpong, 2009). Examples of these problems are land expropriation, changes in culture and ways of living, gambling, drugs, diseases and contagion, and prostitution.

## 5. Enhanced growth

All these channels are expected to affect the poor, both directly and through enhanced growth. In general, there is wide agreement that trade is an important element in explaining growth, and that it has been a central component of successful development. In addition, there is scant evidence of any country managing to sustain high growth rates over a prolonged period without experiencing a large expansion in trade (Bhagwati and Srinivasan, 2002). In the long term, trade is likely to foster improvements in technology, business networks, competition and a more efficient trade environment in general, all of which go a long way towards promoting economic growth (Winters and others, 2004). In turn, economic growth is regarded as a key determinant of sustained poverty alleviation (Dollar and Kraay, 2002; Bhagwati and Srinivasan, 2002). Dollar and Kraay (2002) 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. However, also in this case, for the alleviation of poverty to be guaranteed and the full benefits of trade to be realized, complementary policies and contextual factors are required.

# E. Conclusion

It is clear that each channel can have both pro- and anti-poor effects and there is no "one-size-fits-all" strategy (Higgins and Prowse, 2010), as idiosyncratic factors need to be taken into account. The same set of policies is likely to result in distinct outcomes in different country contexts, as indeed found by the Consumer Unity and Trust Society (2008) through a cross-country assessment of the relationship between trade, development and poverty reduction. While, in the long term, trade openness is expected to benefit the poor, the effects are likely to vary between households and across countries, thus the need to pay attention to the particular transmission channels through which they occur and the range of household-related factors[25] and contextual factors[26] in action.

The government role is critical in creating the conditions for ensuring that the poor do not suffer from the short-term adjustments that trade facilitation measures might entail. The process of re-allocating resources, in fact, will necessarily impose short-term adjustment costs on some sectors, affecting in particular the poor as they are more vulnerable to lower wages and unemployment due to their lack of adequate savings. Therefore, from a public policy standpoint, care should be taken to limit this potential poverty-enhancing aspect of trade facilitation measures, by providing adequate safety-nets.

Governments should also implement other complementary policies necessary to enable the poor to harness the gains from trade facilitation measures and enhanced trade. These include social services (education, health-care etc.) and other measures that can be considered trade facilitation measures in themselves (such as facilitating the access to capital and capacity-building for promoting trade).

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[25]  These include: the location of the household, which affects access to local, national and international markets; demographic structures of the household; intra-household decision-making; and assets of the household (e.g., human capital – levels of education and health; physical capital – land; social capital – family and social networks; and financial capital – savings and access to credit).

[26]  These include: the type of goods and services traded; the political economy context; investment climate; macroeconomic stability; and levels of poverty and inequality.

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# Annex 1

| Trade facilitation principle | Trade facilitation measure | GATT Article concerned |
|---|---|---|
| **Transparency** | Publish trade regulations (internet publication) | Art. X |
| | Ensure dissemination of information relevant to trade (internet publication and notification to WTO secretariat) | Art. X |
| | Provide advance rulings in customs matters (tariff classification and customs valuation) | Art. X |
| | Establish a mechanism to review decisions (right of appeal) | Art. X |
| | Apply trade regulations consistently and in a nondiscriminatory manner, and guarantee due process (code of conduct, right of appeal) | Art. X |
| **Simplification** | Minimize/reduce fees and charges in connection with import or export | Art. VIII |
| | Establish a "single window" or one-time submission procedure | Art. VIII |
| | Implement pre-arrival examination | Art. VIII |
| | Implement post-clearance audit | Art. VIII |
| | Apply risk management techniques (authorized economic operators [AEOs], green lane) | Art. VIII |
| | Eliminate pre-shipment inspection and use customs brokers | Art. VIII |
| | Simplify and reduce customs procedures and documentary requirements | Art. VIII |
| | Simplify procedures for goods in transit, nondiscrimination | Art. V |
| **Harmonization** | Harmonize customs procedures, documents, and customs valuation methods | Art. VIII |
| | Adopt international standards | Art. VIII |
| | Use harmonized tariff classification | Art. VIII |
| | Align national standards with or adopt international standards | Art. VIII |
| | Recognize standards of other countries | Art. VIII |
| | Recognize certification and testing facilities of other countries or international organizations | Art. VIII |

# Annex 1 *(continued)*

| Trade facilitation principle | Trade facilitation measure | GATT Article concerned |
|---|---|---|
| **Cooperation** | Pre-consult new and amended rules | Art. X, Art. XXII |
| | Ensure cooperation and effective exchange of information between customs authorities | Art. X |
| | Improve relationships between customs authorities and trading community | – |
| | Improve mobility of businesspeople | |
| **Use of modern technology** | Use automation and automated systems for customs cargo processing | Art. VIII |
| | Use electronic communication systems | Art. VIII |
| **Technical assistance and capacity building** | Provide technical assistance to least developed countries | – |
| | Establish international training programmes | – |
| | Build capacity within least developed countries | – |

*Source:*   ADB and ESCAP, 2009.

# Annex 2

**Actions needed at the regional level:**

- Improve regional/sub-regional connectivity, including through development of regional/sub-regional **economic and transit corridors** and institutional strengthening;

- Harmonize **trade-related legal and regulatory systems**, including those related to product standards and certification;

- Facilitate funding of cross-border projects on trade facilitation, particularly those involving **information and communication technologies** (ICT);

- Simplify **accession procedures** to international conventions/agreements, and/or provide technical assistance for negotiation and implementation;

- Develop **multimodal corridors** including inter-modal competition between road and rail transport;

- Promote collaboration among the service providers, business communities at regional/sub-regional level to promote **partnership in trade logistics and transport services**;

- Improve coordination of regulatory agencies' operations, particularly **customs operations** at regional/subregional level and at border checkpoints;

- Upgrade the regional transit system to **electronic data interchange**;

- Improve coverage and efficiency in ICT to support **shipment tracking systems** (based on GPS, GPRS, RFID, and other technologies and solutions);

- Effectively conclude and support implementation of **transit and transport agreements** at bilateral and regional level;

- Admit **vehicles liability insurance** among relevant countries;

- Establish regional **guarantee system**;

- Undertake regional actions in building capacity of the countries in **road safety and road maintenance**;

- Support regional **electronic single window** initiatives;

- Harmonize cross-border legal and security frameworks for **e-transactions**;

- Encourage all the members to show their intention to implement **SAFE framework of standards**;

- Develop mechanism for **exchange of information and data** among customs and control agencies;

- Encourage mutual recognition of **Authorized Economic Operators** (AEO) among trading partners;

- Promote **automated risk management** and post-entry audit based controls as essential to achieving trade facilitation and security;

- Provide technical assistance and capacity-building for utilization of **technology for customs inspection**;

- Conduct regional review of **customs procedures and documentary requirements** with the aim of simplifying and harmonizing them.

**Actions needed at the national level:**

- Publish and make easily accessible the **laws, regulations and procedures** affecting trade;

- Simplify and standardize **trade documents and procedures** according to international standards;

- Reduce lead time resulting from **inspection** of low risk shipments and separate inspection of goods by different border agencies;

- Accelerate customs reform including introduction of **risk management** and authorized consignor/consignee programmes;

- Adopt ICT-enabled trade facilitation measures, including establishment of **national electronic Single Window**, and ensure effective operation and maintenance of the ICT-based systems once established;

- Develop training institutions and programmes to increase the knowledge and skills of staff in regulatory agencies, particularly at **border checkpoints** as well as those of freight forwarders and other service providers;

- Accede to relevant trade and transport facilitation agreements and conventions (e.g., WCO Revised Kyoto Convention), and ensure **national laws and regulations** are consistent with these instruments;

- Upgrade domestic **trade/transport infrastructure** such as roads, railways, waterways, warehouses and border facilities;

- Develop domestic **logistics services** and open logistics services market on a reciprocal basis;

- Improve the regulatory regime of **inter-modal transport** to create a sound base for promoting trade logistics;

- Eliminate unnecessary **inspections** of transit shipments;

- Accede to global conventions/agreements aimed at facilitating **transit**, such as UNECE TIR Convention and WCO A.T.A. Convention;

- Implement **Integrated Border Management** (IBM) systems and One or Single Stop Inspections at borders;

- Frame and enact laws on some key issues such as a **carrier's liability** on road and rail movement, and marine insurance;

- Integrate all stakeholders in the **national e-Trade facilitation projects**;

- Establish, implement and review **AEO programme**;

- Apply/enhance risk management by applying **automation** to all customs checkpoints;

- Define risk criteria for exported goods and improve use of existing **IT tools and X-ray machines**;

- Promote use of **non-intrusive inspection**, e.g., X-ray facility;

- Apply post-entry audit based **controls**.

*Source:* ESCAP, 2009.

# Chapter III

# Poverty, inequality and trade facilitation in low- and middle-income countries

*By Nguyen Viet Cuong*

## A. Introduction

Trade facilitation has recently begun emerging as an important strategy in international trade promotion. Dollar and others (2006) found that the number of days taken to clear goods through customs had a negative effect on exports in developing countries. Iwanow and Kirkpatrick (2007) found that a 10 per cent improvement in trade facilitation could increase export volume by around 5 per cent. Djankov and others (2010) examined the effect of time delays in the shipment of products on international trade. They found that each additional day that a product was delayed could decrease the international trade volume by about 1 per cent.

This chapter examines the association between trade facilitation and poverty, and inequality in low- and middle-income countries (the list of countries is presented in annex table 3). The focus is on the low- and middle-income countries for two reasons. First, the poverty rate is substantially higher in such countries than in high-income countries. The study detailed in this chapter measures poverty using the poverty line of $1.25 and $2 a day (PPP), respectively. Under these poverty lines, the poverty rate in all the high-income countries is almost zero or not available.[27] Second, compared with developed countries, trade transactions costs are higher, and there is a higher impact of trade facilitation on trade flows in low- and middle-income countries (Engman, 2005; Layton, 2007). As a result, trade facilitation can be expected to have a major effect on poverty and inequality in developing countries.

Section B of this chapter presents the descriptive statistics for trade facilitation, poverty and inequality in developing countries. Section C presents the estimation method while section D reports the empirical findings. The conclusion is presented in section E.

## B. Trade facilitation, poverty and inequality

The main data source in this study is from the World Bank database.[28] Up to 2012, there were data on 1,260 indicators of countries throughout the world. The data are

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[27]  Four countries classified as high income countries – Croatia, Hungary, Poland and Slovakia – reported the highest poverty rates under the poverty line of $1.25 and $2 a day (PPP), and their poverty rates were all below 1 per cent in the 2000s.

[28]  Data are available at http://data.worldbank.org/.

collected from different sources, provided by international agencies and governments. The data set includes several indicators of trade facilitation, such as logistics performance index, the number of documents, the number of days, and import and export costs for most countries in the world. Data on poverty indexes, Gini and other country-level indicators are also available. These yearly data form unbalanced panel data of countries during 2005-2012. The number of low- and middle-income countries that have data on trade facilitation as well as poverty and inequality is 90. The number of observations totals 225.

For the study detailed in this chapter, based on the availability of the World Bank's database, four measures of trade facilitation were used:

(a)   The number of documents for exports (figure 1). Such documents are required by government ministries, customs authorities, port and container terminals, health and technical control agencies, and banks for each shipment to be exported;

(b)   The number of documents for imports (figure 1). Such documents are required by government ministries, customs authorities, port and container terminals, health and technical control agencies, and banks for each imported shipment;

(c)   Time taken to export (number of days) (figure 2). The time calculation for the export procedure starts from when a shipment is initiated up until the shipment is completed;

(d)   Time taken to import (number of days) (figure 2). The time calculation for the import procedure starts from when a shipment is initiated up until receipt of the shipment is completed.

The first two measures are more related to custom procedures and regulations, while the last two measures reflect efficiency of overall international trade procedures. A more detailed definition of these trade facilitation measures is presented in annex table 1.

According to the United Nations (2002), customs procedures and documentation can be obstacles to international trade. It is estimated that high administrative costs caused by customs procedures and requirements can account for between 7 per cent and 10 per cent of the value of global trade. Figure 1 shows the average number of documents for exporting and importing a good in low- and middle-income countries during 2005-2012. As expected, exporting requires fewer documents than importing. The number of documents required for both exporting and for importing decreased during that period. In 2005, the average number of documents for exporting and importing was approximately 7.55 and 9.05, respectively. These figures decreased to 7.11 and 8.06, respectively, in 2012.

Figure 2 shows the average time needed to export as well as to import a good in the low- and middle-income countries (expressed in the number of days). The average time decreased during 2005-2012. The time required to import a good was lower than the time to export a good. In 2012, the number of days was 25.7 for exports and 29.3 for imports, respectively.

**Figure 1. Number of documents required for exports and imports**
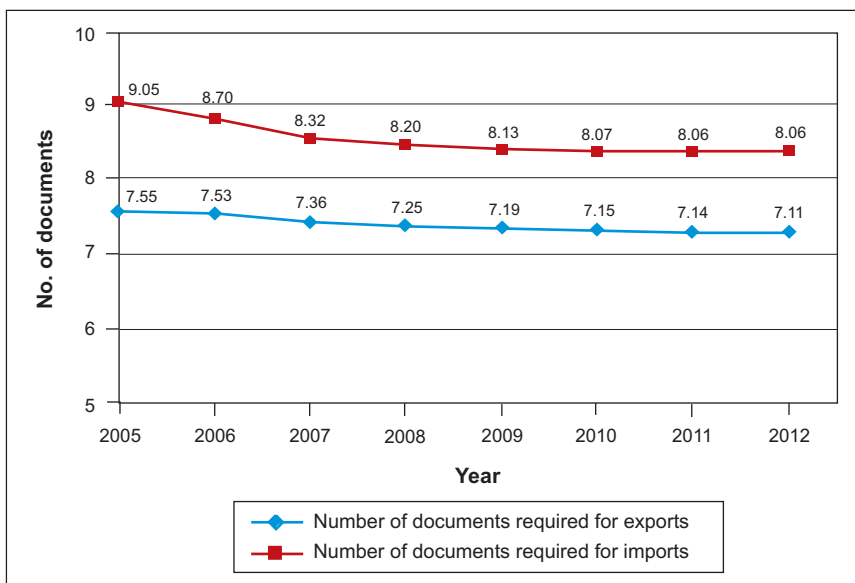


Source:    Author's calculation based on the World Bank database.

**Figure 2. Time to export and import (days)**
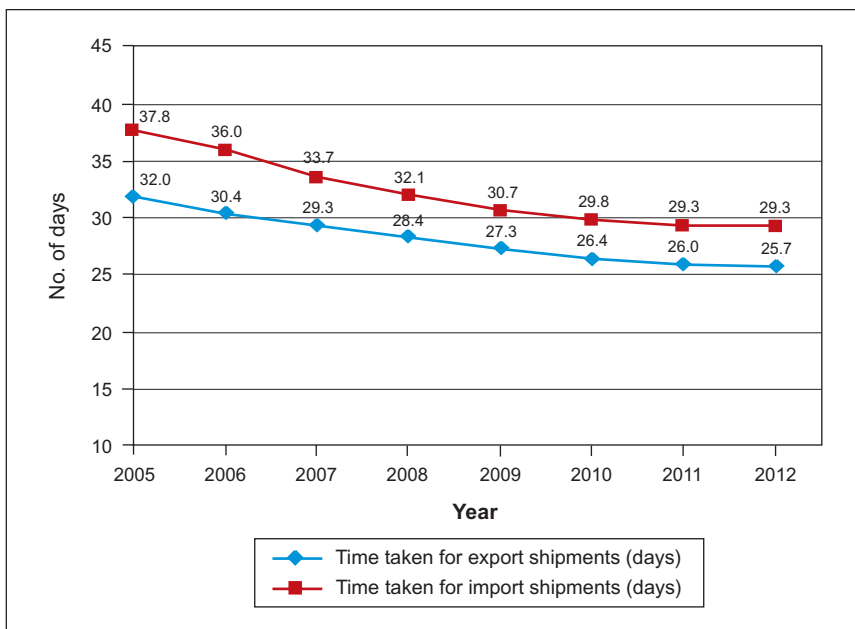


Source:    Author's calculation from the World Bank database.

Table 1 presents the four trade facilitation measures by income level and geographical region of countries. Trade facilitation has improved more in higher income countries. Countries in the Latin American and Caribbean, European, and East Asia and the Pacific regions require a smaller number of documents and a fewer days for international trade than countries in other regions. Compared with other countries, Central Asian, Sub-Sahara African and South Asian countries require a higher number of documents and longer times for exports and imports.

**Table 1. Trade facilitation by income levels and regions**

|  | Documents for exports (number) | Documents for imports (number) | Time to export (days) | Time to import (days) |
|---|---|---|---|---|
| **Income group** | | | | |
| Low income | 8.23 | 9.91 | 40.24 | 46.78 |
| Lower middle income | 7.42 | 8.18 | 27.47 | 31.42 |
| Upper middle income | 6.51 | 7.41 | 20.81 | 23.61 |
| **Region** | | | | |
| East Asia and the Pacific | 6.75 | 7.64 | 24.31 | 26.21 |
| Central Asia | 11.16 | 13.03 | 75.13 | 77.41 |
| Europe | 6.69 | 7.75 | 19.67 | 22.06 |
| Latin America and Caribbean | 6.43 | 7.24 | 19.69 | 22.52 |
| Middle East and North Africa | 6.79 | 8.19 | 26.18 | 31.36 |
| South Asia | 8.34 | 9.47 | 33.05 | 34.73 |
| Sub-Sahara Africa | 7.88 | 8.94 | 33.96 | 41.00 |
| Average | 7.28 | 8.32 | 28.18 | 32.34 |

*Source:*  Author's calculation based on the World Bank database.

The World Bank database contains data on logistics performance indexes, which are computed from Logistics Performance Index surveys conducted by the World Bank. Table 2 presents the seven logistics performance indexes for seven areas as well as the overall weighted index that is computed from the seven indexes. The logistics performance indexes express a very similar pattern for the number of documents and time for trade and tend to improve over time. Table 2 shows that trade facilitation measured by the logistics performance indexes has improved more in higher-income countries than in lower-income countries. Countries in Latin America and the Caribbean, and East Asia and the Pacific have lower logistics performance indexes, while sub-Sahara African and South Asian countries have higher logistics performance indexes.

**Table 2. Logistics performance index**

| | | | Logistics performance index | | | | |
|---|---|---|---|---|---|---|---|
| | Efficiency of customs clearance process (1 = low, 5 = high) | Quality of trade and transport-related infrastructure (1 = low, 5 = high) | Ease of arranging competitively priced shipments (1 = low, 5 = high) | Competence and quality of logistics services (1 = low, 5 = high) | Ability to track and trace consignments (1 = low, 5 = high) | Frequency with which shipments reach consignee on schedule (1 = low, 5 = high) | Overall (1 = low, 5 = high) |
| **Year** | | | | | | | |
| 2007 | 2.27 | 2.23 | 2.46 | 2.40 | 2.41 | 2.87 | 2.44 |
| 2010 | 2.29 | 2.28 | 2.67 | 2.47 | 2.63 | 3.18 | 2.60 |
| 2012 | 2.38 | 2.46 | 2.62 | 2.55 | 2.60 | 3.02 | 2.61 |
| **Income group** | | | | | | | |
| Low income | 2.15 | 2.06 | 2.39 | 2.25 | 2.30 | 2.76 | 2.32 |
| Lower middle income | 2.25 | 2.25 | 2.53 | 2.44 | 2.50 | 3.02 | 2.50 |
| Upper middle income | 2.49 | 2.58 | 2.78 | 2.67 | 2.78 | 3.22 | 2.76 |
| **Region** | | | | | | | |
| East Asia and Pacific | 2.44 | 2.47 | 2.73 | 2.59 | 2.71 | 3.20 | 2.69 |
| Central Asia | 2.21 | 2.22 | 2.45 | 2.32 | 2.42 | 2.91 | 2.36 |
| Europe | 2.40 | 2.47 | 2.77 | 2.60 | 2.69 | 3.17 | 2.71 |
| Latin America and Caribbean | 2.40 | 2.47 | 2.65 | 2.59 | 2.72 | 3.19 | 2.67 |
| Middle East and North Africa | 2.27 | 2.33 | 2.59 | 2.44 | 2.45 | 3.01 | 2.52 |
| South Asia | 2.25 | 2.19 | 2.49 | 2.41 | 2.45 | 2.91 | 2.46 |
| Sub-Sahara Africa | 2.22 | 2.15 | 2.45 | 2.35 | 2.40 | 2.85 | 2.41 |
| Average | 2.31 | 2.32 | 2.58 | 2.47 | 2.55 | 3.02 | 2.55 |

*Source:* Author's calculation based on the World Bank database.

It should be noted that in the current study the logistics performance indexes were not used as a trade facilitation measurement in the main analysis of trade facilitation and poverty because of several observations. Data on both poverty measures and the logistics performance indexes are available for only 52 countries. However, the number of documents and days needed for exports and imports can be relevant measures of trade facilitation. Table 3 shows a strongly negative correlation between the logistics performance indexes and the number of documents and days needed for exports and imports.

Poverty indexes, per capita GDP and the Gini index are presented in table 4. Poverty is measured by the poverty rate and poverty gap index (both in per cent).[29] There are no data on the poverty severity index. As expected, there is a strongly negative correlation between poverty and per capita GDP. The poverty rate and poverty gap index are higher in sub-Sahara African and South Asian countries, which have low per capita GDP. However, inequality measured by the Gini index is higher in high-income countries than in low-income countries.

Table 5 presents the average poverty measures, per capita GDP and Gini index by different percentiles of trade facilitation measures. It is obvious that countries with greater improvement in trade facilitation are more likely to have lower poverty and higher per capita GDP. The relationship between the Gini index and the level of trade facilitation are less clear.

Figures 3, 4 and 5 show the level of poverty rate, per capita GDP and the Gini index in relation to the trade facilitation variables. The lines in the figures are the linear regressions of the variable in the vertical axis and the variable in the horizontal axis. The slope of the regression line is statistically significant at the 1 per cent level. Countries with a larger number of documents and days needed for exporting and importing tend to have a higher poverty rate, lower per capita GDP and a slightly lower inequality level.[30]

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[29]   The poverty measures are expressed as (Foster and others, 1984):

$$FGT\,(\alpha) = (\frac{1}{\sum w_i}) \sum w_i\,(1 - (x_i\,/\,z))^{\alpha}$$

where $x_i$ is per capita expenditure for those individuals with weight $w_i$ who are below the poverty line, and zero for those above; z is the poverty line and $\sum w_i$ is total population size. Note: $\alpha$ takes a value of 0 for the poverty rate, 1 for the poverty gap index and 2 for the poverty severity index.

[30]   The association between the poverty gap rates, and the national poverty line and the poverty line of $2 PPP per day, the poverty gap index and trade facilitation variables are presented in the annex.

**Table 3. Correlation between trade facilitation measures**

| | Documents for exporting (number) | Documents for importing (number) | Time taken to export (days) | Time taken to import (days) | Efficiency of customs clearance process | Quality of trade and transport-related infrastructure | Ease of arranging competitively priced shipment | Compete and quality of logistics services | Ability to track and trace consignments | Frequency shipments reach consignee within schedule | Overall index |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Documents for exporting (number) | 1.00 | | | | | | | | | | |
| Documents for importing (number) | 0.57 | 1.00 | | | | | | | | | |
| Time taken to export (days) | 0.57 | 0.94 | 1.00 | | | | | | | | |
| Time taken to import (days) | 0.72 | 0.59 | 0.62 | 1.00 | | | | | | | |
| Efficiency of customs clearance process | -0.38 | -0.40 | -0.39 | -0.37 | 1.00 | | | | | | |
| Quality of trade and transport-related infrastructure | -0.36 | -0.45 | -0.43 | -0.36 | 0.83 | 1.00 | | | | | |
| Ease of arranging competitively priced shipments | -0.34 | -0.38 | -0.38 | -0.31 | 0.69 | 0.72 | 1.00 | | | | |
| Competence and quality of logistics services | -0.29 | -0.40 | -0.38 | -0.31 | 0.83 | 0.85 | 0.75 | 1.00 | | | |
| Ability to track and trace consignments | -0.36 | -0.41 | -0.40 | -0.33 | 0.76 | 0.77 | 0.74 | 0.83 | 1.00 | | |

**Table 3. (continued)**

| | Documents for exporting (number) | Documents for importing (number) | Time taken to export (days) | Time taken to import (days) | Efficiency of customs clearance process | Quality of trade and transport-related infrastructure | Ease of arranging competitively priced shipment | Compete and quality of logistics services | Ability to track and trace consignments | Frequency shipments reach consignee within schedule | Overall index |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency shipments reach consignee within schedule | -0.31 | -0.36 | -0.35 | -0.28 | 0.67 | 0.66 | 0.67 | 0.73 | 0.76 | 1.00 | |
| Overall index | -0.38 | -0.45 | -0.44 | -0.36 | 0.88 | 0.90 | 0.87 | 0.93 | 0.91 | 0.85 | 1.00 |

*Source*: Author's calculation based on the World Bank database.

*Note*: All the correlation coefficients are statistically significant (different from zero) at the 1 per cent level.

**Table 4. The average poverty index by income levels and regions during 2006-2011**

| | Poverty rate at poverty line of $1.25 a day (PPP) | Poverty rate at poverty line of $2 per day (PPP) | Poverty gap at poverty line of $1.25 per day (PPP) | Poverty gap at poverty line of $2 per day (PPP) | GDP per capita, PPP (constant 2005 interna- tional $) | Gini index |
|---|---|---|---|---|---|---|
| **Income level** | | | | | | |
| Low income | 43.62 | 66.99 | 16.96 | 31.76 | 1 180.4 | 39.66 |
| Lower middle income | 15.12 | 31.62 | 5.09 | 11.98 | 3 759.6 | 41.62 |
| Upper middle income | 3.36 | 8.12 | 1.33 | 2.91 | 9 887.8 | 44.13 |
| **Region** | | | | | | |
| East Asia and Pacific | 17.18 | 39.49 | 3.90 | 13.19 | 4 530.7 | 40.23 |
| Central Asia | 5.95 | 20.11 | 1.46 | 5.66 | 4 852.4 | 33.5 |
| Europe | 1.86 | 6.44 | 0.53 | 1.78 | 8 585.4 | 34.47 |
| Latin America and Caribbean | 7.31 | 14.46 | 3.29 | 6.09 | 8 047.6 | 51.47 |
| Middle East and North Africa | 2.53 | 11.84 | 0.57 | 2.82 | 5 010.4 | 36.10 |
| South Asia | 27.63 | 59.88 | 6.36 | 20.90 | 2 387.8 | 33.76 |
| Sub-Saharan Africa | 46.51 | 67.41 | 19.09 | 33.72 | 2 655.3 | 44.49 |
| Total | 13.57 | 25.27 | 5.01 | 10.45 | 6 444.2 | 42.59 |

*Source:*   Author's preparation from the World Bank's database.

*Note:*   The number of observations is 224.

**Table 5. Average poverty index by percentile of trade facilitation measures, 2006-2011**

| | Poverty rate at poverty line of $1.25 per day (PPP) | Poverty rate at poverty line of $2 per day (PPP) | Poverty gap at poverty line of $1.25 per day (PPP) | Poverty gap at poverty line of $2 per day (PPP) | GDP per capita, PPP (constant 2005 international $) | Gini index |
|---|---|---|---|---|---|---|
| **Documents to export (number)** | | | | | | |
| 0-25th percentile | 11.23 | 22.11 | 4.04 | 8.79 | 7 305.0 | 43.51 |
| 25th-50th percentile | 8.73 | 17.15 | 3.14 | 6.81 | 7 389.0 | 41.49 |
| 50th-75th percentile | 18.12 | 32.32 | 7.11 | 13.98 | 4 746.8 | 46.32 |
| 75th-100th percentile | 19.75 | 34.70 | 7.19 | 14.81 | 5 279.0 | 38.76 |
| **Documents to import (number)** | | | | | | |
| 0-25th percentile | 6.16 | 14.63 | 2.06 | 5.13 | 8 185.3 | 43.07 |
| 25th-50th percentile | 11.65 | 24.29 | 3.67 | 9.09 | 6 235.8 | 44.00 |
| 50th-75th percentile | 23.33 | 37.34 | 9.79 | 17.62 | 3 998.8 | 42.94 |
| 75th-100th percentile | 23.08 | 38.80 | 8.54 | 17.10 | 5 295.0 | 39.27 |
| **Time taken to export (days)** | | | | | | |
| 0-25th percentile | 4.4 | 10.73 | 1.47 | 3.70 | 9 547.4 | 43.80 |
| 25th-50th percentile | 12.53 | 23.94 | 4.80 | 9.88 | 6 774.9 | 44.93 |
| 50th-75th percentile | 15.24 | 28.76 | 5.20 | 11.56 | 4 757.6 | 39.38 |
| 75th-100th percentile | 25.25 | 42.60 | 9.72 | 18.95 | 3 506.0 | 41.59 |
| **Time taken to import (days)** | | | | | | |
| 0-25th percentile | 4.04 | 10.02 | 1.37 | 3.43 | 9 403.1 | 42.60 |
| 25th-50th percentile | 12.83 | 26.77 | 4.45 | 10.24 | 6 595.8 | 45.71 |
| 50th-75th percentile | 14.31 | 25.53 | 5.25 | 10.82 | 5 378.5 | 43.24 |
| 75th-100th percentile | 24.25 | 40.77 | 9.39 | 18.21 | 3 960.1 | 39.38 |
| Total | 13.57 | 25.27 | 5.01 | 10.45 | 6 444.2 | 42.59 |

*Source:*   Author's calculation based on the World Bank database.

*Note:*   The number of observations is 224.

**Figure 3. Association between the poverty rate (measured at the poverty line of $1.25 PPP per day and trade facilitation**
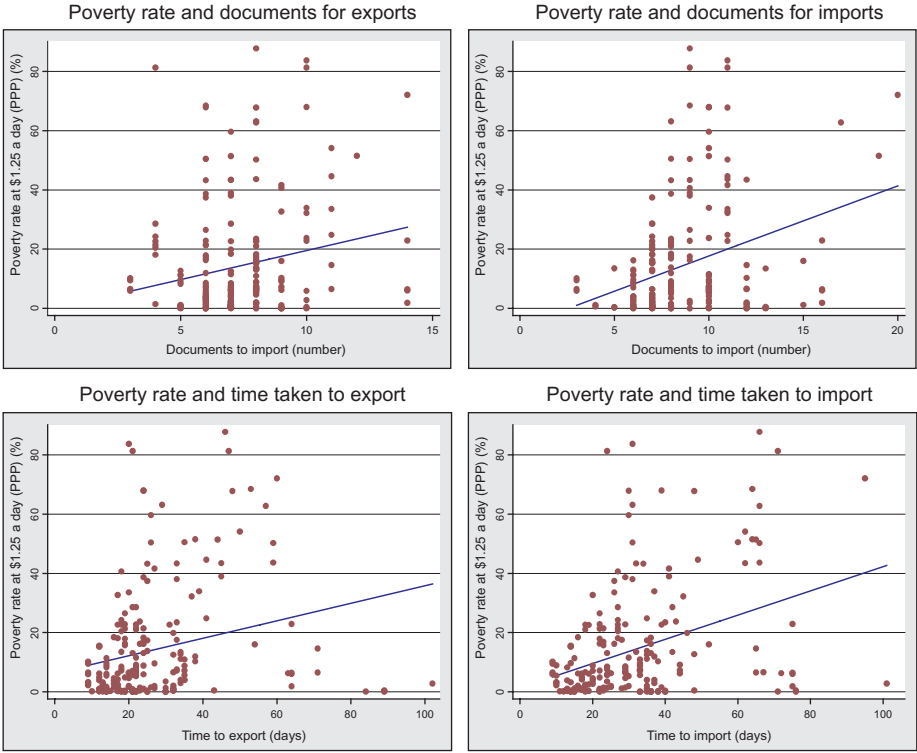


Poverty rate and documents for exports

Poverty rate and documents for imports

Poverty rate and time taken to export

Poverty rate and time taken to import

*Source:*   Author's calculation based on the World Bank database.

*Note:*   The number of observations is 224.

**Figure 4. Association between GDP per capita (PPP) and trade facilitation**
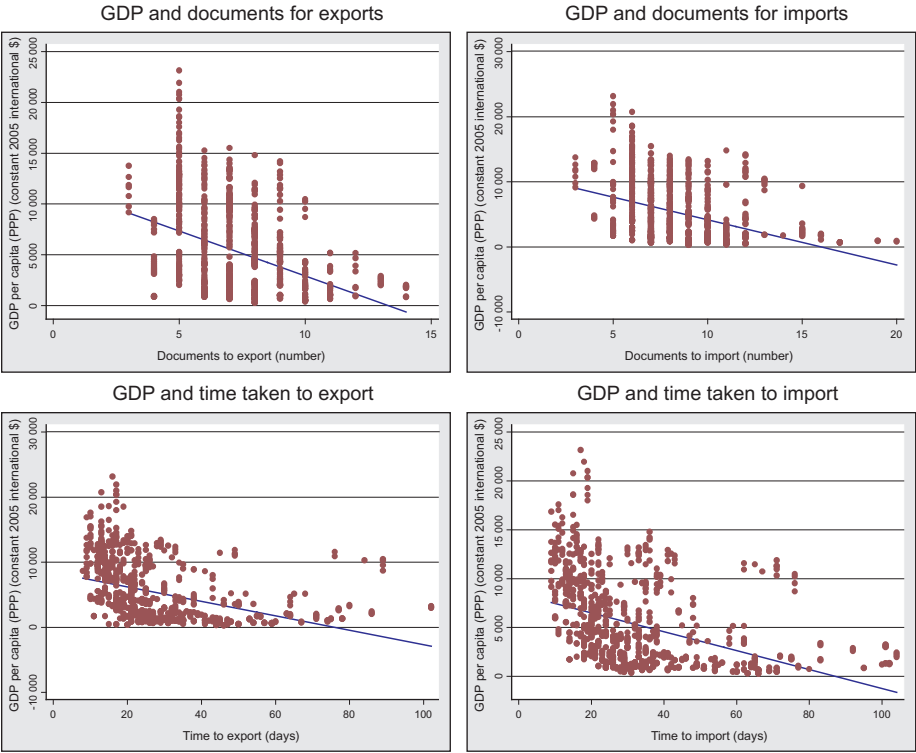


GDP and documents for exports

GDP and documents for imports

GDP and time taken to export

GDP and time taken to import

*Note:*    The number of observations is 900.

## Figure 5. Association between Gini index and trade facilitation
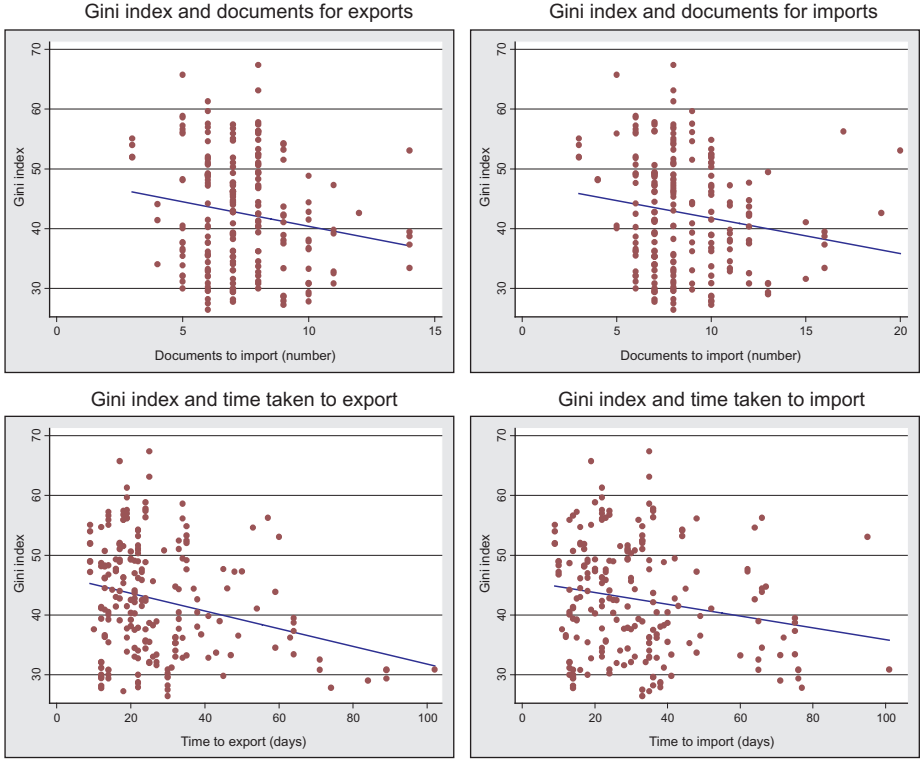


Gini index and documents for exports

Gini index and documents for imports

Gini index and time taken to export

Gini index and time taken to import

*Source:* Author's calculation based on the World Bank database.

*Note:* The number of observations is 224.

# C. Regression analysis

The study used econometric models to measure the effect of trade facilitation on poverty, GDP and inequality. More specifically, regressions were run of poverty indexes, per capita GDP and the Gini index on trade facilitation indicators and other explanatory variables, using panel data of low- and middle-income countries.[31] More specifically, the following function of poverty as well as inequality was used:

$$y_{it} = \alpha + TF_{it}\,\beta + X_{it}\,\theta + v_i + \mu_{it}, \tag{1}$$

where $y_{it}$ is the poverty index (also log of per capita GDP, log of export volume and the Gini index) of country $i$ in year $t$, and $TF_{it}$ are trade facilitation variables of country $i$ in year $t$. As mentioned, indicators of trade facilitation are the number of documents required for exporting and importing a good, and the number of days taken to export and import. $X_{it}$ is

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[31] Since the effect of trade facilitation on international trade is not estimated, a gravity model is not used.

a vector of explanatory (control) variables that include dummy variables of years, population density and geographical regional dummies. A small set of control variables that are strictly exogenous was used. The control variables should not be affected by trade facilitation (Heckman and others, 1999; Angrist and Pischke, 2008). As trade facilitation affects trade and GDP, it can also affect a large number of economic outcomes of the countries. In addition, the difference data were used and time-invariant control variables removed from the estimation. Thus, the number of control variables is small in the regressions. The error term is decomposed into time-invariant component $v_i$ and time-variant component $\mu_{it}$. The effect of trade facilitation is measured by $\beta$.

Estimation of the effect of a programme or a policy is always challenging. Without randomization, the effect of a policy can be correlated with unobserved factors. The trade facilitation variables can be correlated with error terms in equation (1). Panel data are used to eliminate the time-invariant component $v_i$ by the first-differencing of equation (1):

$$\Delta y_{it} = \Delta TF_{it}\, \beta + \Delta X_{it}\, \theta + \Delta \mu_{it} \tag{2}$$

However, it is possible that $\Delta TF_{it}$ can still be correlated with $\Delta\mu_{it}$. Finding absolutely exogenous instrumental variables for trade facilitation variables is difficult. Thus, for estimates of $\beta$, a widely-used Generalized Method of Moments (GMM) developed by Holtz-Eakin and others (1988), and Arellano and Bond (1991) can be relied upon. The GMM-type instruments for $\Delta TF_{it}$ are higher order lags of the trade facilitation variables. Although the exogeneity of these instruments is always questionable, the over-identification test for the validation of the instruments can be performed.

## D. Empirical results

Tables 6 to 9 present the GMM regression of the poverty rate and poverty gap index (measured at the poverty line of $1.25 and $2 PPP/day), per capita GDP and the Gini index on the trade facilitation variables and other explanatory variables. The results from the OLS regression are shown in the annex.

Several points should be noted. First, the instruments are the first lagged difference of trade variables and other explanatory variables. Since the number of observations is not large, the second-order lagged differences cannot be used as instruments. The Sargan test of over-identifying restrictions is performed and reported in the tables 6 to 9. The null hypothesis that over-identifying restrictions are valid is not rejected in all the regressions.

Second, the Arellano-Bond test for zero autocorrelation of the first-order and second-order in first-differenced errors was performed. The P-value of the test in all the regressions was above 0.1, indicating that the null hypothesis of no autocorrelation was not rejected.

Third, in each regression only one variable of trade facilitation was used in order to avoid the multi-collinearity problem. As indicated in table 3, the trade facilitation variables are strongly correlated. Thus, for each outcome, there are four models with different measures of trade facilitation.

As mentioned above, there are only 52 observations for which data are available both on poverty measures and the logistics performance indexes of trade facilitation. There are no panel data on the logistics performance indexes of trade facilitation. However, the OLS regression of outcomes was also tried on the logistics performance indexes. The results were very similar to the OLS results using the time and documents for imports and exports as the trade facilitation measures.[32]

Table 6 shows the association between the trade facilitation variables and the poverty rate at the poverty line of $1.25 PPP per day. Except for the variable "documents for exports", all the trade facilitation variables are statistically significant at the 5 per cent level. Countries requiring a large number of documents for imports and more time for imports and exports are more likely to have a higher poverty rate. One additional document for imports can be associated with a 0.77 percentage point increase in the poverty rate. One additional day in the time needed for exports and imports might increase the poverty rate by 0.49 and 0.47 percentage points, respectively. The sign of trade facilitation variables in GMM regressions is the same as in the OLS regression. Improvement in trade facilitation by reducing the number of documents and times for exports and imports is also negatively associated with the poverty gap.

Although the over-identification test is not rejected, the exogeneity of the GMM-type instruments cannot be fully convincing. Thus, the estimate of trade facilitation variables in the GMM regression could be explained as an association between trade facilitation and outcomes instead of a causal effect of trade facilitation.

Table 7 presents the regressions of the poverty rate at the poverty line of $2 (PPP) per day. All the trade facilitation variables are statistically significant and have the same sign as the regression in table 6. The point estimates in table 7 are larger than in table 6, since the poverty rate measured at the poverty line of $2 (PPP) a day is higher than at the poverty line of $1.25 (PPP) a day.

Table 8 shows a negative relation between per capita GDP and the number of documents and days needed for exports and imports. The OLS regression shown in the annex also shows a negative association. An additional document for exports and imports is associated with a reduction in per capita GDP by the equivalent to 2.9 per cent and 1.5 per cent of per capita GDP, respectively. It should be noted that the average number of documents required for exporting and importing a commodity is 7.3 and 8.3, respectively. It

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[32]   The signs of the logistics performance indexes and the signs of the time and documents to export and import in regression of outcomes are opposite, since the higher value of the logistics performance indexes means improvement in trade facilitation, while the higher value time and documents to export and import means depreciation in trade facilitation.

**Table 6. GMM regression of poverty rate at poverty line of $1.25 per day (PPP)**

| Explanatory variables | Poverty rate (%) | | | | Poverty gap index (%) | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Documents for exporting (number) | 0.357 | | | | 0.107 | | | |
| | (0.483) | | | | (0.220) | | | |
| Documents for importing (number) | | 0.773*** | | | | 0.297** | | |
| | | (0.272) | | | | (0.122) | | |
| Time taken to export (days) | | | 0.494*** | | | | 0.162*** | |
| | | | (0.108) | | | | (0.044) | |
| Time taken to import (days) | | | | 0.474*** | | | | 0.163*** |
| | | | | (0.128) | | | | (0.052) |
| Population density (people/km$^2$) | -0.367** | -0.247 | 0.276 | 0.493 | -0.174** | -0.121 | 0.042 | 0.126 |
| | (0.173) | (0.196) | (0.266) | (0.349) | (0.079) | (0.088) | (0.108) | (0.142) |
| 2005 | Base omitted | | | | | | | |
| 2006 | -0.995* | -0.670 | -0.254 | -0.404 | -0.549** | -0.425 | -0.309 | -0.349 |
| | (0.526) | (0.580) | (0.729) | (0.837) | (0.240) | (0.260) | (0.295) | (0.341) |
| 2007 | -1.701*** | -1.186* | -0.362 | -0.184 | -0.826*** | -0.635** | -0.387 | -0.307 |
| | (0.559) | (0.630) | (0.816) | (0.977) | (0.255) | (0.282) | (0.331) | (0.398) |
| 2008 | -1.838*** | -1.261* | 0.260 | 0.646 | -0.649** | -0.441 | 0.031 | 0.197 |
| | (0.566) | (0.644) | (0.904) | (1.130) | (0.258) | (0.289) | (0.366) | (0.460) |
| 2009 | -1.314** | -0.670 | 0.496 | 0.839 | -0.421 | -0.181 | 0.162 | 0.309 |
| | (0.669) | (0.739) | (0.974) | (1.196) | (0.305) | (0.331) | (0.394) | (0.487) |

**Table 6. (continued)**

| Explanatory variables | Poverty rate (%) | | | | Poverty gap index (%) | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Constant | 46.884*** | 31.070 | -25.994 | -48.479 | 21.187*** | 14.247 | -3.204 | -12.072 |
| | (16.998) | (19.498) | (26.958) | (36.063) | (7.744) | (8.743) | (10.920) | (14.680) |
| Observations | 224 | 224 | 224 | 224 | 224 | 224 | 224 | 224 |
| Sargan test of over-identifying restrictions: $\chi^2$ statistic and P-value | 8.129 | 3.957 | 2.427 | 4.177 | 6.403 | 12.36 | 1.858 | 3.208 |
| | 0.975 | 0.861 | 0.999 | 0.997 | 0.602 | 0.498 | 0.999 | 0.999 |

*Source:* Estimation based on the World Bank database.

Heteroskedasticity-robust standard errors are shown in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 7. GMM regression of poverty at poverty line of $2 per day (PPP)

| Explanatory variables | Poverty rate (%) | | | | Poverty gap index (%) | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Documents for exporting (number) | 1.342** | | | | 0.370 | | | |
| | (0.669) | | | | (0.332) | | | |
| Documents for importing (number) | | 1.154*** | | | | 0.553*** | | |
| | | (0.374) | | | | (0.188) | | |
| Time taken to export (days) | | | 0.696*** | | | | 0.332*** | |
| | | | (0.150) | | | | (0.074) | |
| Time taken to import (days) | | | | 0.748*** | | | | 0.336*** |
| | | | | (0.189) | | | | (0.090) |
| Population density (people/km$^2$) | -0.437* | -0.257 | 0.473 | 0.896* | -0.262** | -0.173 | 0.174 | 0.346 |
| | (0.240) | (0.270) | (0.371) | (0.515) | (0.119) | (0.135) | (0.182) | (0.247) |
| 2005 | Base omitted | | | | | | | |
| 2006 | -1.170 | -0.734 | -0.119 | -0.220 | -0.747** | -0.523 | -0.248 | -0.326 |
| | (0.729) | (0.798) | (1.015) | (1.237) | (0.362) | (0.401) | (0.498) | (0.593) |
| 2007 | -2.368*** | -1.651* | -0.516 | 0.026 | -1.285*** | -0.928** | -0.389 | -0.209 |
| | (0.774) | (0.865) | (1.137) | (1.444) | (0.384) | (0.435) | (0.558) | (0.692) |
| 2008 | -3.403*** | -2.633*** | -0.540 | 0.462 | -1.392*** | -1.001** | -0.001 | 0.356 |
| | (0.784) | (0.886) | (1.260) | (1.670) | (0.389) | (0.445) | (0.618) | (0.800) |
| 2009 | -2.340** | -1.739* | -0.236 | 0.721 | -0.952** | -0.554 | 0.185 | 0.514 |
| | (0.926) | (1.015) | (1.356) | (1.767) | (0.460) | (0.510) | (0.665) | (0.847) |

**Table 7. (continued)**

| Explanatory variables | Poverty rate (%) | | | | Poverty gap index (%) | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Constant | 58.772** | 41.025 | -38.146 | -83.826 | 33.501*** | 22.653* | -14.898 | -33.154 |
| | (23.537) | (26.796) | (37.540) | (53.305) | (11.683) | (13.460) | (18.424) | (25.548) |
| Observations | 224 | 224 | 224 | 224 | 224 | 224 | 224 | 224 |
| Sargan test of over-identifying restrictions: $\chi^2$ statistic and P-value | 1.358 | 2.747 | 8.284 | 2.612 | 5.693 | 2.450 | 2.175 | 1.897 |
| | 0.999 | 0.949 | 0.874 | 0.999 | 0.681 | 0.964 | 0.9999 | 1.000 |

*Source:* Estimation based on the World Bank database.
Heteroskedasticity-robust standard errors in parentheses.
\*\*\* $p<0.01$, \*\* $p<0.05$, \* $p<0.1$.

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Table 8. GMM regression of log of GDP per capita and export volume, PPP (Constant 2005 international $)

| Explanatory variables | Log of GDP per capita | | | | Log of export volume | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Documents for exporting (number) | -0.029*** (0.009) | | | | -0.051*** (0.012) | | | |
| Documents for importing (number) | | -0.015*** (0.005) | | | | -0.034*** (0.008) | | |
| Time taken to export (days) | | | -0.009*** (0.002) | | | | -0.022*** (0.005) | |
| Time taken to import (days) | | | | -0.011*** (0.002) | | | | -0.018*** (0.004) |
| Population density (people/km$^2$) | 0.018*** (0.003) | 0.015*** (0.003) | 0.006 (0.004) | -0.002 (0.006) | 0.013*** (0.004) | 0.009* (0.005) | -0.013 (0.008) | -0.017* (0.010) |
| 2005 | Base omitted | | | | | | | |
| 2006 | 0.017* (0.009) | 0.012 (0.010) | 0.004 (0.012) | 0.005 (0.015) | 0.023* (0.014) | 0.019 (0.014) | 0.018 (0.020) | 0.023 (0.022) |
| 2007 | 0.069*** (0.010) | 0.062*** (0.011) | 0.046*** (0.014) | 0.036** (0.018) | 0.083*** (0.015) | 0.073*** (0.016) | 0.052** (0.022) | 0.045* (0.026) |
| 2008 | 0.103*** (0.010) | 0.095*** (0.011) | 0.066*** (0.015) | 0.049** (0.021) | 0.114*** (0.015) | 0.103*** (0.016) | 0.046* (0.027) | 0.037 (0.032) |
| 2009 | 0.047*** (0.012) | 0.044*** (0.013) | 0.020 (0.016) | 0.005 (0.022) | -0.012 (0.017) | -0.015 (0.018) | -0.060** (0.028) | -0.068** (0.033) |

**Table 8. (*continued*)**

| Explanatory variables | Log of GDP per capita | | | | Log of export volume | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Constant | 7.058*** | 7.210*** | 8.173*** | 8.943*** | 22.203*** | 22.479*** | 24.799*** | 25.158*** |
| | (0.287) | (0.315) | (0.428) | (0.630) | (0.412) | (0.464) | (0.841) | (1.019) |
| Observations | 222 | 222 | 222 | 222 | 198 | 198 | 198 | 198 |
| Sargan test of over-identifying restrictions: $\chi^2$ statistic and | 6.370 | 2.771 | 8.394 | 4.587 | 8.185 | 16.39 | 12.01 | 5.546 |
| P-value | 0.605 | 0.947 | 0.495 | 0.917 | 0.415 | 0.228 | 0.605 | 0.986 |

*Source:* Estimation based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

means that the elasticity of the per capita GDP with regard to the number of documents required for exporting and importing is around 0.21 per cent and 0.22 per cent, respectively. Similarly, the increase in the time taken to export and to import is negatively correlated with per capita GDP.

To examine whether the export is the channel through which the trade facilitation affects the GDP, we run regression of log of export values on trade facilitation. The trade facilitation variables are negative and very significant. Improvement in trade facilitation would help countries significantly increase exportation. The point estimates are larger than those in the regression of GDP on trade facilitation.

An increase in the number of documents and time required for exports and imports is associated with a small decrease in per capita GDP but a relatively large increase in inequality. It means that income distribution can be worsened by increasing the number of documents and time required for exports and imports. Table 9 shows this relationship. If the number of documents needed for imports increases by one, the Gini index can increase by 0.4 percentage points. An additional day in the time taken to export and import is associated with 0.22 and 0.25 percentage point increases in the Gini index, respectively.

# E. Conclusion

Since trade facilitation can help to boost economic growth, it can also help poverty and inequality reduction. This chapter attempts to examine the effect of trade facilitation on poverty, GDP, exports and income inequality in low- and middle-income countries. Trade facilitation is measured by the number of documents and the number of days needed for exports and imports. The findings show that improvement in trade facilitation is positively correlated with exports and per capita GDP, and negatively correlated with poverty and inequality. More specifically, deterioration in trade facilitation – which is measured by the increase in the number of documents required and days taken for exporting and importing a good – can reduce per capita GDP, albeit to a small amount. Countries requiring a larger number of documents and more time for imports and exports tend to have higher levels of poverty (measured by the headcount and poverty gap index) and inequality (measured by the Gini index) than other countries.

It should be noted that although this study is aimed at estimating the causal effect of trade facilitation on GDP and poverty in developing countries, using instrumental variable regressions, caution is advised in the interpretation of the causal effect as the exogeneity of GMM-type instruments is not fully convincing. Another limitation is the small number of observations used in this study, which does not allow for estimation of the heterogeneous effects of trade facilitation. The extent to which trade facilitation affects GDP, poverty and inequality in a country depends on the structure of the economy; therefore, it can vary across different countries. While estimating the heterogeneous effects of trade facilitation is beyond the scope of this study, it is an important aspect for future studies.

## Table 9. GMM regression of Gini index

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| Documents for exporting (number) | 0.444 | | | |
| | (0.320) | | | |
| Documents for importing (number) | | 0.400** | | |
| | | (0.179) | | |
| Time taken to export (days) | | | 0.217*** | |
| | | | (0.059) | |
| Time taken to import (days) | | | | 0.245*** |
| | | | | (0.071) |
| Sum of documents for exporting and importing | | | | |
| Sum of time taken to export and import | | | | |
| Population density (people per km$^2$ of land area) | -0.174 | -0.107 | 0.128 | 0.333 |
| | (0.127) | (0.138) | (0.154) | (0.209) |
| 2005 | Base omitted | | | |
| 2006 | 0.288 | 0.456 | 0.621 | 0.598 |
| | (0.362) | (0.386) | (0.405) | (0.474) |
| 2007 | 0.022 | 0.259 | 0.596 | 0.826 |
| | (0.386) | (0.421) | (0.455) | (0.558) |
| 2008 | -0.571 | -0.320 | 0.358 | 0.748 |
| | (0.391) | (0.431) | (0.507) | (0.649) |
| 2009 | -0.764* | -0.553 | -0.038 | 0.279 |
| | (0.462) | (0.496) | (0.548) | (0.688) |
| Constant | 55.683*** | 49.077*** | 24.544 | 3.517 |
| | (12.211) | (13.392) | (15.204) | (21.008) |
| Observations | 217 | 217 | 217 | 217 |
| Sargan test of over-identifying restrictions: $\chi^2$ statistic and P-value | 11.47 | 6.868 | 12.35 | 8.708 |
| | 0.648 | 0.961 | 0.499 | 0.892 |

*Source:*   Estimation based on the World Bank's database.

Heteroskedasticity-robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

# Annex

### Annex table 1. Definition of trade facilitation measures

| Trade facilitation measure | Detailed definition |
|---|---|
| Documents required for exporting (number) | All documents required per shipment to export goods are recorded. It is assumed that the contract has already been agreed upon and signed by both parties. Documents required for clearance by government ministries, customs authorities, port and container terminal authorities, health and technical control agencies and banks are taken into account. Since payment is by letter of credit, all documents required by banks for the issuance or securing of a letter of credit are also taken into account. Documents that are renewed annually and that do not require renewal per shipment (for example, an annual tax clearance certificate) are not included. |
| Time taken to export (days) | Time is recorded in calendar days. The time calculation for a procedure starts from the moment it is initiated and runs until it is completed. If a procedure can be accelerated for an additional cost, the fastest legal procedure is chosen. It is assumed that neither the exporter nor the importer wastes time and that each commits to completing each remaining procedure without delay. Procedures that can be completed in parallel are measured as simultaneous. The waiting time between procedures – for example, during unloading of the cargo – is included in the measure. |
| Documents required for importing (number) | All documents required per shipment to import goods are recorded. It is assumed that the contract has already been agreed upon and signed by both parties. Documents required for clearance by government ministries, customs authorities, port and container terminal authorities, health and technical control agencies, and banks are taken into account. Since payment is by letter of credit, all documents required by banks for the issuance or securing of a letter of credit are also taken into account. Documents that are renewed annually and that do not require renewal per shipment (for example, an annual tax clearance certificate) are not included. |
| Time taken to import (days) | Time is recorded in calendar days. The time calculation for a procedure starts from the moment it is initiated and runs until it is completed. If a procedure can be accelerated for an additional cost, the fastest legal procedure is chosen. It is assumed that neither the exporter nor the importer wastes time and that each commits to completing each remaining procedure without delay. Procedures that can be completed in parallel are measured as simultaneous. The waiting time between procedures – for |

| Trade facilitation measure | Detailed definition |
|---|---|
| | example, during unloading of the cargo – is included in the measure. |
| Logistics performance index: Efficiency of customs clearance process (1 = low to 5 = high) | Logistics professionals' perception of the efficiency of country's customs clearance processes (i.e., speed, simplicity and predictability of formalities), on a rating ranging from 1 (very low) to 5 (very high). Scores are averaged across all respondents. |
| Logistics performance index: Quality of trade and transport-related infrastructure (1 = low to 5 = high) | Logistics professionals' perception of country's quality of trade and transport related infrastructure (e.g., ports, railroads, roads and information technology), on a rating ranging from 1 (very low) to 5 (very high). Scores are averaged across all respondents. |
| Logistics performance index: Ease of arranging competitively priced shipments (1 = low to 5 = high) | Logistics professionals' perception of the ease of arranging competitively priced shipments to a country, on a rating ranging from 1 (very difficult) to 5 (very easy). Scores are averaged across all respondents. |
| Logistics performance index: Competence and quality of logistics services (1 = low to 5 = high) | Logistics professionals' perception of country's overall level of competence and quality of logistics services (e.g., transport operators, customs brokers), on a rating ranging from 1 (very low) to 5 (very high). Scores are averaged across all respondents. |
| Logistics performance index: Overall (1 = low to 5 = high) | Logistics Performance Index overall score reflects perceptions of a country's logistics based on efficiency of customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. The index ranges from 1 to 5, with a higher score representing better performance. |
| Logistics performance index: Frequency with which shipments reach consignee within scheduled or expected time (1 = low to 5 = high) | Logistics professionals' perception of how often the shipments to assessed country reach the consignee within the scheduled or expected delivery time, on a rating ranging from 1 (hardly ever) to 5 (nearly always). Scores are averaged across all respondents. |
| Logistics performance index: Ability to track and trace consignments (1 = low to 5 = high) | Logistics professionals' perception of the ability to track and trace consignments when shipping to the country, on a rating ranging from 1 (very low) to 5 (very high). Scores are averaged across all respondents. |

*Source:*   World Bank database. Available at http://data.worldbank.org/.

## Annex table 2. Summary statistics of variables

| Variables | Obs. | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|---|
| Documents required for exporting (number) | 225 | 7.209 | 1.972 | 3 | 14 |
| Documents required for importing (number) | 225 | 8.471 | 2.644 | 3 | 20 |
| Time taken to export (days) | 225 | 26.236 | 15.972 | 9 | 102 |
| Time taken to import (days) | 225 | 30.831 | 17.543 | 9 | 101 |
| Population density (people per km$^2$ of land area) | 224 | 95.54 | 135.00 | 3.20 | 1 142.29 |
| East Asia and the Pacific | 225 | 0.098 | 0.298 | 0 | 1 |
| Europe and Central Asia | 225 | 0.302 | 0.460 | 0 | 1 |
| Latin America and Caribbean | 225 | 0.347 | 0.477 | 0 | 1 |
| Middle East and North Africa | 225 | 0.053 | 0.225 | 0 | 1 |
| South Asia | 225 | 0.044 | 0.207 | 0 | 1 |
| Sub-Saharan Africa | 225 | 0.156 | 0.363 | 0 | 1 |
| Poverty rate at poverty line of $1.25 a day (PPP) | 225 | 13.571 | 18.948 | 0 | 87.72 |
| Poverty rate at poverty line of $2 a day (PPP) | 225 | 25.265 | 26.490 | 0.05 | 95.15 |
| Poverty gap at poverty line of $1.25 a day (PPP) | 225 | 5.009 | 8.447 | 0 | 52.76 |
| Poverty gap at poverty line of $2 a day (PPP) | 225 | 10.454 | 13.558 | 0.01 | 67.58 |
| GDP per capita, PPP (constant 2005 international $) | 223 | 6 444.17 | 4 153.85 | 284.20 | 21 026.04 |
| Gini index | 218 | 42.593 | 9.277 | 26.44 | 67.4 |

*Source:* Author's estimation, based on the World Bank database.

## Annex table 3. List of low- and middle-income countries

| | | | |
|---|---|---|---|
| Afghanistan | Egypt | Mauritania | Syrian Arab Republic |
| Albania | El Salvador | Mauritius | São Tomé and Principe |
| Algeria | Eritrea | Mexico | Tajikistan |
| American Samoa | Ethiopia | Micronesia | Tanzania |
| Angola | Fiji | Moldova | Thailand |
| Antigua and Barbuda | Gabon | Mongolia | The Gambia |
| Argentina | Georgia | Montenegro | Timor-Leste |
| Armenia | Ghana | Morocco | Togo |
| Azerbaijan | Grenada | Mozambique | Tonga |
| Bangladesh | Guatemala | Myanmar | Tunisia |
| Belarus | Guinea | Namibia | Turkey |
| Belize | Guinea-Bissau | Nepal | Turkmenistan |
| Benin | Guyana | Nicaragua | Tuvalu |
| Bhutan | Haiti | Niger | Uganda |
| Bolivia | Honduras | Nigeria | Ukraine |
| Bosnia and Herzegovina | India | Pakistan | Uruguay |
| Botswana | Indonesia | Palau | Uzbekistan |
| Brazil | Islamic Rep. of Iran | Panama | Vanuatu |
| Bulgaria | Iraq | Papua New Guinea | Venezuela |
| Burkina Faso | Jamaica | Paraguay | Viet Nam |
| Cambodia | Kazakhstan | Philippines | Yemen |
| Cameroon | Kenya | Romania | Zambia |
| Cape Verde | Kiribati | Russian Federation | Zimbabwe |
| Central African Republic | Kosovo | Rwanda | |
| Chad | Kyrgyz Republic | Samoa | |
| Chile | Lao PDR | Senegal | |
| China | Latvia | Serbia | |
| Colombia | Lebanon | Seychelles | |
| Comoros | Lesotho | Sierra Leone | |
| Congo | Liberia | Solomon Islands | |
| Costa Rica | Libya | Somalia | |
| Cuba | Lithuania | South Africa | |
| Côte d'Ivoire | Macedonia | South Sudan | |
| Dem. Rep. of the Congo | Madagascar | Sri Lanka | |
| Dem. Rep. of Korea | Malawi | St. Lucia | |
| Djibouti | Malaysia | St. Vincent and Grenadines | |
| Dominica | Maldives | Sudan | |
| Dominican Republic | Mali | Suriname | |
| Ecuador | Marshall Islands | Swaziland | |

**Annex table 4. OLS regression of poverty indexes at poverty line of $1.25 per day (PPP)**

| Explanatory variables | Dependent variable is poverty rate (%) | | | | Dependent variable is poverty gap index (%) | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Documents required for exporting (number) | 0.915** (0.439) | | | | 0.341 (0.232) | | | |
| Documents required for exporting (number) | | 1.229*** (0.297) | | | | 0.537*** (0.153) | | |
| Time taken to export (days) | | | 0.177*** (0.051) | | | | 0.071*** (0.025) | |
| Time taken to import (days) | | | | 0.202*** (0.050) | | | | 0.089*** (0.026) |
| Population density (people/km²) | 0.018*** (0.006) | 0.018*** (0.006) | 0.019*** (0.006) | 0.016*** (0.005) | 0.007** (0.003) | 0.007** (0.003) | 0.007** (0.003) | 0.006** (0.002) |
| 2005 | Base omitted | | | | Base omitted | | | |
| 2006 | -0.613 (2.329) | -0.216 (2.323) | -0.257 (2.235) | -0.434 (2.150) | 0.656 (1.310) | 0.823 (1.300) | 0.795 (1.283) | 0.728 (1.230) |
| 2007 | -3.196 (2.639) | -2.417 (2.550) | -2.776 (2.612) | -2.161 (2.554) | -0.781 (1.173) | -0.440 (1.146) | -0.613 (1.172) | -0.326 (1.148) |
| 2008 | -3.147 (1.989) | -2.292 (1.906) | -2.301 (1.944) | -1.688 (1.982) | -0.789 (0.954) | -0.413 (0.926) | -0.451 (0.960) | -0.144 (0.982) |
| 2009 | -6.809*** (2.155) | -5.720*** (2.058) | -6.408*** (2.062) | -5.657*** (2.090) | -2.463** (1.012) | -1.978** (0.972) | -2.299** (0.992) | -1.946* (1.006) |
| 2010 | 0.758 (3.131) | 1.453 (3.069) | 1.724 (3.100) | 2.522 (3.142) | 1.101 (1.848) | 1.437 (1.851) | 1.500 (1.856) | 1.911 (1.865) |

**An2nex table 4. (continued)**

| Explanatory variables | Dependent variable is poverty rate (%) | | | | Dependent variable is poverty gap index (%) | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| East Asia and the Pacific | Base omitted | | | | | | | |
| Europe and Central Asia | -15.125*** | -15.460*** | -15.403*** | -15.774*** | -3.398*** | -3.614*** | -3.537*** | -3.756*** |
| | (2.599) | (2.545) | (2.457) | (2.351) | (0.698) | (0.688) | (0.646) | (0.621) |
| Latin America and Caribbean | -9.595*** | -9.031*** | -9.108*** | -9.466*** | -0.546 | -0.305 | -0.354 | -0.495 |
| | (2.587) | (2.518) | (2.445) | (2.329) | (0.742) | (0.746) | (0.704) | (0.660) |
| Middle East and North Africa | -16.211*** | -16.292*** | -17.276*** | -17.989*** | -3.838*** | -3.876*** | -4.263*** | -4.622*** |
| | (2.923) | (2.767) | (2.949) | (3.012) | (0.795) | (0.751) | (0.854) | (0.914) |
| South Asia | 1.712 | 1.574 | 1.755 | 1.877 | -0.823 | -1.010 | -0.858 | -0.883 |
| | (3.905) | (3.748) | (3.840) | (3.653) | (1.364) | (1.242) | (1.239) | (1.136) |
| Sub-Saharan Africa | 27.255*** | 25.980*** | 26.520*** | 24.617*** | 14.306*** | 13.654*** | 13.974*** | 13.047*** |
| | (4.848) | (4.722) | (4.701) | (4.738) | (2.418) | (2.360) | (2.336) | (2.318) |
| Constant | 11.888*** | 7.541** | 13.389*** | 12.215*** | 1.562 | -0.733 | 1.998 | 1.291 |
| | (4.210) | (3.695) | (3.149) | (3.173) | (1.955) | (1.674) | (1.222) | (1.294) |
| Observations | 224 | 224 | 224 | 224 | 224 | 224 | 224 | 224 |
| R-squared | 0.686 | 0.703 | 0.697 | 0.706 | 0.564 | 0.583 | 0.574 | 0.586 |

*Source*: Author's estimation, based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Annex table 5. OLS regression of poverty indexes at the poverty line of $2 per day (PPP)**

| Explanatory variables | Dependent variable is poverty rate (%) | | | | Dependent variable is poverty gap index (%) | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Documents required for exporting (number) | 1.705*** (0.577) | | | | 0.703** (0.315) | | | |
| Documents required for importing (number) | | 1.783*** (0.422) | | | | 0.910*** (0.214) | | |
| Time taken to export (days) | | | 0.314*** (0.079) | | | | 0.137*** (0.038) | |
| Time taken to import (days) | | | | 0.317*** (0.066) | | | | 0.154*** (0.036) |
| Population density (people/km²) | 0.017** (0.007) | 0.016** (0.007) | 0.018*** (0.007) | 0.014* (0.007) | 0.011*** (0.004) | 0.011*** (0.004) | 0.011*** (0.004) | 0.010*** (0.004) |
| 2005 | Base omitted | | | | Base omitted | | | |
| 2006 | -3.700 (2.941) | -3.089 (2.970) | -3.062 (2.746) | -3.393 (2.719) | -0.428 (1.710) | -0.133 (1.706) | -0.154 (1.634) | -0.291 (1.572) |
| 2007 | -6.810* (3.627) | -5.683 (3.511) | -6.066* (3.521) | -5.191 (3.470) | -2.416 (1.855) | -1.839 (1.791) | -2.091 (1.832) | -1.628 (1.788) |
| 2008 | -6.531** (2.814) | -5.311* (2.723) | -5.036* (2.704) | -4.258 (2.779) | -2.346 (1.434) | -1.715 (1.373) | -1.692 (1.403) | -1.235 (1.432) |
| 2009 | -11.045*** (3.192) | -9.526*** (3.095) | -10.347*** (2.968) | -9.281*** (3.027) | -4.955*** (1.557) | -4.153*** (1.488) | -4.644*** (1.484) | -4.077*** (1.503) |
| 2010 | -2.697 (3.565) | -1.892 (3.372) | -1.027 (3.414) | -0.077 (3.506) | 0.325 (2.316) | 0.826 (2.270) | 1.076 (2.295) | 1.666 (2.322) |

**Annex table 5.** *(continued)*

| Explanatory variables | Dependent variable is poverty rate (%) | | | | Dependent variable is poverty gap index (%) | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| East Asia and the Pacific | Base omitted | | | | Base omitted | | | |
| Europe and Central Asia | -32.786*** | -32.834*** | -33.184*** | -33.489*** | -11.317*** | -11.536*** | -11.539*** | -11.806*** |
| | (4.955) | (4.878) | (4.703) | (4.542) | (1.866) | (1.829) | (1.755) | (1.676) |
| Latin America and Caribbean | -25.407*** | -24.557*** | -24.537*** | -25.182*** | -7.055*** | -6.636*** | -6.679*** | -6.957*** |
| | (4.925) | (4.747) | (4.636) | (4.461) | (1.873) | (1.815) | (1.759) | (1.669) |
| Middle East and North Africa | -30.088*** | -30.189*** | -31.972*** | -32.863*** | -11.444*** | -11.503*** | -12.268*** | -12.798*** |
| | (5.835) | (5.577) | (5.691) | (5.772) | (2.142) | (2.021) | (2.139) | (2.187) |
| South Asia | 9.895 | 10.507 | 10.148 | 10.735 | 1.953 | 1.906 | 1.975 | 2.091 |
| | (6.532) | (6.616) | (6.608) | (6.515) | (2.705) | (2.646) | (2.667) | (2.556) |
| Sub-Saharan Africa | 23.951*** | 22.706*** | 22.779*** | 20.248*** | 18.860*** | 17.957*** | 18.282*** | 16.858*** |
| | (6.430) | (6.246) | (6.109) | (6.142) | (3.480) | (3.381) | (3.348) | (3.355) |
| Constant | 32.571*** | 28.793*** | 35.780*** | 34.892*** | 9.440*** | 6.392** | 10.564*** | 9.724*** |
| | (6.718) | (6.051) | (5.398) | (5.296) | (3.054) | (2.662) | (2.265) | (2.260) |
| Observations | 224 | 224 | 224 | 224 | 224 | 224 | 224 | 224 |
| R-squared | 0.721 | 0.734 | 0.737 | 0.742 | 0.675 | 0.693 | 0.689 | 0.698 |

*Source:* Author's estimation, based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

**Annex table 6. OLS regression of GDP per capita, PPP (constant 2005 international $) and Gini index**

| Explanatory variables | Dependent variable is log of GDP per capita | | | | Dependent variable is Gini index | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| Documents required for exporting (number) | -0.106*** (0.023) | | | | 0.029 (0.201) | | | |
| Documents required for importing (number) | | -0.084*** (0.020) | | | | 0.016 (0.177) | | |
| Time taken to export (days) | | | -0.019*** (0.004) | | | | -0.042* (0.023) | |
| Time taken to import (days) | | | | -0.018*** (0.003) | | | | -0.023 (0.025) |
| Population density (people/km²) | -0.001*** (0.000) | -0.001*** (0.000) | -0.001*** (0.000) | -0.001*** (0.000) | -0.002 (0.002) | -0.002 (0.002) | -0.002 (0.002) | -0.002 (0.002) |
| 2005 | Base omitted | | | | | | | |
| 2006 | 0.024 (0.130) | -0.006 (0.134) | -0.015 (0.120) | 0.005 (0.122) | 0.734 (1.215) | 0.741 (1.216) | 0.676 (1.219) | 0.729 (1.223) |
| 2007 | 0.082 (0.145) | 0.035 (0.145) | 0.037 (0.143) | -0.012 (0.142) | 0.156 (1.219) | 0.167 (1.198) | 0.060 (1.194) | 0.038 (1.197) |
| 2008 | 0.115 (0.120) | 0.061 (0.119) | 0.025 (0.112) | -0.012 (0.116) | -0.650 (1.125) | -0.641 (1.140) | -0.864 (1.135) | -0.826 (1.160) |
| 2009 | 0.180 (0.149) | 0.118 (0.149) | 0.137 (0.133) | 0.078 (0.138) | -0.088 (1.316) | -0.076 (1.311) | -0.218 (1.287) | -0.240 (1.310) |
| 2010 | 0.098 (0.175) | 0.073 (0.162) | 0.001 (0.149) | -0.040 (0.158) | -1.372 (1.413) | -1.369 (1.423) | -1.718 (1.396) | -1.651 (1.432) |

**Annex table 6. (continued)**

| Explanatory variables | Dependent variable is log of GDP per capita | | | | Dependent variable is Gini index | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 1 | Model 2 | Model 3 | Model 4 |
| East Asia and the Pacific | Base omitted | | | | | | | |
| Europe and Central Asia | 0.667*** (0.149) | 0.644*** (0.149) | 0.685*** (0.133) | 0.688*** (0.131) | -6.073*** (1.266) | -6.070*** (1.278) | -5.758*** (1.280) | -5.825*** (1.302) |
| Latin America and Caribbean | 0.648*** (0.138) | 0.611*** (0.133) | 0.595*** (0.126) | 0.630*** (0.122) | 11.173*** (1.233) | 11.167*** (1.231) | 11.040*** (1.202) | 11.187*** (1.210) |
| Middle East and North Africa | 0.198 (0.180) | 0.231 (0.170) | 0.303 (0.192) | 0.325* (0.194) | -3.967** (1.549) | -3.981*** (1.528) | -3.741** (1.447) | -3.740** (1.500) |
| South Asia | -0.075 (0.180) | -0.174 (0.200) | -0.095 (0.176) | -0.133 (0.190) | -5.739*** (1.804) | -5.717*** (1.799) | -5.232*** (1.827) | -5.439*** (1.828) |
| Sub-Saharan Africa | -0.818*** (0.227) | -0.794*** (0.223) | -0.755*** (0.214) | -0.636*** (0.221) | 3.947* (2.033) | 3.945* (2.096) | 4.476** (2.037) | 4.480** (2.152) |
| Constant | 8.948*** (0.228) | 8.946*** (0.229) | 8.732*** (0.193) | 8.752*** (0.183) | 40.300*** (2.115) | 40.379*** (2.082) | 41.630*** (1.478) | 41.143*** (1.547) |
| Observations | 222 | 222 | 222 | 222 | 217 | 217 | 217 | 217 |
| R-squared | 0.543 | 0.548 | 0.594 | 0.591 | 0.660 | 0.660 | 0.665 | 0.662 |

*Source:* Author's estimation, based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

**Annex table 7. OLS regression of poverty rate at poverty line of $1.25 per day (PPP)**

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Efficiency of customs clearance process | -13.82*** (5.06) | | | | | | |
| Quality of trade and transport-related infrastructure | | -4.36 (5.40) | | | | | |
| Ease of arranging competitively priced shipments | | | -2.60 (4.89) | | | | |
| Competence and quality of logistics services | | | | -8.48** (3.93) | | | |
| Frequency shipments reach consignee within schedule | | | | | -15.26*** (4.70) | | |
| Ability to track and trace consignments | | | | | | -12.27*** (3.52) | |
| Overall logistic performance index | | | | | | | -11.48*** (4.18) |
| Population density (people per km$^2$ of land area) | 0.026*** (0.004) | 0.024*** (0.005) | 0.024*** (0.005) | 0.023*** (0.004) | 0.029*** (0.005) | 0.025*** (0.004) | 0.026*** (0.005) |
| Year 2010 | 3.20 (3.77) | 2.93 (3.58) | 3.05 (3.83) | 3.15 (3.70) | 8.21* (4.38) | 5.52 (3.75) | 4.75 (3.87) |
| East Asia and the Pacific | Base omitted | | | | | | |
| Europe and Central Asia | -21.95*** (3.70) | -20.83*** (5.63) | -19.95*** (6.04) | -20.87*** (4.84) | -22.18*** (3.87) | -21.97*** (4.40) | -21.52*** (4.22) |

**Annex table 7. *(continued)***

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Latin America and Caribbean | -16.71*** | -16.44*** | -16.10** | -15.94*** | -16.24*** | -16.82*** | -16.43*** |
| | (3.82) | (5.61) | (6.04) | (4.99) | (3.88) | (4.53) | (4.38) |
| Middle East and North Africa | -24.22*** | -21.36*** | -20.53*** | -23.53*** | -23.78*** | -29.24*** | -23.24*** |
| | (4.19) | (5.71) | (6.42) | (4.81) | (3.93) | (4.82) | (4.35) |
| South Asia | -11.18 | -8.78 | -7.94 | -8.32 | -14.37** | -11.28* | -11.01 |
| | (6.66) | (7.28) | (7.45) | (6.93) | (6.96) | (6.47) | (6.77) |
| Sub-Saharan Africa | 33.50*** | 34.35*** | 35.46*** | 33.03*** | 30.42*** | 30.78*** | 32.57*** |
| | (10.69) | (11.40) | (11.90) | (10.87) | (9.58) | (10.50) | (10.89) |
| Constant | 53.34*** | 30.53** | 26.30* | 41.29*** | 66.64*** | 52.64*** | 49.79*** |
| | (12.05) | (13.72) | (13.12) | (10.16) | (14.27) | (9.14) | (10.61) |
| Observations | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| R-squared | 0.798 | 0.768 | 0.766 | 0.782 | 0.827 | 0.805 | 0.790 |

*Source:* Author's estimation, based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

**Annex table 8. OLS regression of poverty gap at poverty line of $1.25 per day (PPP)**

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Efficiency of customs clearance process | -4.58** (2.19) | | | | | | |
| Quality of trade and transport-related infrastructure | | 0.42 (2.28) | | | | | |
| Ease of arranging competitively priced shipments | | | 1.37 (2.31) | | | | |
| Competence and quality of logistics services | | | | -2.54* (1.43) | | | |
| Frequency shipments reach consignee within schedule | | | | | -6.42** (2.43) | | |
| Ability to track and trace consignments | | | | | | -4.55*** (1.56) | |
| Overall logistic performance index | | | | | | | -3.30** (1.61) |
| Population density (people per km$^2$ of land area) | 0.008*** (0.002) | 0.007*** (0.002) | 0.006** (0.002) | 0.007*** (0.002) | 0.010*** (0.002) | 0.008*** (0.002) | 0.008*** (0.002) |
| Year 2010 | 1.47 (2.18) | 1.15 (1.99) | 0.86 (2.09) | 1.43 (2.12) | 3.65 (2.57) | 2.36 (2.20) | 1.88 (2.23) |
| East Asia and the Pacific | Base omitted | | | | | | |
| Europe and Central Asia | -4.91*** (1.04) | -4.10** (1.93) | -4.11* (2.10) | -4.52*** (1.29) | -5.20*** (1.27) | -5.00*** (1.29) | -4.69*** (1.16) |

**Annex table 8.** *(continued)*

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Latin America and Caribbean | -2.68** | -2.45 | -2.48 | -2.43* | -2.54* | -2.75* | -2.57* |
| | (1.20) | (1.88) | (2.12) | (1.44) | (1.28) | (1.41) | (1.32) |
| Middle East and North Africa | -5.91*** | -4.86** | -5.20** | -5.60*** | -6.00*** | -7.89*** | -5.49*** |
| | (1.54) | (1.98) | (2.25) | (1.50) | (1.43) | (1.90) | (1.45) |
| South Asia | -3.67* | -2.07 | -1.71 | -2.67 | -5.39** | -3.87* | -3.43* |
| | (1.99) | (2.20) | (2.50) | (1.84) | (2.39) | (1.92) | (1.92) |
| Sub-Saharan Africa | 19.76*** | 20.65*** | 20.69*** | 19.69*** | 18.26*** | 18.66*** | 19.59*** |
| | (6.03) | (6.13) | (6.19) | (5.96) | (5.45) | (5.82) | (6.08) |
| Constant | 15.26*** | 3.07 | 0.64 | 10.56*** | 23.86*** | 16.30*** | 12.76*** |
| | (5.23) | (6.08) | (6.40) | (3.88) | (7.41) | (4.22) | (4.27) |
| Observations | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| R-squared | 0.709 | 0.691 | 0.694 | 0.699 | 0.745 | 0.718 | 0.702 |

*Source:* Author's estimation, based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

**Annex table 9. OLS regression of log of GDP per capita, PPP (constant 2005 international $)**

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Efficiency of customs clearance process | 1.20***<br>(0.22) | | | | | | |
| Quality of trade and transport-related infrastructure | | 1.19***<br>(0.20) | | | | | |
| Ease of arranging competitively priced shipments | | | 0.82***<br>(0.21) | | | | |
| Competence and quality of logistics services | | | | 1.08***<br>(0.19) | | | |
| Frequency shipments reach consignee within schedule | | | | | 1.03***<br>(0.21) | | |
| Ability to track and trace consignments | | | | | | 0.98***<br>(0.20) | |
| Overall logistic performance index | | | | | | | 1.26***<br>(0.19) |
| Population density (people per km$^2$ of land area) | -0.001**<br>(0.000) | -0.001***<br>(0.000) | -0.001***<br>(0.000) | -0.001*<br>(0.000) | -0.001***<br>(0.000) | -0.001**<br>(0.000) | -0.001***<br>(0.000) |
| Year 2010 | -0.03<br>(0.14) | -0.10<br>(0.14) | -0.16<br>(0.19) | -0.05<br>(0.14) | -0.35*<br>(0.19) | -0.21<br>(0.17) | -0.21<br>(0.15) |
| East Asia and Pacific | Base omitted | | | | | | |
| Europe and Central Asia | 0.91***<br>(0.20) | 1.01***<br>(0.20) | 0.78***<br>(0.28) | 0.86***<br>(0.24) | 0.89***<br>(0.23) | 0.90***<br>(0.27) | 0.92***<br>(0.21) |

**Annex table 9.** *(continued)*

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Latin America and Caribbean | 0.93*** | 0.97*** | 0.88*** | 0.86*** | 0.89*** | 0.94*** | 0.92*** |
| | (0.15) | (0.17) | (0.23) | (0.20) | (0.20) | (0.22) | (0.17) |
| Middle East and North Africa | 0.60*** | 0.39** | 0.14 | 0.63*** | 0.51** | 0.97*** | 0.56*** |
| | (0.16) | (0.15) | (0.25) | (0.19) | (0.19) | (0.23) | (0.16) |
| South Asia | 0.28 | 0.42 | 0.23 | 0.09 | 0.41 | 0.26 | 0.36 |
| | (0.36) | (0.33) | (0.36) | (0.36) | (0.33) | (0.32) | (0.33) |
| Sub-Saharan Africa | -0.90*** | -0.71** | -1.00*** | -0.75** | -0.74** | -0.70** | -0.75** |
| | (0.29) | (0.30) | (0.37) | (0.29) | (0.31) | (0.30) | (0.29) |
| Constant | 5.17*** | 5.14*** | 6.02*** | 5.36*** | 4.94*** | 5.48*** | 4.80*** |
| | (0.55) | (0.50) | (0.53) | (0.49) | (0.64) | (0.51) | (0.50) |
| Observations | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| R-squared | 0.725 | 0.740 | 0.680 | 0.743 | 0.742 | 0.727 | 0.754 |

*Source:* Author's estimation, based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

**Annex table 10. OLS regression of log of export volume**

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Efficiency of customs clearance process | 1.95** (0.80) | | | | | | |
| Quality of trade and transport-related infrastructure | | 2.93*** (0.53) | | | | | |
| Ease of arranging competitively priced shipments | | | 1.64** (0.64) | | | | |
| Competence and quality of logistics services | | | | 2.30*** (0.50) | | | |
| Frequency shipments reach consignee within schedule | | | | | 1.70*** (0.51) | | |
| Ability to track and trace consignments | | | | | | 1.64*** (0.56) | |
| Overall logistic performance index | | | | | | | 2.52*** (0.63) |
| Population density (people per km$^2$ of land area) | -0.002 (0.001) | -0.001 (0.001) | -0.002* (0.001) | -0.001 (0.001) | -0.002* (0.001) | -0.001 (0.001) | -0.001 (0.001) |
| Year 2010 | 0.00 (0.36) | -0.12 (0.32) | -0.22 (0.41) | 0.01 (0.33) | -0.58 (0.42) | -0.30 (0.45) | -0.37 (0.39) |
| East Asia and the Pacific | Base omitted | | | | | | |
| Europe and Central Asia | -1.44* (0.76) | -0.79 (0.72) | -1.59* (0.82) | -1.27 (0.81) | -1.53* (0.86) | -1.44* (0.84) | -1.16 (0.80) |

**Annex table 10. (continued)**

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Latin America and Caribbean | -1.16 | -0.80 | -1.22* | -1.13 | -1.27 | -1.14 | -0.98 |
| | (0.73) | (0.68) | (0.72) | (0.74) | (0.76) | (0.77) | (0.74) |
| Middle East and North Africa | -0.93 | -1.01 | -1.73** | -0.57 | -1.10 | -0.27 | -0.71 |
| | (0.92) | (1.00) | (0.83) | (1.09) | (0.93) | (1.10) | (0.99) |
| South Asia | 0.67 | 0.73 | 0.73 | -0.08 | 0.95 | 0.67 | 0.76 |
| | (1.40) | (0.91) | (1.33) | (1.08) | (1.42) | (1.56) | (1.21) |
| Sub-Saharan Africa | -3.56*** | -2.29** | -3.42*** | -2.68** | -3.35*** | -3.13*** | -2.86*** |
| | (0.94) | (1.01) | (1.12) | (1.05) | (1.01) | (0.99) | (1.01) |
| Constant | 19.73*** | 16.90*** | 20.27*** | 18.39*** | 19.30*** | 20.07*** | 17.65*** |
| | (2.43) | (1.70) | (2.10) | (1.78) | (2.00) | (2.04) | (2.14) |
| Observations | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| R-squared | 0.465 | 0.606 | 0.460 | 0.559 | 0.494 | 0.476 | 0.540 |

*Source:* Author's estimation, based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Annex table 11. OLS regression of Gini index**

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Efficiency of customs clearance process | 0.97 (2.96) | | | | | | |
| Quality of trade and transport-related infrastructure | | 3.87* (2.06) | | | | | |
| Ease of arranging competitively priced shipments | | | 4.31** (1.60) | | | | |
| Competence and quality of logistics services | | | | 4.17** (1.80) | | | |
| Frequency shipments reach consignee within schedule | | | | | 2.01 (1.80) | | |
| Ability to track and trace consignments | | | | | | 1.88 (2.03) | |
| Overall logistic performance index | | | | | | | 3.66* (2.06) |
| Population density (people per km$^2$ of land area) | -0.004 (0.003) | -0.005** (0.002) | -0.006** (0.003) | -0.004* (0.002) | -0.005* (0.003) | -0.004 (0.003) | -0.005* (0.003) |
| Year 2010 | -1.82 (1.50) | -2.16 (1.46) | -2.76* (1.53) | -2.06 (1.48) | -2.50 (1.66) | -2.25 (1.62) | -2.46 (1.52) |
| East Asia and the Pacific | Base omitted | | | | | | |
| Europe and Central Asia | -7.33* (3.94) | -6.78** (3.16) | -7.74*** (2.45) | -7.14** (2.69) | -7.17** (3.55) | -7.34** (3.47) | -7.17** (2.95) |

**Annex table 11. (continued)**

| Explanatory variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Latin America and Caribbean | 10.98*** | 10.99*** | 10.39*** | 10.65*** | 10.95*** | 10.87*** | 10.79*** |
| | (3.82) | (2.98) | (2.45) | (2.63) | (3.43) | (3.38) | (2.84) |
| Middle East and North Africa | -1.60 | -1.87 | -3.38 | -0.86 | -1.48 | -0.76 | -1.41 |
| | (4.18) | (3.35) | (2.75) | (3.27) | (3.76) | (4.13) | (3.29) |
| South Asia | -2.42 | -0.81 | -1.16 | -1.65 | -1.62 | -2.13 | -1.31 |
| | (4.45) | (3.59) | (2.94) | (2.93) | (4.08) | (3.85) | (3.42) |
| Sub-Saharan Africa | 0.00 | 0.87 | -0.16 | 0.98 | 0.54 | 0.42 | 0.61 |
| | (4.23) | (3.50) | (2.88) | (3.22) | (3.99) | (3.97) | (3.41) |
| Constant | 38.75*** | 31.74*** | 30.72*** | 30.70*** | 34.93*** | 36.25*** | 31.77*** |
| | (8.94) | (6.65) | (5.16) | (5.84) | (7.30) | (7.07) | (6.84) |
| Observations | 51 | 51 | 51 | 51 | 51 | 51 | 51 |
| R-squared | 0.776 | 0.791 | 0.802 | 0.798 | 0.781 | 0.780 | 0.789 |

*Source:*  Author's estimation, based on the World Bank database.

Heteroskedasticity-robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

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# Chapter IV

# Trade facilitation and poverty reduction:
# China-ASEAN region case study

*Laping Wu*

## A. Trade facilitation and its impacts on poverty

Zhongying Sun (2009) applied a gravity model in his study of the role of trade facilitation; the results showed that the elasticities were different for the various trade facilitation measures. Port efficiency has positive effects in bilateral trade, both for importers and for exporters. Juanjuan Xie and Jing Yue (2011) made an empirical analysis of China-ASEAN trade using a gravity model. Junlan Shang and Ping Zhou (2012) also constructed a gravity model to analyse the impacts of trade facilitation on China-ASEAN trade, they also studied the impacts of trade facilitation on Chinese trade, and compared trade facilitation and tariff reductions; the results showed that trade facilitation could improve trade much more than tariff reductions. Lin Sun and Xufei Xu (2011) measured trade facilitation from port efficiency, customs environment, regulation and e-commerce. The results showed that the level of Chinese trade facilitation is near the world average, but among ASEAN countries there is a big gap. Singapore is much higher than average while Malaysia, Thailand and Brunei Darussalam are also near the world average. Viet Nam and Indonesia are lower than average.

Lin Sun and Xufei Xu (2011) also constructed a gravity model to test the impacts of trade facilitation on trade. The results showed that since the ASEAN Free Trade Zone was implemented in 2010, trade facilitation has had significant effects on trade. Air transportation is closely and positively related to exports of manufactured products. A 1 per cent improvement in air transportation infrastructure results in a 1.48 per cent increase in exports of manufactured products. However, the improvements both in customs procedures and in trade barriers are not significant. Finally, the author simulated the results of different forms of air transportation infrastructure. The results showed that when the infrastructure in all ASEAN members reaches an average level (5.2), exports of Chinese manufactures to ASEAN will increase by US$ 4.733 billion at a growth rate of 39.34 per cent. When ASEAN air transportation infrastructure reaches the highest level, exports of Chinese manufactures to ASEAN will increase by 70.95 per cent.

## B. Trade facilitation practices in China

This study focuses on four components of trade facilitation – transportation, customs clearance, institutions and policies, and e-commerce.

Transportation facilitation mainly refers to whether: (a) infrastructure, including ports, canals and other areas of water transportation, can meet business requirements; (b) air transport promotes the country's commercial development; and (c) infrastructure maintenance and development are scientifically planned and have adequate financial support.

Customs clearance refers to simplifying customs procedures through new technology in order to increase customs clearance efficiency.

Institutions and policies mainly refers to trade-related rules and policies, including whether: (a) competition-related laws and regulations limit unfair competition effectively; (b) the protection of intellectual property rights is fully implemented; (c) the legal and regulatory framework promotes the competitiveness of enterprises; (d) government policy is transparent; and (e) bureaucracy, bribery and corruption have hindered commercial and trading activities.

The last component is e-commerce, which includes the hardware and software environment for e-commerce development.

## 1. Overall development of trade facilitation practices in China

China has been continuously promoting trade facilitation as part of its reform and opening up process, from a single department to multiple departments, from a single link to multiple links, from the improvement of trade management to the extensive application of information technology, which has showed a high-level, wide-range, all-around feature. China first reformed foreign trade management on a large scale, and substantially reduced or removed the import quota. After joining the World Trade Organization (WTO), China's foreign trade policy has been inclined towards more active participation in regional trade and economic cooperation, such as implementing the China-ASEAN Free Trade Area, promoting trade and investment facilitation within the scope of the Shanghai Cooperation Organization, and actively pursuing transit transport agreement negotiations with the Russian Federation and Mongolia as well as making appropriate arrangements to boost the development of trade facilitation.

The amendment of the "Foreign Trade Law of the People's Republic of China" in 2004 both fulfilled its WTO commitments in advance and introduced the registration system for foreign traders, which created a more liberal foreign trade and business environment. In December 2011, the State Administration of Foreign Exchange and General Administration of Customs signed a memorandum of cooperation to jointly promote foreign exchange reform for goods trade, so that both sides could strengthen supervision and information exchange including import and export declaration data of enterprises, other electronic data concerning the receipt and payment for goods trading so that they can share data and effectively promote trade facilitation.

*(a)     Port efficiency in China*

Since a port is the gateway to a country, port efficiency is an essential component in ensuring national or regional economic development and social prosperity. With the accelerating development of global economic integration and trade liberalization, efficient port management and clearance procedures have increasingly become an important indicator for measuring a country's competitiveness. After years of effort, the modernization of Chinese ports has greatly improved, particularly in the case of the coastal ports which are now close to the advanced level found in developed countries. This is especially seen in port construction as well as loading and unloading equipment.

According to data released by the National Bureau of Statistics of China, from 2005 to 2010 China's investment in coastal port construction totalled more than RMB 350 billion, with a number of large-scale, specialized ports having been built along the Yangtze River, the Xijiang shipping trunk and the Beijing-Hangzhou Grand Canal. As of the end of 2010, there were 96 ports above designated size and 32,148 berths for production, of which 1,659 were able to handle ships of more than 10,000 metric tons (mt). Port berths have been developed in a large-scale and specialized direction.

The container throughput of the ports above designated size was 130.6 million TEUs. China's port throughput has been the global leader for six consecutive years and port construction has made remarkable progress. In 2011, the throughput at the top five Chinese ports was 691 million MT at Ningbo Port, 620 million MT at Shanghai Port, 451 million MT at Tianjin Port, 429 million MT at Guangzhou Port and 380 million MT at Suzhou Port.

In recent years, China Air Transport has also developed rapidly. The Civil Aviation Administration of China signed air services agreements with 114 countries and regions at the beginning of 2012, including 43 Asian countries and regions. China's aviation transportation enterprises have opened up 443 international routes while navigable cities have reached 125 around the world. Asian regional routes totalled 143 to just 29 Asian cities. China and ASEAN member countries have opened up the third and fourth traffic rights, and close communications have been maintained between China and North-East Asian countries – including Japan and the Republic of Korea – in order to ensure that the bilateral air transportation relationship is improved.

The "Port Law of the People's Republic of China", which came into effect at the beginning of 2004, adjusted the administrative system of the Chinese ports and established an administration system that ports were administrated directly by the local governments and separated government functions from commercial business. According to the National Plan for Coastal Ports, which was jointly issued by Ministry of Transportation and the National Development and Reform Commission in 2006, national coastal ports will be divided into five groups – Bohai Rim, Yangtze River delta, the south-eastern coast, the Pearl River delta and the south-western coast – in terms of port situation in the region, transportation relations among ports and the rationality of the main cargo transport. At the same time, the national coastal ports have formed eight transportation systems for coal,

petroleum, iron ore, containers, food, commercial automobiles and passenger transport. Recently, coastal ports have been gradually forming a convenient and efficient waterway system for passenger and freight transportation, which has a rational layout, a clear structure, explicit functions and resource saving features. The overall competitiveness of China's coastal ports has significantly improved, based on adaptation to the development of the country's economic, social, trade and defence requirements.

At present, most of the ports in China are attempting to use container tags and to implement the intelligent management of container transport, which has greatly enhanced the efficiency of container clearance and unloading, and the improvement of transportation security.

Together with the advancement of the China-ASEAN Free Trade Area and the continued growth of trade in the region, shipping demand is growing, resulting in higher demand for port services. The theme of the Seventh Conference of Ministers of Transport in September 2011 was "APEC security, stability and sustainable balanced development", and unanimously adopted by the Joint Ministerial Statement of the Seventh Asia-Pacific Economic Cooperation (APEC) Transportation Ministerial Meeting. The Joint Declaration encourages members to further strengthen cooperation in the field of transportation, and to promote security, stability and sustainable growth of APEC transportation (APEC, 2004).

*(b)      Reform and development of China's customs procedures*

Customs is a key department in China's international trading. The efficiency of customs clearance procedures will affect trade costs directly and extensively. Therefore, many countries take active measures to reform their customs procedures in order to improve international trade. Trade facilitation in China became more important after the 2008 economic crisis because many exporting firms were hurt financially. Therefore, the Government makes easy policies to encourage private enterprises to invest in China and other countries. A unified customs control could be of great benefit to China as this would create a fair competition environment.

*(i)      Reform of China customs procedures*

The "Golden Customs Project", officially launched in 2001, is aimed at promoting electronic clearance in order to save time and costs. The core of "golden customs" comprises two parts: (a) an internal clearance system; and (b) an external port electronic system. As an important part of the "Golden Customs Project", the China Electronic Port has established a public data centre and data exchange platform that relies on the national public telecommunication network. Based on the electronic data interchange (EDI) centre, the customs network is connected with other government departments and enterprises such as the industry and commerce departments, as well as the administration of taxation, foreign exchange, quality control, transportation, banks and enterprises. It strengthens supervision and management, improves the efficiency of trade, reduces trading costs, and is of great significance to trade promotion.

In 2002, the Internet-connected big customs clearance system was implemented throughout China. Cooperation between bonded shipment areas and ports was also officially launched in the eastern coastal areas in 2004. This makes it possible to take full advantage of coastal ports and bonded areas to speed up the flow of goods and increase trade efficiency.

In 2005, regional customs reform in China was launched with the goal of facilitating imports and exports by integrating costal port and inland customs resources, standardizing and simplifying customs procedures, and reducing the costs and improving the efficiency of customs clearance. In October 2005, a trial inter-regional customs cooperation reform was launched in 11 areas: the Yangtze River delta, Pearl River delta and Bohai Rim region as well as Shanghai, Nanjing, Hangzhou, Ningbo, Guangzhou, Shenzhen, Beijing and Tianjin. In April 2007, seven cities – Tianjin, Shanghai, Fujian, Qingdao, Ningbo, Guangzhou and Shenzhen – jointly signed a "Customs Clearance Cooperation Framework Agreement between Coastal Port Provinces and Inland Six Provincial Ports". The agreement proposes the establishment of a cooperation platform between central regions and the coastal areas, and encourages innovating measures to simplify customs procedures and actively implement a 24-hour reservation system. For exports "apply at origin, check in port" has been introduced, which will save considerable time and costs.

(ii)    International cooperation

Chinese customs authorities have established friendly exchanges with 117 countries or regions. China has carried out extensive cooperation with ASEAN in capacity-building since 2003. In addition, the Chinese customs authorities continue to broaden cooperation, and promote China-United States and China-European Union exchanges in traditional areas, including law enforcement, statistics, country of origin requirements, technical cooperation and trade facilitation as well as anti-terrorism efforts and protection of intellectual property rights.

In addition, in order to promote the implementation of the World Customs Organization's (WCO) "International Trade Security and Facilitation Standards Framework", China and the European Union have jointly launched the "China-European Union Safe and Smart Trade Lanes Pilot Programme" and the "Authorised Economic Operator (AEO)", as well as promoting China-European Union trade facilitation.

(iii)   Reform of Ningbo bonded area

Reform of customs procedures is an important symbol of China's commitment to implementing trade facilitation. For example, after 20 years of exploration and development of the Special Zone, the Ningbo bonded area has become an important window to China's opening up and development of an export-oriented economy.

The Ningbo Free Trade Area, which was approved by the State Council in November 1992, is divided into three districts in the east, west and south, covering a total area of 2.3 km$^2$. It is the only bonded area in Zhejiang province. The region, which enjoys

a policy of "exempt, tax-free and bonded" and is supervised by the customs authorities, is one of the economic areas of China where policy is most favourable and the opening-up level is at the highest level. The bonded area has three main functions: import and export processing; international trade; and warehousing and logistics. In order to adapt to the rapid development of foreign trade, the Ningbo bonded area has implemented a series of reforms.

First, an application information management system has been developed for the customs area of Ningbo bonded area plus a Ningbo Export Processing Zone Customs information technology-assisted management system, a Ningbo Bonded Logistics Park information management system and other related systems. Ningbo is the first to implement a regional information management model among all the bonded areas in China. The regional "e-Customs" plays other roles too. Through these systems, goods, enterprises and the whole area are under the effective monitoring of the customs authorities. With this foundation, the area has been able to integrate and upgrade new information management systems for special supervised areas as well as accelerate the establishment of a smart card port clearance system, plus a carefully implemented "wise park" combined with a monitoring, clearance and information centre. Thus enterprises in the area can undertake all types of customs procedures.

**Table 1. Facilitation measures in the Ningbo bonded area**

| Department | Main content |
| --- | --- |
| National inspection and quarantine department | Implement the integrated application, collection, inspection and quarantine, charge, and clearance model in inspections and quarantine; pre-inspection for imports, thus saving considerable inspection time; electronic sampling of exports of electric appliances to save time and cost. |
| Foreign Exchange Management Department | Implement online annual checks and improve its efficiency. |
| Industry and Commerce Administrative Department | Develop query system software for administrative licences to save time for enterprises when registering and getting the market access registration service. |
| Taxation Department | Provide on-site service in the bonded area for enterprises to process receipt issues, and an online application and electronic taxation system to save time and taxation costs. |
| Other | Launch a pilot linkage project for the bonded zones, export processing zones and bonded logistics park zone in China first. Then establish a convenient goods transfer mechanism among customs offices in different areas. |

In order to support the restructuring and development of a regional "bonded economy", the Ningbo bonded area has also developed special regional clearance guidelines, and actively assists the bonded area administrative committee to attract investment. It also creates a special channel for local and special products, implements on-site inspection services, strongly supports enterprises in expanding goods exhibitions, and implements priority for declaration and clearance of imported wines and fruit in hot weather, thus creating a good customs environment.

In establishing the international trade demonstration area, the Ningbo bonded area gained strong support from many related government departments in establishing national inspection, foreign exchange, and business and the taxation as customs special supervised areas (table 3).

The Ningbo Free Trade Area Customs authorities have introduced and reformed customs procedures to enable paperless customs clearance, centralized declarations, advance declarations and classification clearance among other measures.

The average time for import clearance has been reduced from 10.2 hours to 7.7 hours, while export clearance has been lowered from 51 hours to 43.6 hours, thus saving time by about 20 per cent. Regulatory models are being optimized, to establish powerful regional electronic customs procedures and enhance the level of trade facilitation.

*(c)*     *Development of the Chinese institutional environment*

Since joining WTO in 2001, China has greatly strengthened its trade-related legislation. In 2004, the Foreign Trade Law was revised and international trade was liberalized. The rights and obligations of foreign traders are clearly defined and protected, and the import and export environment has been greatly improved. In accordance with WTO rules, China has revised and improved related laws and regulations, including the trade remedy system, customs supervision, and the import and export inspection and quarantine system.

In order to improve the fair competition environment, the Government of China has also enhanced the competition-related laws and regulations, including the Anti-monopoly Law, Anti-unfair Competition Law, Price Law, Advertising Law, Product Quality Law, Patent Law etc. Several laws have also been enacted and implemented for protecting intellectual property rights (IPR), including the country's patent, trademark and copyright laws.

China's customs authorities have established a perfect IPR enforcement system, including declaration auditing, inspection of imported and exported goods, detention and investigation of goods that infringe IPR, punishment for illegal imports and exports, and the disposal of such goods. In October 1995, China promulgated and implemented the Customs Protection of Intellectual Property Rights Regulations; then, in December 2003, these regulations were revised and the customs authorities were given more rights to punish illegal trade.

With regard to international cooperation on IPR protection, China actively participated in, and fulfilled the requirements of international protection of IPR conventions and treaties. Since joining the World Intellectual Property Organization (WIPO) in 1980, among more than 10 international conventions China has successively joined the Paris Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the Locarno Agreement Establishing an International Classification for Industrial Designs, the Madrid Agreement Concerning the International Registration of Marks, and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

The information of Import and Export management are published in the *International Business* newspaper. The Customs General Administration Office publishes China customs statistics, while customs regulations, import and export tariff rates, and customs procedures are published in the *Bulletin of the State Council* and other media sources.

(d)    *Development of E-commerce and the formulation of related laws*

(i)    *Development of e-commerce*

E-commerce in China has been developing rapidly since 2002. In many sectors, such as production, trade, transportation, finance and tourism, e-commerce is playing an ever-growing important role. Cross-border e-commerce is gaining more attention. Online purchases and sales by large enterprises are increasing, year by year. The e-commerce of small and medium-sized enterprises (SMEs) is also increasing rapidly, with the usage rate of online trading and marketing having reached 42.1 per cent in 2010. Online retail transactions are rising rapidly, with the average annual growth rate reaching 100.8 per cent between 2005 and 2010; in addition the share of total social retail sales of consumption goods is increasing year by year. The value of the online retail market reached RMB 192.4 billion in the second quarter of 2011; during the first half of that year, online retail transactions reached RMB 370.7 billion, an increase of 74 per cent compared with the same period in the previous year.

During the development of e-commerce, the related support systems have also advanced rapidly. From 2005 to 2010, the development of support systems such as the e-commerce platform service, credit service, e-pay, modern logistics and e-certification all accelerated. Related enterprises serving e-commerce, such as e-commerce information, transactions and technologies, are emerging; by 2010 the number reached 25,000. E-commerce information and the transaction platform are becoming more and more professional and integrated. The improvement of the social credit environment also contributes much towards credible e-commerce transactions. New payment service systems, such as online payment, mobile payment and telephone payment, are growing rapidly; in fact, the size of the third-party e-payment grew by nearly 60 times from 2005 to 2010. Meanwhile, modern logistics are developing rapidly during the expansion of e-commerce.

The rapid growth of e-commerce also benefits from the continuously improving economic circumstances. During the eleventh five-year period (2005-2010), the network infrastructure in China improved continuously with user numbers growing rapidly; by 2010 the Internet penetration rate had reached 34.3 per cent. In the same year, the total number of Internet users reached 457 million while the number of mobile phone users reached 859 million, of whom 47.05 million were 3G users. With the improvement of Internet services, user fees are gradually being lowered.

### (ii)    Policies to promote the development of e-commerce

In order to improve the development of e-commerce, the central Government has introduced a series of policies and regulations (table 2). With the new policies, laws and regulations on e-commerce in place, the e-commerce development environment is gradually emerging. The environment for e-commerce development is therefore becoming mature.

In summary, although China's trade facilitation has made great progress, it is still in its early stage. Compared both globally and with Asia, China's trade facilitation level is relatively low, and a big gap remains with developed countries in many aspects (e.g., the overload runs of ports, poor transparency of policies and the unbalanced development of e-commerce). The positive side of this situation is that China has great potential for improving its trade facilitation.

## C. China-ASEAN cooperation and trade facilitation practices

On 4 November 2002, the leaders of China and the 10 ASEAN countries signed the China-ASEAN Comprehensive Economic Cooperation Framework Agreement, which decided to implement the "early harvest" programme from 2004 in advance in order to reduce and cancel tariffs on 600 types of agricultural products. In 2003 China and ASEAN officially launched customs cooperation, and in recent years have made great achievements due to the efforts of both sides. A regular department consultation mechanism and expert customs coordination commission (CCC) have been established to promote the rules of origin negotiations between China and the ASEAN Free Trade Area.

On 29 November 2004, the Trade in Goods Agreement was signed, under which about 7,000 tariff lines were to be reduced from 20 July 2005. In 2009, China's tariff average on trade with ASEAN countries dropped to 2.4 per cent. In October 2009, at the China-ASEAN Customs and Business Cooperation Forum, the delegates signed the Nanning Initiative of China-ASEAN Trade Facilitation, and agreed to strengthen cooperation between China and the Free Trade Area countries. On 1 January 2010, the China-ASEAN Free Trade Area was fully established, and bilateral economic and trade relations entered a new stage.

**Table 2. E-commerce policies and regulations of China**

| Date | File name | Issues |
|---|---|---|
| August 2004 | Electronic Signature Law of the People's Republic of China | First law on information technology area to ensure security of electronic transactions, promote development of e-commerce and e-government in the legal system; create a favourable legal environment for e-commerce security certification, provide a foundation for a network trust system and electronic certification services sector. |
| January 2005 | Opinions on accelerating the development of electronic commerce by the Office of the State Council | Put forward five basic 2005 principles to speed up the development of e-commerce, i.e. five combinations – government and enterprise, environment creation and application extension, network economy and real economy, key points and overall development, the acceleration of development and strengthen of management. |
| April 2005 | Regulations on the Internet transaction platform service | First industry standards in China's e-commerce field to regulate e-commerce transactions, clarify rights and responsibilities of the traders, establish trade rules, and improve reliability and trust of e-commerce transactions. |
| May 2006 | National development strategy on e-commerce, 2006-2020 | Put forward an Action Plan for e-commerce development to create environment, improve policies, speed up establishment of credit, certification, standards, payment and logistics, and improve the information clearing system; explore the multi-level and wide range of the e-commerce development mode. |
| June 2007 | The eleventh five-year plan on electronic commerce development | Clarify the position of e-commerce and overall goals of e-commerce development in China; put forward the specific goals of e-commerce development from four aspects – to improve the level of e-commerce, foster the e-commerce service system, enhance the innovation ability of enterprises and improve the supporting environment. |
| March 2012 | The twelfth five-year plan on electronic commerce development | Put forward the overall goals of e-commerce during the twelfth five-year development, further promote them in 2015, improve contributions to the national economy and social development, increase the proportion of e-commerce in the modern service industry, perfect the e-commerce system and form a network business environment. |

*Data source:* Summarized by authors, based on on-line information. (The Central People's Government of People's Republic of China, http://www.gov.cn/).

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The China-ASEAN Economic and Trade Cooperation Report (2010-2011) showed that China had become the third-largest trading partner of ASEAN and that ASEAN was China's fourth-largest trading partner. Economic and trade activities between China and ASEAN countries are strongly complementary. With this expansion of China-ASEAN trade and economic relations, the reduction and elimination of obstacles to trade, the reduction of transaction costs and the establishment of an efficient trade facilitation system have become important issues.

## 1. Impacts of ASEAN trade facilitation on Chinese trade

ASEAN trade facilitation measures comprise two main characteristics. First, the ASEAN countries are emphasizing business partnerships and cooperation. The ASEAN customs authorities are taking the following measures to improve trade facilitation: (a) establish a single customs window to provide services and coordination between each member country; (b) standardize the trade declaration form among ASEAN members; (c) introduce electronic customs procedures to save time and reduce costs of customs clearance; and (d) standardize the commodity classification and valuation systems, in order to simplify ASEAN taxation regulations and promote customs transparency, stability and consistency. Following years of effort, the customs clearance time has been greatly reduced from several days to two hours. The Green/Fast Channel makes rapid customs clearance possible for a Common Effective Preferential Tariff (CEPT).

Second, ASEAN members have established a standard and consistent system; under this system international standards and quality management are applied. About 20 products, mainly electrical equipment have met the requirements of 59 related international standards. Seven unified standards and regulations for make-up technology have been formulated and put into effect. Public technical standards for medicine have also been established and implemented. Mutual Recognition Agreements can reduce repetitive detection and certification processes, thus reducing trading time and costs.

The trade facilitation measures taken by ASEAN have enabled China to become its biggest trade partner during the past three years. By the first half of 2012, ASEAN had invested US$ 4.55 billion in China at an annual growth rate of 27.5 per cent. Direct investment in China from ASEAN also increased to US$ 73.8 billion by the end of June 2012, accounting for 6 per cent of China's total foreign investment. China's border cities of Yunnan and Guangxi make full use of their advantageous locations, and benefit considerably from trade facilitation.

Trade between Yunnan and ASEAN members has an extensive history, and Yunnan has long been the trade frontier between China and South-East Asia and South Asia. The China-ASEAN Free Trade Area and Greater Mekong Subregion (GMS) economic corridor give Yunnan favourable developing opportunities. Before the Kun-Man (Kunming-Bangkok) highway was constructed, Yunnan exported vegetables and fresh-cut flowers through coastal ports; this meant that vegetable- and flower-producing companies had to rely on intermediate firms. As a result, a large part of profits went to the latter companies. However, since the opening of the Kun-Man highway in 2008, vegetables and flowers can be shipped

directly to ASEAN with most of the profit going to the producers. Yunnan also exports non-ferrous metal, electrical and agricultural products and electricity to ASEAN, and imports wood, tropical fruit, seafood and handicraft products from ASEAN with low or no customs duties. As a result, bilateral trade and investment between Yunnan and ASEAN has rapidly increased.

In general, trade facilitation has produced extensive benefits for Yunnan. For example, it previously took seven to eight days to ship fresh-cut flowers from Kunming to Bangkok; however, following the construction of the Kun-Man highway, shipments now take only three days. The transportation cost has also been reduced from RMB 7 to RMB 3. These improvements are due to the high efficiency of customs officials, standardized and unified inspections and quarantine, and convenient transportation.

Yunnan's electronic port system was initiated in June of 2009, enabling members to share information between different regions, sectors and industries; as a result, customs clearance is made more convenient and faster. Customs clearance can be completed within 30 seconds at the key national electronic Red River port, whereas in the past it took about 10 minutes. This has allowed the trade flow of goods to increase by four to six times. In addition, import and export costs have been reduced, helping to improve trade.

Pingxiang in Guangxi province has become one of the largest fruit import and export distribution centres. A logistics park for the China-ASEAN Free Trade Area was set up and the Pingxiang Integrated Free Trade Zone (bonded area) was established in 2011. Customs clearance is becoming more convenient.

## 2. Impacts of Chinese trade facilitation on ASEAN trade

China has given a commitment to improving the general administration of customs to boost trade facilitation with ASEAN in three areas:

(a) Strengthening cooperation and communications, the promotion of standard and unified customs supervision, co-operation in law enforcement and information exchange;

(b) Building a strategic cooperative partnership with ASEAN, related governments and business associations;

(c) Taking into consideration proposals on trade facilitation in WTO negotiations as well as actively promoting trade facilitation.

Currently, various measures are being taken by the Chinese customs authorities to promote convenient customs clearance for ASEAN goods. At Shenzhen, which is one of the main import centres for ASEAN goods, customs authorities now use an automatic clearance system. Following the implementation of this system, the clearance time for vehicle imports has been reduced from about two minutes to five seconds, which represents an increase of more than 20 times in efficiency.

In 2010, the customs service at Pingxiang Port and Dongxing Port of Guangxi autonomous zone began an online one-station clearance service as well as implementing preferential and convenient measures for imports and exports, and introduced a round-the-clock, no-holiday service and 24-hour application system. This has greatly reduced transaction costs and improved the development of trade between Guangxi and ASEAN.

Benefitting from formal cooperation between China and the ASEAN Free Trade Area as well as the implementation of China-ASEAN trade facilitation measures, in 2011 ASEAN became China's third-largest trading partner and source of imports. Bilateral trade between China and ASEAN reached US$ 362.85 billion in 2011. Compared with the low, decreased or zero growth of Chinese trade with other countries, bilateral trade between China and ASEAN has maintained a growth rate of 9.2 per cent. From January to June 2012, China-ASEAN bilateral trade amounted to US$ 187.82 billion, with an annual growth rate of 9.8 per cent, which is higher than the total foreign trade growth of China. Bilateral investment between China and ASEAN accumulated nearly US$ 93 billion. ASEAN has become an important destination of overseas investment by Chinese enterprises now. The major pattern of China-ASEAN Free Trade Region economic and trade cooperation is changing, such as the shift from the rapid growth of bilateral trade to bilateral investment.

In recent years, the trade surplus of ASEAN countries with China has increased significantly. For example, in 2001 Malaysia's trade surplus with China was US$ 2.98 billion and it continued to rise in each subsequent year to reach US$ 26.64 billion in 2010, which represented an increase of 792.63 per cent for that period (table 5). Thailand's trade surplus with China in 2001 was US$ 2.37 billion, rising to US$ 13.45 billion in 2010, an increase of 466.4 per cent. Trade between the other ASEAN members and China also increased considerably.

According to the Thai Bureau of Statistics, since the R3 highway was opened in April 2011, fruit exports from Thailand to China have increased by 100 per cent, with the trade value reaches more than Baht 722 million.

The 1,104-km R3 highway, which links Thailand's Chiang Rai Port with Boten Port in the Lao People's Democratic Republic and Mohan port of Yunnan province of China, has reduced transportation times to two or three days. The fresh fruit is distributed directly through the Yunnan market to south-western China, which is more convenient compared to the former distribution channel through the Guangzhou market.

China has also become Myanmar's largest trading partner. Myanmar Statistical Bureau data show that, from 2011 to 2012, the value of Myanmar's trade with China reached US$ 5.001 billion, of which imports from China accounted for US$ 2.786 billion and exports to China amounted to US$ 2.214 billion. Currently, 215 investment projects are underway in Myanmar. Fourteen of the projects with a total of some US$ 13.87 billion are by Chinese investors, placing them at the top of the investment list.

According to Viet Nam's customs statistics, that country's exports to China totalled US$ 6.1 billion during the first half of 2012. The main Vietnamese export commodities were:

cassava and its products (US$ 700 million); natural rubber (US$ 576 million); rice (US$ 459 million); cashew nuts (US$ 120 million); aquatic products (US$ 110 million); fruit and vegetables (US$ 90 million); and wood and wood products (US$ 56 million).

In the first half of 2012, Chinese investment in ASEAN totalled US$ 1.488 billion, an increase of 34.3 per cent over the same period in the previous year. Chinese investment in ASEAN has been broadened to include construction, hotels, and the electrical, mining and transportation industries. At the same time, ASEAN investment in China has been steadily expanding.

On 12 July 2012, at the East Asia Summit of Foreign Ministers in Phnom Penh, China's Foreign Minister Yang Jiechi stated that: "Transportation and communications are the focus of the Government of China [in order to] to improve cooperation between China and ASEAN, and China therefore will establish a Fund for China-ASEAN Investment Cooperation, the overall amount of which will reach US$ 10 billion to support ASEAN's infrastructure construction."

The investment projects include transportation, information and communications technology. In July 2011, the China-ASEAN Fund completed its equity investment in Thailand's largest port of Laem Chabang. In March of the same year and in June 2012, the China-ASEAN Fund invested in Cambodia's optical fibre communications network in order to assist the development of intraregional fibre-optic network and related businesses in the Indo-China Peninsula. In December 2010, the first investment by the China-ASEAN Fund was the purchase of the Philippines' largest and second-largest shipping companies.

The cooperation between China and ASEAN is comprehensive, involving not only trade, investment and technology cooperation, but also finance, culture, aviation, tourism, telecommunications, transportation, shipping and environmental protection, all of which have achieved remarkable progress.

The above analysis shows that international cooperation and trade facilitation measures between China and ASEAN members promote foreign investment, trade and economic development.

**Table 3. Imports and exports of China and 10 ASEAN members, 2003-2010**

(Unit: US$ million)

| Country | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|
| Singapore | 19 348.62 | 26 682.07 | 33 146.86 | 40 857.91 | 47 143.98 | 52 477.07 | 47 855.87 | 57 075.98 |
| Malaysia | 20 127.22 | 26 260.80 | 30 699.56 | 37 109.50 | 46 386.26 | 53 556.57 | 51 967.69 | 74 248.84 |
| Thailand | 12 654.75 | 17 342.09 | 16 787.28 | 27 726.49 | 34 638.12 | 41 293.09 | 38 190.82 | 52 937.02 |
| Indonesia | 10 228.95 | 13 472.09 | 16 787.28 | 19 055.45 | 24 997.82 | 31 516.05 | 28 388.76 | 42 750.28 |
| Philippines | 9 399.52 | 13 328.16 | 17 557.32 | 23 412.69 | 30 615.76 | 28 636.98 | 20 539.00 | 27 762.23 |
| Viet Nam | 4 639.45 | 6 742.02 | 8 196.74 | 9 949.44 | 15 117.58 | 19 858.45 | 21 045.18 | 30 086.08 |
| Myanmar | 1 079.74 | 1 145.38 | 1 209.25 | 1 460.07 | 2 077.84 | 2 625.32 | 2 900.12 | 4 442.07 |
| Cambodia | 320.65 | 481.70 | 563.34 | 732.85 | 933.99 | 1 134.37 | 944.15 | 1 440.97 |
| Lao PDR | 63.96 | 109.44 | 113.53 | 128.93 | 218.37 | 402.37 | 751.80 | 1 085.12 |
| Brunei Darussalam | 346.26 | 298.95 | 260.87 | 314.94 | 358.76 | 219.43 | 422.44 | 1 031.94 |

*Source:* Based on the *People's Republic of China Statistical Yearbook*.

**Table 4.Trade balance of China with 10 ASEAN countries**

(Unit: US$ million)

| Year | China to Brunei Darussalam | China to Cambodia | China to Indonesia | China to Lao PDR | China to Malaysia | China to Myanmar | China to the Philippines | China to Singapore | China to Thailand | China to Viet Nam |
|---|---|---|---|---|---|---|---|---|---|---|
| 2001 | -131.08 | 170.81 | -1 051.53 | 12.60 | -2 984.95 | 363.16 | -324.91 | 649.36 | -2 375.40 | -2 137.40 |
| 2002 | -220.79 | 227.01 | -1 081.90 | 46.95 | -4 322.09 | 587.86 | -1 174.92 | -62.34 | -2 642.25 | 2 032.49 |
| 2003 | -278.48 | 268.65 | -1 264.99 | 44.66 | -7 845.60 | 740.70 | -3 214.14 | -1 621.08 | -4 998.93 | 1 726.03 |
| 2004 | -203.17 | 421.84 | -959.25 | 87.04 | -10 088.68 | 731.50 | -4 790.72 | -1 306.87 | -5 738.93 | 1 778.04 |
| 2005 | -154.59 | 508.72 | -86.64 | 88.23 | -9 486.86 | 660.45 | -8 182.06 | 117.66 | -12 172.59 | 3 091.06 |
| 2006 | -115.68 | 662.67 | -156.03 | 77.83 | -10 035.36 | 954.77 | -11 936.43 | 5 512.67 | -8 198.37 | 4 977.28 |
| 2007 | -133.40 | 831.86 | 204.85 | 119.07 | -11 007.84 | 1 321.56 | -15 619.92 | 12 096.61 | -10 691.26 | 8 665.02 |
| 2008 | 41.66 | 1 056.71 | 2 870.18 | 133.85 | -10 646.23 | 1 330.22 | -10 372.51 | 12 134.55 | -10 020.39 | 10 785.81 |
| 2009 | 141.55 | 870.37 | 1 052.30 | 2.54 | -12 704.14 | 1 607.86 | -3 357.82 | 12 248.01 | -11 619.80 | 11 550.12 |
| 2010 | -296.72 | 1 253.71 | 1 156.85 | -117.87 | -26 644.76 | 2 508.97 | -4 681.71 | 7 618.48 | -13 454.86 | 16 117.00 |

*Source:*  Based on the *People's Republic of China Statistical Yearbook.*

# D. Impacts of trade facilitation on poverty

## 1. Impact of trade on poverty

Increase trade is one of the main channels through which trade facilitation benefits the poor.

Based on the methods of Shenggen Fan et al. (2002), in this study trade is incorporated into the model for building a system and studying the contribution of trade to poverty reduction by using provincial panel data for China from 2000 to 2008. The other factors affecting rural poverty reduction are also analysed in the models. For the details of the system model, see the annex.[33]

*(a)    The effects of agricultural imports on poverty*

From the national perspective, elasticity of agricultural imports on poverty reduction is negative, which indicates that an increase in agricultural imports would worsen rural poverty in China. The elasticity of agricultural imports on poverty reduction is -0.05 (table 5), i.e., if agricultural imports increase by 1 per cent, the rural poverty index in China will increase by 0.05 per cent.

From the regional perspective, the marginal effects of agricultural imports on rural poverty, from high to low, are central, east and west. A large part of rural incomes in the central regions is derived from agriculture; therefore, farmers in the central region are affected to a great extent by agricultural imports.

### Table 5. Elasticity of agricultural imports on poverty reduction

|  | National | Eastern region | Middle region | Western region |
|---|---|---|---|---|
| Elasticity on poverty reduction | -0.0500 | -0.0559 | -0.1454 | -0.0228 |
| Elasticity on agricultural production | -0.0166 | -0.0185 | -0.0482 | -0.0076 |

*(b)    The effects of agricultural exports on poverty*

Nationally, the elasticity of agricultural exports on poverty reduction is 1.03 (table 6), which indicates that the increase in agricultural exports has had a positive effect on the alleviation of rural poverty in China; i.e., if agricultural exports increase by 1 per cent, then China's rural poverty index will decrease by 1.03 per cent. Output elasticity of agricultural exports is positive and the increase in agricultural exports raises farmers' income, so that they increase their agricultural production.

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[33]    The model is based on a research project, "Trade liberalization and poverty reduction – a case study of China and ASEAN countries", which was funded in 2010 by the International Poverty Reduction Centre in China. The project studied the impacts of trade on poverty in detail.

**Table 6. Elasticity of agricultural exports on poverty reduction**

|  | National | Eastern region | Middle region | Western region |
|---|---|---|---|---|
| Elasticity on poverty reduction | 1.0300 | 0.3779 | 2.1160 | 0.5921 |
| Elasticity on agricultural production | 0.0825 | 0.0303 | 0.1695 | 0.0474 |

From the regional perspective, the marginal effects of agricultural exports on rural poverty, from high to low, are central, west and east. Agricultural exports have the greatest impact on rural poverty reduction in the central region, the main reason being that a large part of rural income in the central region is from agriculture.

When putting agricultural imports and exports together, the elasticity of net agricultural exports on poverty reduction is still positive, indicating that agricultural trade can help to reduce rural poverty in China. Trade liberalization also has positive effects on rural poverty reduction in China.

## 2. Impacts of trade facilitation on poverty: A case study of the manufacture industry and port efficiency

The impacts of trade facilitation on poverty reduction can be derived based on "trade facilitation on trade" and "trade on poverty". However, due to the difficulty in measuring trade facilitation, especially with regard to customs procedures, regulations and e-commerce, the case study here is mainly on port efficiency, with the manufacturing industry results being used to analyse the impacts of port improvement on poverty reduction.

Zongying Sun (2009) tested the elasticity of port efficiency on trade,[34] the results of which have been used by the author together with the results of elasticity of trade on poverty, to calculate the elasticity of port efficiency on poverty reduction (table 7).

The results show that a 1 per cent increase in port efficiency results in a 1.051 per cent decrease of the poverty index. In the middle region, the elasticity reaches 2.116 per cent while it, is lower for the eastern and western regions. The major reasons are: (a) in the eastern region the poverty problem has basically been solved, and the marginal contribution of trade facilitation is small; and (b) the western region is mainly a mountainous area, therefore the transportation system is not well-developed and its connections with international markets are not as strong as those of the eastern or middle regions. Therefore, the contribution of trade to the western region's economic growth is not as high as the other regions, and the effect of trade on poverty reduction is small.

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[34]  A 1 per cent increase in port efficiency results in an increase of 1.07 per cent in exports and 1.02 per cent in imports.

**Table 7. Results of elasticity of ports on poverty**

|  | Imports | Exports | Overall effect |
|---|---|---|---|
| Results of elasticity of ports on trade | 1.02 | 1.07 | – |
| **Results of elasticity of trade on poverty reduction** | **Agricultural product imports** | **Agricultural product exports** | |
| **National** | **-0.0500** | **1.0300** | **0.9800** |
| Eastern region | -0.0559 | 0.3779 | 0.3220 |
| Middle region | -0.1454 | 2.1160 | 1.9706 |
| Western region | -0.0228 | 0.5921 | 0.5693 |
| Elasticity of port on poverty reduction* | | | |
| **National** | **-0.0510** | **1.1021** | **1.0511** |
| Eastern region | -0.0570 | 0.4044 | 0.3473 |
| Middle region | -0.1483 | 2.2641 | 2.1158 |
| Western region | -0.0233 | 0.6335 | 0.6103 |

* Due to a lack of data, the effect of elasticity of ports on poverty reduction is simply multiplied by "elasticity of ports on trade" and "elasticity of trade on poverty reduction".

# E. Conclusion and recommendations

In summary, although China and ASEAN have made great progress in trade facilitation, including port infrastructure construction, customs procedure reform, e-commerce development as well as laws and regulations, the level of trade facilitation is still low compared to that of other developed countries, and it is uneven in ASEAN countries. Therefore, China should learn from the experience of countries with a high degree of trade facilitation in order to enhance international cooperation to prompt trade facilitation and the development of the national economy.

## 1. Impacts of trade facilitation on poverty reduction

It is easy to understand the mechanism of trade facilitation impacts on poverty reduction, but the real situation is much more complicated than the theory. This is mainly due to the dynamics and complexity of trade facilitation as well as the complexity of the reasons for poverty and the impact channels between them.

Therefore the impact of port construction on poverty reduction is used in this study. The results show that a 1 per cent increase in port efficiency results in a 1.051 per cent decrease in the poverty index. For the middle region of China, elasticity is 2.116 per cent, but is less for the eastern and western regions. This is mainly because in the eastern region the poverty problem has basically been solved, and the marginal contribution of trade facilitation is small, while in the mountainous western region, the transportation

system is not well-developed and its connections with international markets are not as strong as those in the eastern and middle regions. Thus, the contribution of trade in economic growth in the western region is not as high.

## 2. Enhancing capacity-building in trade facilitation

*(a)    Promoting reform of customs procedures*

In the global supply chain, customs clearance is the most important link. Burdensome and inefficient customs clearance measures and poor infrastructure create high costs and make corruption easy. Therefore, reform of customs procedures and the internationalization of customs rules will be conducive to the development of trade facilitation. Some developing countries feel that the costs of customs reform and modernization are too high and that there are technical difficulties. However, the experience of Chile and Singapore shows that the costs can be controlled, and that investment in trade facilitation is likely to bring a fast return.

*(b)    Strengthening infrastructure construction for trade and investment facilitation*

The improvement of physical infrastructure is an important component of trade and investment facilitation. Among the ASEAN members, only in Singapore and Malaysia has port infrastructure reached the advanced international level; however, in China and the other ASEAN members the port facilities are not as high or even below the world average level. Therefore China and ASEAN must focus on investment in infrastructure – especially ports, airports and other related areas – and establish transportation systems that are compatible with economic development. Meanwhile, cooperation between customs authorities must be strengthened and customs procedures that meet international standards must be developed.

*(c)    Improving development of e-business*

The development of e-commerce in the ASEAN members is uneven. These countries need to enhance the level of information availability and give greater importance to the development of electronic commerce and its application in trade facilitation. Vigorous development and further investment in the network infrastructure should be given higher priority. At the same time, laws and regulations related to e-commerce should be improved.

*(d)    Improve the institutional environment*

Policy transparency should be further improved and policies should be stable and consistent. On the one hand, the Trade and Investment Administrative Department should increase the transparency of trade and investment policies. The laws and regulations concerning trade and investment should be made available in official publications or on the government websites; it cannot be executed before publishing. On the other hand, approval procedures should be simplified and standardized, and the enforcement of laws enhanced. Finally, a coordination mechanism for trade and investment facilitation should be

established. The related administrative departments should continue to expand dialogue with foreign companies and formulate a new management model in order to achieve a "win-win" situation.

## 3. Enhance coordination between China and ASEAN in trade and investment facilitation

*(a)    Promote unified standards*

Adopting international standards is the simplest and most effective way of achieving trade facilitation within China and the ASEAN members. With the rapid development of economic integration in the China-ASEAN Free Trade Area, unified standards will play an increasingly important role in the promotion of international trade and the establishment of technical trade measures. China and the ASEAN members should attempt to base their domestic standards on international standards, and adopt international standards in priority areas. Trade agreements as well as domestic laws and regulations related to international standards should be consistent within the China-ASEAN region.

*(b)    Establish trade facilitation committees in China and ASEAN members*

Trade facilitation involves wide areas and multiple sectors. Each country should establish an institute to coordinate the different sectors. On the other hand, a fast and effective coordination mechanism between countries should also be introduced. First, each country should: (a) achieve efficient and detailed domestic information sharing; and (b) establish a central database on trade facilitation and ensure data are updated regularly in order to provide complete and accurate information. Second, each country should establish an effective decision-making and information communications mechanism at the government level. Finally, each country should: (a) establish a consultative mechanism with foreign trade enterprises; (b) have a clear understanding of the issues involved and the impact of trade facilitation; and (c) solve problems in trade facilitation in a timely manner.

In general, China and the ASEAN members should give more attention to: (a) the establishment of a National Trade Facilitation Committee in the Doha Round negotiations; (b) cooperation in promoting the development of trade facilitation; (c) improving the level of China-ASEAN cooperation; (d) strengthening trade and investment cooperation partnerships; and (e) joint promotion of extensive trade facilitation development.

# Annex

## Model used to test the impact of various factors on poverty

In order to test the impact of various factors on poverty, a four-set and nine equations system was formulated to analyse those factors, as follows. Equation (1) is a poverty reduction equation that is used to quantify different variables in rural poverty reduction contribution. The following factors were considered in the equation: agricultural GDP per worker; non-farm employment rate; rural non-farm employment wage rate; relative prices of agricultural produce; rural inflation rate; rural internal gap in income distribution; income gap between urban and rural areas; and international trade in agricultural products.

In equation (1), the agricultural GDP per worker mainly reflects the effect that agricultural output growth has on rural poverty reduction. Farmers' agricultural income forms a large proportion of their total income in the impoverished and backward areas of China. Off-farm income is an important source of rural residents' total income in China, and the wage level of the non-farm workforce is introduced in the model to capture off-farm income. In addition, not only can these two variables reflect the effect of non-farm sector wages change and employment changes on rural poverty reduction, but they can also provide better policy guidance for rural poverty reduction. If an improved rural wage ratio has a more significant effect than increased non-farm employment opportunities on rural poverty reduction, Governments should pay attention to improving the rural wage level, and conversely should pay more attention to increasing non-farm employment opportunities.

$$PI = f\ (AGDPPC,\ INFIAT,\ WAGE,\ NAGEMPLY,\ INEQ,\ ATT,\ TRADE) \tag{1}$$

The relative prices of agricultural products are mainly used to reflect the impact of relative price changes on rural poverty. If the impoverished rural population is a net buyer of agricultural produce, agricultural product price rises will cause a loss, but if the impoverished rural population is a net seller of agricultural produce, agricultural product price rises will provide a benefit. In the long term, agricultural produce price increases will lead to governments and farmers increasing agricultural production investment, and will lead to the total supply curve to shift upward. The rural gap in income distribution reflects the degree of rural poverty while the income gap between urban and rural areas reflects the relative rural poverty level, and the inflation rate reflects the economic environment's impact on rural poverty. International trade in agricultural products is demonstrated by imports and exports. The following table shows the meaning of each variable in equation (1).

## Definitions of exogenous and endogenous variables

| Variable | Definition | Variable | Definition |
|---|---|---|---|
| Exogenous variable | | UCPI | Urban CPI |
| ALAND | Land area per worker | TRADE | Opening degree of trade index |
| AK | Agricultural capital per worker | AIMP | Agricultural imports |
| NAK | Capital per worker in rural non-agricultural sector | AEXP | Agricultural exports |

| | | | |
|---|---|---|---|
| PWRE | Government spending on rural power | NAGDPR | Rate of agricultural GDP to non-agricultural GDP |
| UGDPPC | GDP produced by urban sector | NAKR | Rate of rural per non-agricultural capital to urban per capital |
| IRRE | Government expenditure on irrigation | CPIR | Rate of rural CPI to urban CPI |
| RDE | Government spending on agricultural R&D | Endogenous variable | |
| AMACH | Total power of agricultural machinery | PI | Percentage of rural population below poverty line |
| EDUE | Government spending on rural education | SCHY | Average years of schooling of rural population 16 years and older |
| FERTI | Agricultural fertilizer | IRR | Percentage of total cropped area that is irrigated |
| POWERE | Government spending on rural energy | ELECT | Electricity consumption |
| PLOAN | Government expenditures for poverty alleviation per capita | WAGE | Wage rate of non-agricultural labour in rural areas |
| INFIAT | Rural inflation rate | NAGEMPLY | Percentage of non-agricultural employment in total rural employment |
| WATERD | Agricultural drainage areas | AGDPPC | Agricultural GDP per worker |
| LANDQ | Soil erosion areas | GAGDPPC | Agricultural productivity growth at the national level |
| LANDD | Land disaster areas | NAGDPPC | Non-agricultural GDP per worker in rural areas |
| EMPLOY | Urban unemployment rate | ATT | Terms of trade, measured as agricultural Prices divided by a relevant Non-agricultural GNP deflator |
| RCPI | Rural CPI | INEQ | Income gap between urban and rural areas |

Equation (2) is an agriculture production function. The dependent variable is the agricultural GDP per worker while the independent variables include: (a) capital investment (land per worker) and capital; technology; infrastructure; and education (all of which may help to improve agricultural labour and productivity as well as result in the total supply curve moving upwards); and (b) agricultural scientific research investment (R&D); planting areas; irrigation rate; the rural population's average years of education; rural disaster areas; soil erosion areas; agricultural electricity supply; rural machinery; and agricultural products trading. All these affect agricultural production and rural poverty reduction through the output effect.

$AGDPPC = f$ $(SCHY, ALAND, AK, RDE, AMACH, IRR, FERTI, ELECT,$
$WATERD, LANDQ, LANDD, AIMP, AEXP)$ (2)

Equations (3) and (4) are for rural off-farm sector wages and rural off-farm sector employment, respectively. The two equations are a simplified form of supply and demand under conditions of the labour market equilibrium. Labour and wages is the labour productivity function. At the same time, labour productivity is the capital/labour ratio and some elements that elicited the production curve outside shift function, including infrastructure and education. The independent variables include the capital per labour, infrastructure (water resources, electricity, education, training and irrigation), years of education and the agricultural GDP in the previous year. Off-farm capital investment in rural areas can promote non-farm productivity. An increase in the education level of workers can also improve work efficiency. Rural power development is also beneficial to farmers' entrepreneurship and improves agricultural productivity.

The work relief in the rural water conservancy project has great influence on non-farm employment and non-farm wages. Agriculture is the foundation of both the national economy and social development, and the lagged agricultural output determines the input in agricultural product processing industry. The influence of non-farm sector productivity on non-farm labour and non-farm wage levels is an important factor as it directly affects the ability of the economic environment to absorb surplus rural labour. Opening to the outside world and trade liberalization has played a direct role in promoting rapid economic growth in China; therefore, international trade also has a very important influence on rural non-farm labour and non-farm wage levels.

$WAGE = f (NAEMPLY, SCHY, NAK, AGDPPC, UGDPPC, EMPLOY, AIMP, AEXP)$ (3)

$NAEMPLY = f (WAGE, SCHY, NAK, AGDPPC, UGDPPC, EMPLOY, AIMP, AEXP)$ (4)

Equation (5) reflects the allocation difference in urban and rural areas. The variables that influence the allocation difference in urban and rural areas mainly include labour output value per head orural population and urban residents' income level, the amount of unit labour own quantity in urban and rural areas, the ratio of the rural consumer price index to the urban consumer price index, the process of urbanization, the urban unemployment rate, domestic and international trade, and finance transfer payments in urban and rural areas. In addition, the rural internal income gap is an important variable that affects rural poverty reduction; however, it is very difficult to calculate the rural internal Gini coefficient because of limited available data. So the factors having an impact on rural internal income distribution appear to be the rural off-farm employment situation, the process of urbanization, domestic and international trade, and financial transfer payments.

$INEQ = f (NAGDPR, NAKR, CPIR, ATT, AIMP, AEXP, EMPLOY)$ (5)

In conclusion, variables that need to considered in equation (5) such as agricultural GDP per wroker versus non-agricultural GDP per wroker the ratio of rural and urban unit labour capital quantity, rural CPI versus urban CPI, relative agricultural product prices, the unemployment rate in cities and towns, and imports and exports of agricultural products.

Equation (6) reflects the relationship between planting area irrigation rate and government irrigation expenditure while equation (7) reflects the relationship between the rural population's average number of years of education and government education investment. Equation (8) reflects the relationship between rural electricity consumption and government expenditure on power supply.

Equation (9) deals with trade conditions, particularly the relative price levels of agricultural and industrial products from the agricultural product supply and demand perspective. The growth of agricultural GDP leads to increased supply of agricultural products that, in turn, leads to decreases of agricultural product prices. The growth of GDP (exclusive of agricultural GDP) leads to increased demand for agricultural products, which improves the agricultural product trade environment. The growth of industrial output will be accompanied by greatly improved demand for agricultural products, thus creating a gap in supply and demand that is conducive to improved agricultural and industrial product trade conditions:

$$IRR = f\ (IRRE,\ IRRE_{-1},\ ...,\ IRRE_{-j}) \tag{6}$$

$$SCHY = f\ (EDUE,\ EDUE_{-1},\ ...,\ EDUE_{-n}) \tag{7}$$

$$ELECT = f\ (PWRE,\ PWREE_{-1},\ ...,\ PWREE_{-l}) \tag{8}$$

$$ATT = f\ (AGDPPC,\ GGDPPC,\ UGDPPC) \tag{9}$$

It is necessary to distinguish between internal variables and external variables in the simultaneous equation estimate model, for which the table above shows the specific variables.

In order to understand the specific region of the fixed effects, and through the virtual variables, the impact of trade liberalization on rural poverty reduction in the eastern, central and western regions of China can be measured and compared. By totally differentiating equations (1) to (9) it is possible to obtain the marginal impact and elastic ties of different types of government expenditures on growth in agricultural and non-farm productivity as well as on reductions in regional inequality and rural poverty.

For growth effects the marginal impact of R&D investment in year *t-1* on agricultural labour productivity in year *t* can be derived as:

$$\left(\frac{\partial AGDPPC}{\partial RDE}\right)_{-i} = \frac{\partial AGDPPC}{\partial RDE_{-i}} \tag{10}$$

Equation (10) measures the direct impact of investment in research on agricultural productivity growth. By aggregating the total effects of all past government expenditures during the lagged period, the sum of the marginal effects is obtained for any particular year. Returns to other variables can be derived in a similar way.

For poverty effects, the impact of government investment in agricultural R&D in year *t-i* on poverty at year t can be derived as:

$$\frac{\partial P}{\partial RDE_{-i}} = \frac{\partial P}{\partial AGDPPC}\frac{\partial AGDPPC}{\partial RDE_{-i}} + \frac{\partial P}{\partial WAGE}\frac{\partial WAGE}{\partial AGDPPC}\frac{\partial AGDPPC}{\partial RDE_{-i}}$$
$$+ \frac{\partial P}{\partial NAGEMPLY}\frac{\partial NAGEMPLY}{\partial AGDPPC}\frac{\partial AGDPPC}{\partial RDE_{-i}} + \frac{\partial P}{\partial TOT}\frac{\partial ATT}{\partial AGDPPC}\frac{\partial AGDPPC}{\partial RDE_{-i}} \tag{11}$$

The first term on the right-hand side of equation (11) captures the impact of government investments in R&D through yield-enhancing technologies, such as improved varieties, on poverty and therefore agricultural labour productivity. Increased agricultural labour productivity also affects poverty through changes in rural non-farm wages and employment, and relative

prices, which are captured in the remaining terms on the right-hand side of the equation. As with government investments in agricultural R&D, the impact of government investments in irrigation is captured through improved productivity, rural wages and non-farm employment, and relative prices. Other variables have similar impacts on poverty.

The impact of government investments in rural electricity in year *t-n* on poverty in year *t* is derived as:

$$\frac{\partial P}{\partial PWRE_{-i}} = \frac{\partial P}{\partial AGDPPC} \frac{\partial AGDPPC}{\partial ELECT} \frac{\partial ELECT}{\partial PWRE_{-i}} + \frac{\partial P}{\partial WAGE} \frac{\partial WAGE}{\partial AGDPPC} \frac{\partial AGDPPC}{\partial ELECT}$$

$$\frac{\partial ELECT}{\partial PWRE_{-i}} + \frac{\partial P}{\partial NAGEMPLY} \frac{\partial NAGEMPLY}{\partial AGDPPC} \frac{\partial AGDPPC}{\partial ELECT} \frac{\partial ELECT}{\partial PWRE_{-i}} \quad (12)$$

$$+ \frac{\partial P}{\partial ATT} \frac{\partial ATT}{\partial AGDPPC} \frac{\partial AGDPPC}{\partial ELECT} \frac{\partial ELECT}{\partial PWRE_{-i}} + \frac{\partial P}{\partial WAGE} \frac{\partial WAGE}{\partial ELECT} \frac{\partial ELECT}{\partial PWRE_{-i}}$$

The first term on the right-hand side of equation (12) measures the direct effects on poverty of improved productivity that is attributable to greater availability of electricity supply. Terms 2, 3 and 4 are the indirect effects of improved productivity through changes in rural non-farm wages, employment and prices. Terms 5 and 6 capture the direct effects on poverty of higher non-farm wages and greater non-agricultural employment opportunities arising from government investment in electricity supply. Similarly, it is possible to derive the impact on rural poverty of increased investment in roads, irrigation and education.

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# Chapter V

# Trade facilitation and microfinancing for poverty reduction in the Greater Mekong Subregion: A case study of Thailand

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## A. Introduction

This chapter investigates whether trade facilitation measures benefit the poor and microenterprises in border provinces. It also explores the role of microfinance in supporting the utilization of the trade facilitation initiatives. The role of microfinance in this context is to complement trade facilitation measures in order to allow the poor to benefit from new market access or business opportunities resulting from trade facilitation measures.

The focus of the study is the Economic Corridors and Cross Border Transportation Agreement (CBTA), two important initiatives for transport and trade facilitation under the Greater Mekong Subregion (GMS) programme of the Asian Development Bank (ADB). Thailand has implemented several infrastructure and trade facilitation projects that complement these two GMS initiatives and which are also studied in this chapter. These include:

(a)    The improvement of basic infrastructure around the border locations;

(b)    Establishment of distribution centres at border locations;

(c)    Realignment and expansion of roads and highways connected to economic corridors;

(d)    Construction of customs and immigration control points;

(e)    Implementation of an e-customs system;

(f)    Establishment of markets at the border locations;

(g)    Human resource development.

In particular, the trade facilitation measures analysed here are the second and third Thai-Lao Friendship Bridges, the East-West Economic Corridor and related trade facilitation projects. The areas in consideration are within north-eastern Thailand's Mukdahan and Nakhon Phanom provinces.

# B. Scope of study and methodology

With support from ADB and other donors, the GMS programme assists the implementation of high-priority sub-regional projects on transport, energy, telecommunications, the environment, human resource development, tourism, trade, private sector investment and agriculture. Two important initiatives under the GMS programme are the Economic Corridors and the Cross Border Transport Agreement (CBTA). The Economic Corridors are aimed at improving and establishing road links and international bridges between the GMS countries in order to promote trade, investment and production opportunities. The three Economic Corridors in the programme are:

(a)     The North-South Economic Corridor (NSEC):

(i)     Route R3A: Chiang Rai-Kunming via the Lao People's Democratic Republic;

(ii)    Route R3B: Chiang Rai-Kunming via Myanmar;

(iii)   The Kunming-Hanoi-Haiphong Multimodal Transport Corridor project.

(b)     The East-West Economic Corridor (EWEC):

(i)     Mawlamyine-Mae Sot (west);

(ii)    Mukdahan-Savannakhet-Dong Ha-Da Nang (east).

(c)     Southern Economic Corridor (SEC): Bangkok-Phnom Penh-Ho Chi Minh City-Vung Tau road improvement project.

In order to support the establishment of Economic Corridors, the Government of Thailand has formulated the following plans:

(a)     Realignment and expansion of roads and highways connected to Economic Corridors in order to support greater use in the future;

(b)     The establishment of central markets near the Economic Corridors and improvement of roads from production sources to the markets;

(c)     The construction of new seaports and distribution centres such as the distribution centre in Mukdahan;

(d)     The improvement of basic infrastructure around the border locations, including water supply, flood prevention and waste disposal systems.

On the other hand, the CBTA objective is to reduce obstacles to cross-border transportation through improvements of transportation facilitation, including: (a) single-window/single-stop customs inspections; (b) a one-stop service; (c) cross-border movement of persons; (d) transit traffic regimes; (e) road vehicle requirements for cross-border traffic eligibility; (f) exchanges of commercial traffic rights; and (g) infrastructure creation and upgrades, including road and bridge design standards, road signs and road signals.[35] Currently, Thailand still needs to ratify some of the protocols and annexes.

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[35]   See www.adb.org/GMS/Cross-Border/default.asp.

The scope of this study covers Mukdahan province (local communities neighbouring Route 9 and the second Thai-Lao Friendship Bridge) and Nakhon Phanom province (local communities neighbouring Route 12 and the third Thai-Lao Friendship Bridge). These two provinces were chosen as they are parts of the East-West Economic Corridor. Also, both provinces are located in the north-eastern region of Thailand, which has the lowest per capita income. The study covered the following aspects:

(a)  An investigation of the economic background, trade facilitation projects and microfinance systems in the two provinces;

(b)  Exploration of the impact of trade facilitation projects on the poor and microenterprises;

(c)  An analysis of the potential benefits of trade facilitation projects for the poor and microenterprises;

(d)  An investigation of the obstacles that prevent the poor and microenterprises to obtain full benefits from trade facilitation projects. In addition, consider whether weak microfinance system and financial access are among the obstacles;

(e)  A stakeholder analysis to consider whether important stakeholders are involved in the initiation and implementation of trade facilitation projects and the economic utilization of such projects;

(f)  Identification of the weaknesses of the current microfinance system in the region that prevent the poor and microenterprises from obtaining the benefits from trade facilitation projects.

(g)  Proposals of ways to improve microfinance products as well as a system to increase the potential utilization of trade facilitation projects by the poor and microenterprises.

In-depth interviews were conducted with several stakeholders. A stakeholder analysis was then prepared in order to identify opportunities and potential negative impacts of trade facilitation measures. The analysis results will assist the poor and microenterprises to benefit, or alleviate the negative impacts, from trade facilitation measures.

The sampling method employed in the study was the purposive sampling technique. The main objective of using that technique was to enable the selection of samples that could achieve significant impacts, both positive and negative, from trade facilitation projects of interest. First, the analysis defined stakeholders – including those who might gain benefits or incur costs – who were relevant to policy formulation or implementation of trade facilitation measures. In the case of local communities and microenterprises, samples were selected from those residing in the communities near trade facilitation projects.[36] Interviews

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[36]  Community leaders were included in the samples.

were also conducted with the provincial chambers of commerce, the microenterprises in the Muang districts[37] and local communities near the trade facilitation projects, and One Tambon One Product (OTOP) programme[38] leaders and members.

The relevant stakeholders[39] are the poor, microenterprises, self-help groups, village funds and saving groups in border communities of Mukdahan and Nakhon Phanom provinces, the Government Saving Bank, the Bank for Agriculture and Agricultural Cooperatives, chambers of commerce, relevant government agencies such as border checkpoint officers, the Office of Commercial Affairs, and the community development officials.

In order to analyse the production or service activities that benefit from trade facilitation measures, the involvement of the poor and local communities in such production and activities, and the necessary support that they need for higher involvement, the stakeholder analysis detailed by Cheewatrakoolpong (2009) was utilized. The sectors and service activities were selected for the analysis based on their help in improving the welfare of the poor and microenterprises and resulted in them benefiting from trade facilitation measures. They included: (a) the agricultural sector (sugar cane, fruit, vegetables and cassava); and (b) service sectors (tourism, logistics and retail trading). These sectors have the highest potential to obtain benefits from the East-West Economic Corridor (EWEC) project according to Chirathivath and others (2003).

Once the sectors or activities were identified, the analysis used the framework suggested by Brand (1998) and Cheewatrakoolpong and others (2011) to develop and improve the microfinance products as well as the system that promotes the utilization of trade facilitation initiatives. This framework includes:

(a) Product development – this includes the characteristics of microfinance products, target groups, terms and conditions, pricing, and distribution channels;

(b) Process development – ensuring that microfinance products can reach the poor efficiently and economically (this includes the introduction of IT and capacity-building);

(c) Strategic development – ensuring microfinance products are available to the poor and promoting financial discipline of the poor to the institutions' commitments.[40]

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[37] Muang districts are regarded as the central community of provinces.

[38] The One Tambon One Product is a product stimulus programme that utilizes local types of traditional knowledge.

[39] The interviewed stakeholders are listed in annex 1.

[40] Examples are group lending and social sanction.

## C. Overview of trade facilitation initiatives and microfinance system in Mukdahan and Nakhon Phanom provinces

This section provides the basic background regarding trade facilitation and related macroeconomic figures as well as microfinance systems in Thailand's Mukdahan and Nakhon Phanom provinces.

### 1. Trade facilitation measures

*(a)    Mukdahan province*

Mukdahan is an important Thai province in the EWEC project. The objective of EWEC is to connect the Pacific Ocean with the Indian Ocean via the Asian Highway. The network begins with Route AH16 from Da Nang port and the city of Hue in Viet Nam, then along Route 9 to Savannakhet in the Lao People's Democratic Republic and through Thailand's Mukdahan, Kalasin, Khon Kaen, Petchabun, Phitsanulok and Tak provinces to Myanmar's Gulf of Martaban in Moulmein. The total distance is approximately 1,600 kilometres (km).[41]

As a part of the programme, the Second Thai-Lao Friendship Bridge between Savannakhet and Mukdahan provinces was completed in 2006. The bridge, which is 2.7 km in length, has improved trade facilitation for cross-border and trans-border trade tremendously. Previously, commercial trucks needed to transit to the Lao People's Democratic Republic border via a barge at Baan Na Po Noi. Using the barge to cross Mekong River involved a waiting time of around 45 minutes and approximately 90 minutes to 2 hours in total to reach the border of the Lao People's Democratic Republic. The construction of the bridge has also resulted in an increase of transit trucks from approximately 17,000-18,000 trucks per year during 2002-2005 to 24,063 trucks and 42,226 trucks in 2006 and 2007, respectively (Cheewatrakoolpong and Rudjanakanoknad, 2011).

The Customs Office and border crossing points in Mukdahan province use a paperless processing system and random product checks with X-rays. The approximate total time involved in the customs procedures and reaching the border of the Lao People's Democratic Republic is 16.1 minutes (Cheewatrakoolpong and Rudjanakanoknad, 2011). The border crossing points in Mukdahan are also part of the pilot project for CBTA under the GMS programme. It will also implement a one-stop service and a common control area in the future to reduce duplication in customs procedures between the borders of Thailand and the Lao People's Democratic Republic. The implementation of CBTA is still waiting for Thailand to ratify some annexes and protocols.

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[41]    Department of Highways data, 2012.

*(b)    Nakhon Phanom province*

Nakhon Phanom is part of the Asian Highway Network on the AH15 route that connects that province with Udon Thani and Sakon Nakhon provinces in Thailand via Route 8 or Route 12 in the Lao People's Democratic Republic to Vinh province in Viet Nam. The Third Thai-Lao Friendship Bridge connecting Nakhon Phanom province in Thailand and Khammouan province in the Lao People's Democratic Republic was built and officially opened on 11 November 2011. The bridge also supports traffic changeover due to the difference in traffic systems between Thailand and the Lao People's Democratic Republic. The route shortens the distance between Nakhon Phanom and Hanoi to 643 km and between Nakhon Phanom and Nanning to 1,029 km.[42]

Before the construction of the bridge, shipping agencies and exporters relied on a barge to cross from Thailand to the Lao People's Democratic Republic. The trip took approximately 15-20 minutes to reach the Lao People's Democratic Republic, depending on the level of both the Mekong River and river traffic congestion. The barge was able to transport approximately 30 trucks per hour (Cheewatrakoolpong and Rudjanakanoknad, 2011).

The custom procedures here, which use the paperless system but without random X-ray checks, take approximate 16.7 minutes (Cheewatrakoolpong and Rudjanakanoknad, 2011). The new Thai customs checkpoint office at the bridge is not yet fully developed. However, the future plan for the Nakhon Phanom border checkpoints also includes: (a) the implementation of a one-stop inspection; (b) construction of bypass highways to connect Route 22 with Route 212 to avoid congestion in the urban area; and (c) construction of logistics and distribution centres near the bridge, to facilitate trans-border and cross-border activities.

## 2. Related macroeconomic figures

*(a)    Mukdahan province*

Mukdahan province is a border province of Thailand's north-eastern region that enjoys tremendous benefits from trade facilitation measures. The evidence of gross provincial product (GPP) and the number of people below the poverty line confirms such benefits (figures 1 and 2). The province has experienced higher GPP growth and a decline in the number of people below the poverty line since the establishment of the Second Thai-Lao Friendship Bridge in 2006. The average annual GPP growth rate was 6.3 per cent during 2002-2005 (before the completion of the Thai-Lao Friendship Bridge), after which it increased to 10.9 per cent during 2006-2010.

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[42]    Ibid.

**Figure 1. GPP in Mukdahan**
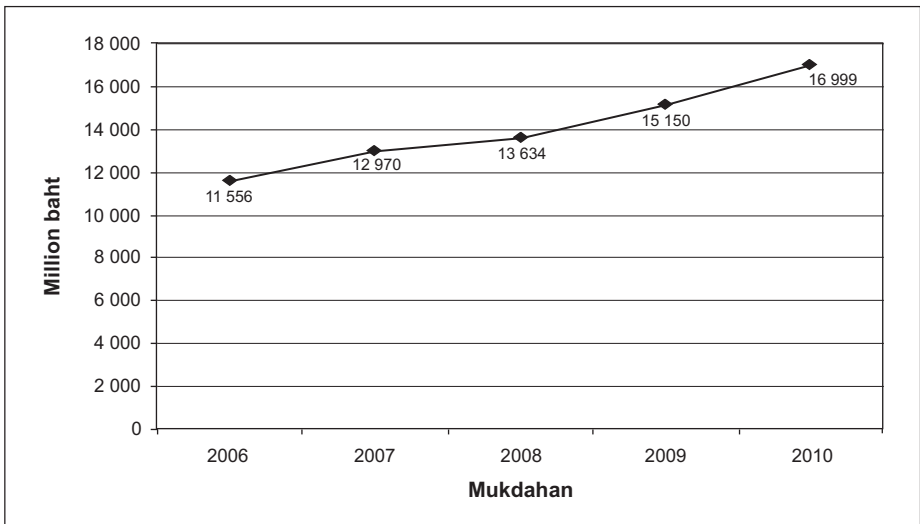
**Figure 2. Number of persons below the poverty line in Mukdahan**
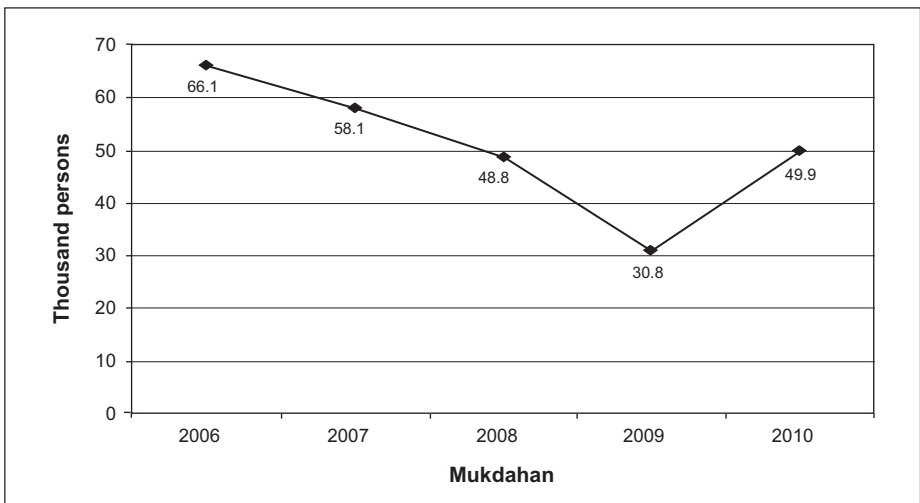
In terms of sectoral GPP, Mukdahan province concentrates on the agricultural and service sectors as indicated in figure 3. The primary agricultural products are rice, rubber and sugar cane while the important service sectors include construction, retail and wholesale, logistics, hotels, residential services and health-care services (figure 4).

**Figure 3. GPP by economic activity in Mukdahan**
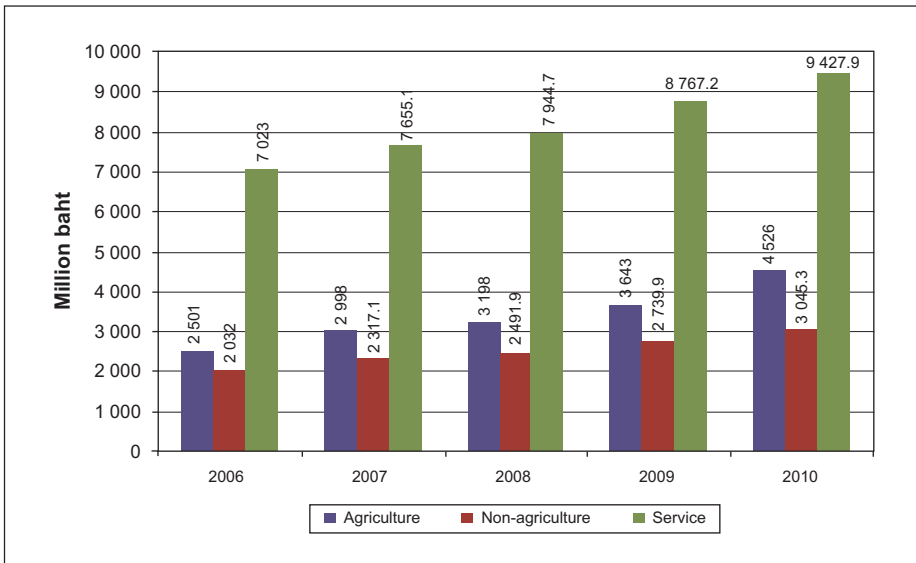
**Figure 4. Establishment of juristic persons in Mukdahan province, 2008[43]**

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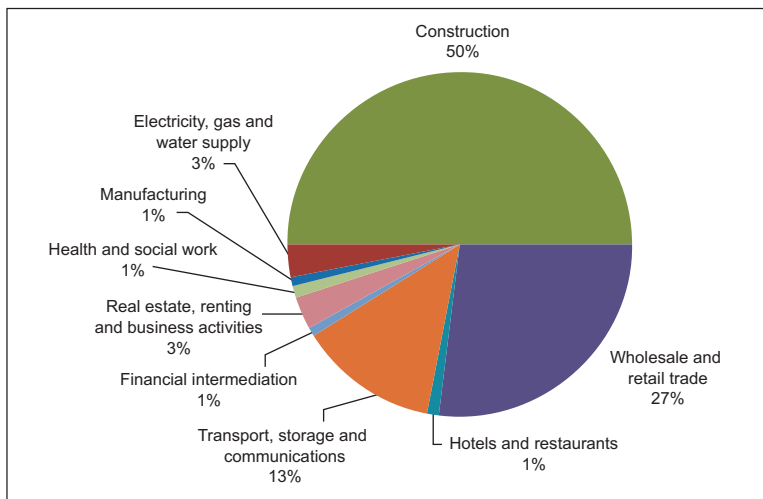
[43]    According to Thailand's Civil and Commercial Codes of Law, a juristic person in Thailand is defined as a legal personality separate from those who own or manage a business. Examples of juristic persons are public companies, private companies, limited partnerships, registered ordinary partnerships and contractual joint ventures.

With regard to cross-border trade, since the completion of the bridge in 2006, total cross-border trade in Mukdahan has increased significantly (figure 5). Important cross-border trade products include electronics and electrical appliances, energy supply, consumer products, automobiles and livestock (table 1).

**Figure 5. Cross-border trade in Mukdahan**
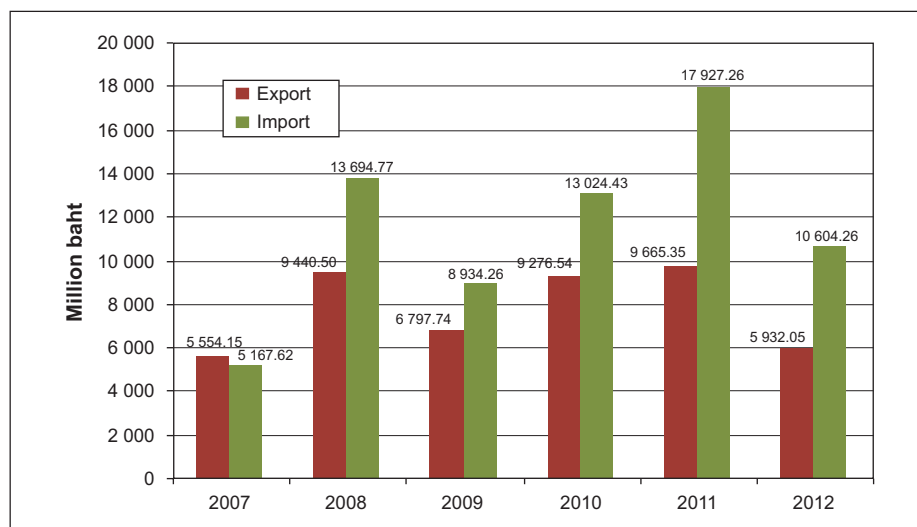


*Source:*    Bank of Thailand.

**Table 1. Top 10 cross-border products in Mukdahan, 2010**

(Unit: Million baht)

| Product | Value |
| --- | --- |
| Computers and parts | 7 328.56 |
| Storage units | 2 258.26 |
| Oil and gasoline | 1 444.43 |
| Drilling machineries and containers | 1 362.54 |
| Consumer products | 1 275.12 |
| Electrical appliances and electronic parts | 492.27 |
| Livestock | 488.07 |
| Automobiles | 285.57 |
| Monosodium glutamate | 249.75 |
| Energizing beverages | 234.13 |
| **Others** | **4 852.29** |
| **Total** | **20 270.99** |

*Source:*    Mukdahan Customs Office.

*(b)     Nakhon Phanom province*

Nakhon Phanom province has suffered from poverty for many years. It is among the top 10 provinces of Thailand with the highest percentage of the poor to total population. According to Na NongKai (2012), poverty problems in Nakhon Phanom province are the result of loan sharks and insurmountable debts, a lack of proprietary land rights and insufficient employment opportunities. The impact of trade facilitation measures on Nakhon Phanom province remains unidentified because construction of the third Thai-Lao Friendship Bridge was only completed in November 2011. However, even before the completion of the bridge, Route 12 was being utilized for transportation of several types of products to Viet Nam and China, including fresh fruit. In the past decade, Nakhon Phanom has experienced an increase in economic growth, but the absolute number of people below the poverty line is continuing to increase (figures 6 and 7). The evidence indicates unequal distribution in economic growth among the population of the province. A possible explanation is that the major beneficiaries of Route 12 are the exporters of agricultural products such as livestock, fresh fruit and rubber. Most of the beneficiaries of trade facilitation in Nakhon Phanom province are not the poor.

**Figure 6. GPP in Nakhon Phanom**
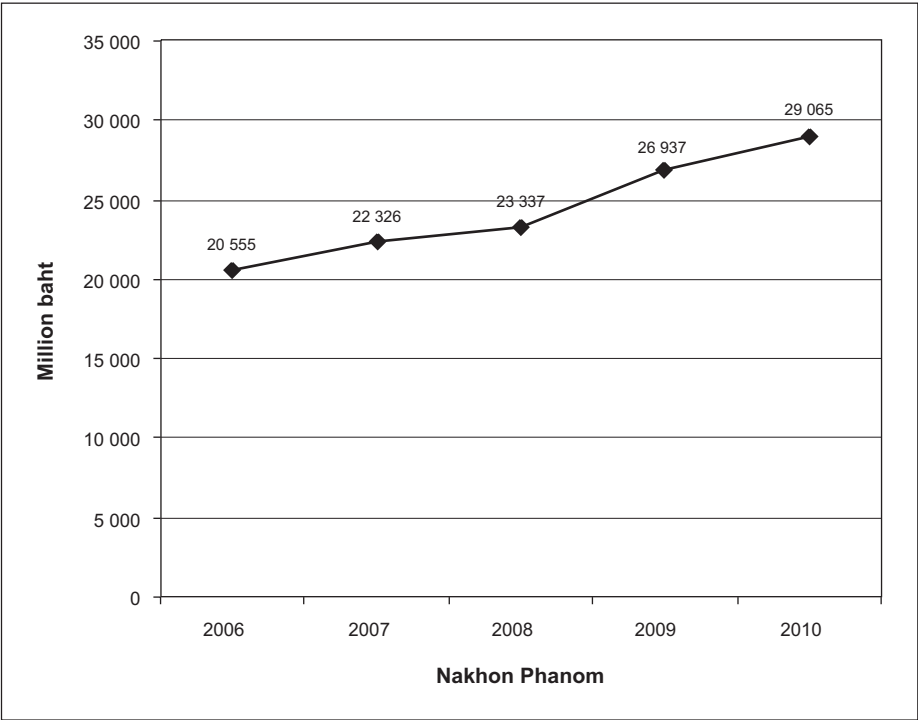


*Source:*     National Statistical Office.

**Figure 7. Number of people below the poverty line in Nakhon Phanom**

While Nakhon Phanom has experienced a gradual increase in the service sector, the manufacturing sector has remained constant during recent years (figure 8). The main service activities are construction, retail and wholesale, motorcycle and vehicle repair, logistics, real estate and renting services, and health-care services (figure 9).

Cross-border trade is relatively low in Nakhon Phanom compared with Mukdahan, but statistics show an upward trend (figure 10). However, an increase in cross-border activities was expected to occur in the province following the completion of the Thai-Lao Friendship Bridge project in November 2011. The important cross-border export products passing across the Nakhon Phanom border are oil and petroleum, construction materials, pet food, livestock, machinery, and automobiles and automotive parts (table 2).

## 3. Microfinance system

The development of a microfinance system in Thailand was initiated in 2001 with the launch of the 1 million baht village fund. At that time, the Bank of Thailand implemented the financial system development plan during 2004-2009. One of the principles of the development plan was to promote the coverage of financial services for all people, which

**Figure 8. GPP by economic activity in Nakhon Phanom**
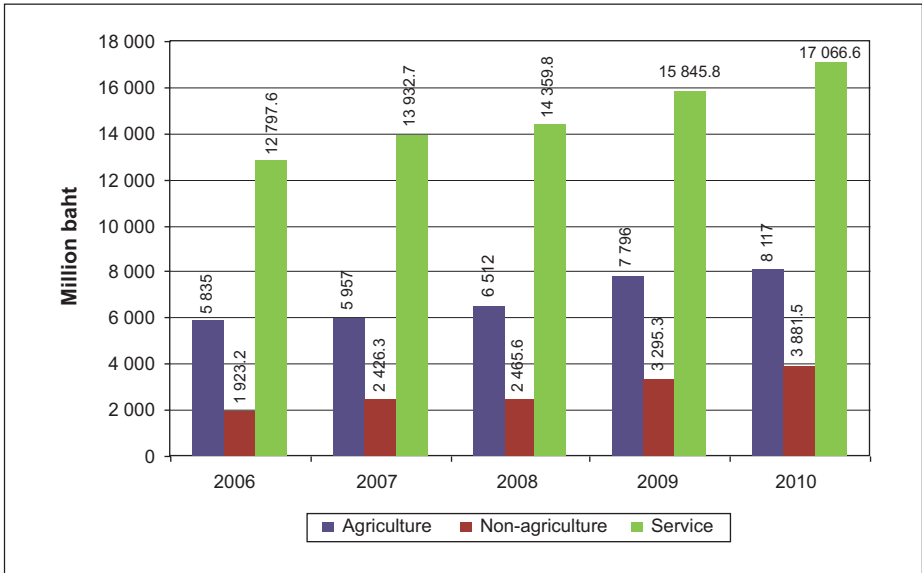


*Source*:    National Economic and Social Development Board.

**Figure 9. Establishment of juristic persons in Nakhon Phanom province, 2008**
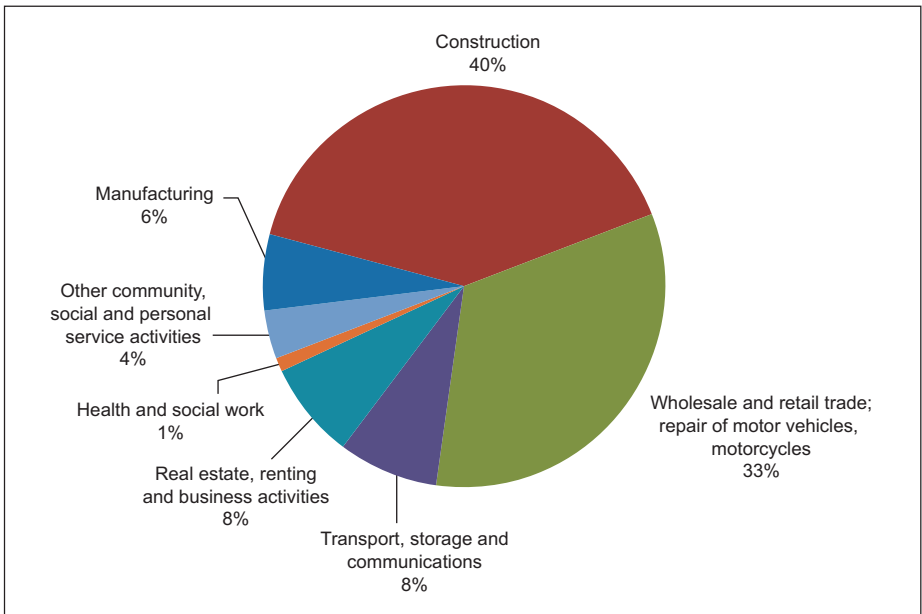


*Source:*    National Statistical Office.

**Figure 10. Cross-border trade in Nakhon Phanom**
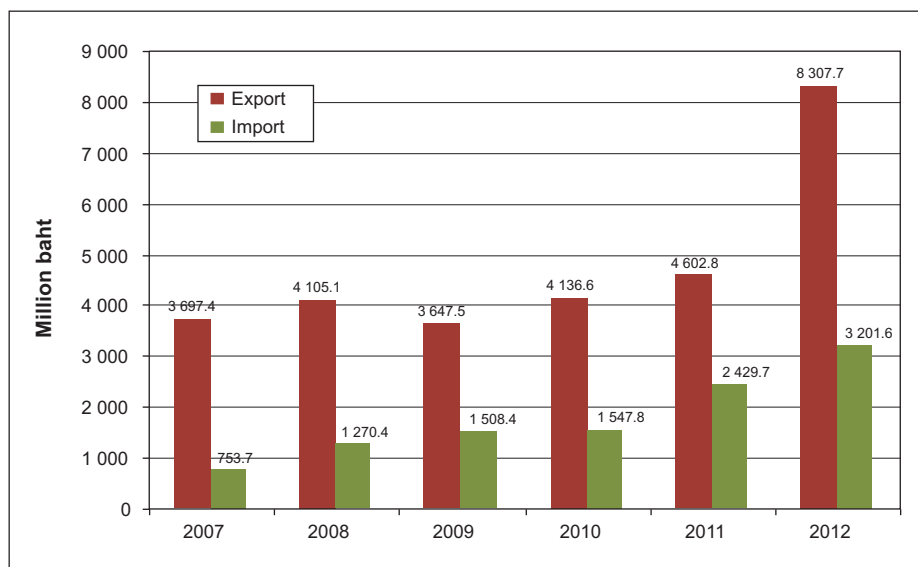
**Table 2. Top 10 cross-border products in Nakhon Phanom, 2010**

(Unit: Million baht)

| Products | Value |
|---|---|
| Diesel fuel | 440.18 |
| Automobiles and automotive parts | 192.04 |
| Iron and steel | 279.88 |
| Iron and steel products | 186.86 |
| Pet food | 102.90 |
| Petroleum | 87.28 |
| Construction machinery and parts | 269.93 |
| Livestock | 123.75 |
| Other machinery and parts | 34.76 |
| Other vehicles and parts | 124.33 |
| **Others** | **1 079.50** |
| **Total** | **2 921.40** |

resulted in the implementation of the microfinance master plan in Thailand during 2008-2011. The involved microfinance institutions according to the master plan comprised the Government Saving Bank (GSB) and the Bank for Agriculture and Agricultural Cooperatives (BAAC), village funds, saving groups and other informal financial institutions. The semi-formal and informal financial institutions received support from the provincial community development offices.[44] The current microfinance master plan for 2010-2014 also promotes the involvement of commercial banks in microfinance services, the development of microfinance infrastructure including a credit information system and rating system, and the promotion of the specialized financial institutions.

Even though the microfinance master plans have been implemented for several years, the microfinance system in Thailand is still underdeveloped. The Economist Intelligence Unit (2011), which assigns ratings to microfinance markets in 55 developing countries, listed Thailand at 50. The problem is that Thailand has no formal financial institutions with microfinance services as their main goal. In fact, microfinance activities are concentrated in the government banks, which have several missions other than microfinance. In addition, the annual interest ceiling of 28 per cent prohibits the involvement of other commercial banks in microfinance services. The development of semi-formal or informal microfinance institutions is inconsistent and depends on government policies.

According to the Department of Community Development, 47 per cent of saving groups in 2010 were located in north-eastern Thailand.[45] However, most of the saving groups in that region are weaker than the groups in other regions of the country. Cheewatrakoolpong and others (2011) showed that the north-eastern population with low incomes mostly depended on BAAC for financing purposes. About 35 per cent of poor people in the north-east have no financial access to formal and semi-formal financial institutions. Also, 69 per cent of poor people with no financial access in that region rely on loan sharks.

Both Mukdahan and Nakhon Phanom provinces have a large number of savings groups compared with their sizes, both in terms of GPP and population. However, most of the savings groups are relatively weak as classified in Class 1.[46] The classification is carried out by the Department of Community Development. Indicators of the strength of

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[44]   The semi-formal financial institutions are the specific institution to support saving and lending activities in the specific area. The institutions are initiated or supported by the Government. The examples of semi-formal financial institutions in Thailand are village funds and saving groups. The informal financial institutions are the self-help groups initiated by the members in the same area or occupation groups. The institutions or groups are organized and managed by their members without support from the Government.

[45]   "Saving groups" or "Saving groups for production" are semi-formal financial institutions in Thailand, organized or supported by the Department of Community Development to stimulate savings activities and increase financial access by the members in a specific area. There were 34,530 saving groups as of 2010 according to the Department of Community Development.

[46]   The Department of Community Development categorizes the development of saving groups into Class 1, Class 2 and Class 3. Class 3 comprises the most developed or strongest saving groups while Class 1 comprises the least developed or weakest saving groups. The classification is based on the groups' organization and procedures, asset management and resources, development capacity and benefits for members.

savings groups include accounting ability, loan repayment ability of members, group regulations and rules, and members' benefits.

# D. Survey results

This section reviews the survey results. The list of interviewed agencies and individuals is given in annex 1. The survey questions are listed in annex 2. The purpose of the survey was to identify the impact of trade facilitation measures in Mukdahan and Nakhon Phanom provinces on the poor and the obstacles they face in obtaining benefits from trade facilitation measures.

## 1. Impact of trade facilitation measures on the poor

This study considers the impact of trade facilitation measures in Mukdahan and Nakhon Phanom provinces on the poor by dividing such effects into the impact on overall economic growth and income of the poor, migration flow and social impacts.

*(a)    Economic growth and income*

The interviews with relevant stakeholders, including provincial government agencies, entrepreneurs and villagers, confirmed that the construction of the Thai-Lao Friendship Bridges in both provinces as well as the implementation of other trade facilitation-related initiatives had promoted economic growth and increased income of the population in the two provinces.[47] This comes from several factors, which are detailed below.

*(i)    Job creation and job diversion*

Trade facilitation initiatives create jobs in several sectors, as discussed below. This leads to more employment, higher wages and greater profits for entrepreneurs and microenterprises. That, in turn, promotes the economic growth and well-being of the population. However, in some cases, the implementation of trade facilitation measures destroys opportunities in some occupations in the provinces due to more competition from expatriate workers, both from other regions in Thailand and from neighbouring countries.

*(ii)    An increase in investment*

The implementation of trade facilitation measures and better access to neighbouring countries make Mukdahan and Nakhon Phanom attractive to investors in a number of sectors. The two provinces have seen many projects and business start-ups by investors from other regions of Thailand as well as from neighbouring countries, ranging from food and agricultural processing industries, superstores, restaurants and hotels, to hospitals, logistics, recycling industries and retail stores among others. The big enterprises comprise rubber processing, tapioca processing and recycling industries, logistics services,

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[47]    Sample selection and sampling method are explained in Section B.

hospitals, superstores and distribution centres. Small enterprises have also opened businesses such as restaurants, coffee shops and tour guide services. Such investment promotes employment, income and economic growth.

### (iii) Increase in land and real estate prices

Trade facilitation measures have led to higher asset prices in the provinces, especially land and real estate prices. An increase in asset prices improves people's living standard, particularly in border communities. According to the survey interviews, there has been a notable increase in land prices in the border areas, especially around the bridges. For example, land prices in Baan Hom (the closest area to the Third Thai-Lao Friendship Bridge) have increased more than four times since the completion of the bridge. Many villagers at Baan Hom have gained large sums of money by selling their land, in many cases to speculators and corporate enterprises from other regions. However, the long-term effect of this land and real estate price bubble among border communities may actually prove to be negative as many of the villagers will have to start up their occupations again in other unfamiliar areas.

### (b) Impact on specific sectors

### (i) Agricultural sector and local products

As in other provinces in the north-eastern region, agriculture has long been the most important sector in Mukdahan and Nakhon Phanom provinces, with rice, sugar cane and tapioca accounting for the main agricultural products. Recently, there has also been an increase in rubber plantations and the rubber processing industry in the two provinces.

The establishment of trade facilitation measures eased transportation of agricultural products originating from the two provinces as well as products in transit from other Thai regions to China and Viet Nam. China is a major importer and consumer of agricultural products such as rice, tapioca and rubber. Therefore, the measures have increased the opportunities for rural and border communities in the provinces to access the Chinese and Vietnamese markets. In addition, according to the interviewees, Mukdahan province is the centre for rubber processing industries and rubber distribution in the north-eastern region due to the advantages of its location.

Both China and Viet Nam import fresh fruit from Thailand. Therefore, exporters from other regions of Thailand depend on trade facilitation measures in Mukdahan and Nakhon Phanom provinces for transportation of their products to southern China and central Viet Nam. Exports of these products create opportunities for logistics and transport businesses in the two provinces. Before the establishment of Route 12, it was not possible to export fresh fruit to southern China due to the long shipping time which resulted in fruit going rotten before delivery. Therefore, trade facilitation measures have created new markets for such products. Also, fresh fruit exports to Viet Nam can now be sold at higher prices since the quality is better.

Moreover, according to the interviews with chambers of commerce and Provincial developers[48], both countries are highly interested in importing organic rice from the two provinces, even though there are tariff and non-tariff barriers on rice in Viet Nam and China, The organic rice is produced by rural and border communities and it has a high value-added. Exports of packages of organic rice weighing up to 1 kilogram are allowed to Viet Nam and China.

Another opportunity in the agricultural sector is contract farming with the Lao People's Democratic Republic. As the Lao People's Democratic Republic is gifted with natural resources and fertile land for plantations, investing in agriculture and agricultural processing industries in that country is promising. The agricultural products of greatest interest are rice, rubber, livestock, sugar cane and sugar, soybean and soybean oil.

However, according to the interviews, the major obstacle faced by the poor and microenterprises in investing in the Lao People's Democratic Republic is the requirement for long-term expertise and skills in such production projects by the Government of the Lao People's Democratic Republic and the need for huge capital to set up business there.

According to the interviews with the OTOP group and the chambers of commerce, many local products and OTOP products can be exported to Viet Nam and China. The high products with high potential include organic rice in small packets, silk, fermented mud cloth, indigo dyed cloth, cattle from Nong Sung district and wicker baskets. Some products such as fermented mud cloth have received high export sales volumes. Also, some OTOP groups and local communities import materials such as rattan, wood and cloth from the Lao People's Democratic Republic.

However, according to the interviews, it was found that some obstacles are experienced by local communities, OTOP groups and microenterprises in taking advantage of such opportunities. These obstacles are mainly a lack of capital, management and marketing skills, financial knowledge, designing skills and manpower.

(ii)     *Service sector*

According to the interviews, the service sector has experienced the highest positive impact from the implementation of trade facilitation initiatives in the two provinces, especially in tourism, hotels and restaurants, logistics services, retail and wholesale businesses, education and health-care services.

Due to an enormous increase in tourists, businessmen and gamblers who transit through Mukdahan and Nakhon Phanom provinces when visiting the Lao People's Democratic Republic and Viet Nam, the tourism-related businesses have prospered in recent years. The sectors that benefit the most include tour guides, tour coordinators, hotels, restaurants, car and van rental services, and hired drivers. According to the

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[48]    Provincial developers are the government officers under the Ministry of Interior responsible for developing rural residents in three areas, i.e., poverty reduction, health-care, and knowledge promotion.

interviews, there has been a distinctive rise in such businesses and services in Mukdahan province. The private sector and local communities have recorded a rise in the number of hotels, restaurants, coffee shops, tour guide services and car rental services. Moreover, tour operators in Mukdahan confirmed a sharp increase in the number of tourists from other regions of Thailand, leading to business expansion and the establishment of cooperation with Vietnamese tour guide companies.

However, it is worth noting that there is a difference in the promotion of tourist-related services in Mukdahan and Nakhon Phanom provinces. In Nakhon Phanom province, the tourism benefits are still not as evident yet due to two main reasons. First, the bridge in Nakhon Phanom was only completed in November 2011. Second, Khammouan province, Nakhon Phanom's twin city in the Lao People's Democratic Republic, is a small province with a lower population compared with Savannakhet. Also, many ecological tourist attractions along Routes 8 and 12 are still hard to access. However, according to the interviews, provincial government agencies and the private sector expect high growth in this sector in the future.

Logistics services are also gaining huge benefits from the trade facilitation measures in the two provinces. The second Thai-Lao Friendship Bridge in Mukdahan and Route 9 are part of the East-West economic corridor connecting Myanmar, Thailand, the Lao People's Democratic Republic with Viet Nam and the Danang sea port. The third Thai-Lao Friendship Bridge connects Nakhon Phanom province via Routes 8 and 12 in the Lao People's Democratic Republic, which allows transit to Viet Nam and the South China Sea. As a result, both provinces can be used as outlets to transport products and people to the Lao People's Democratic Republic, Viet Nam and China. These routes are used to transport products, particularly fresh fruit, construction materials, fertilizers, consumer products, electronics and electrical appliances and automotive parts. According to the interviews with the provincial chambers of commerce, logistic services expanded enormously after the construction of the bridges, creating employment for drivers, office staff and operational workers.

The impact of trade facilitation measures on retail and wholesale services have been mixed. According to the interviews, there have been some negative impacts from the trade facilitation measures. Before the bridges were opened, microenterprises in Mukdahan and Nakhon Phanom provinces transported consumer products by boat to the Lao People's Democratic Republic. However, the bridges have made it easier and more convenient for Lao people to visit Thailand to buy consumer products from newly-established supermarkets. In addition, the superstores are eliminating retail and wholesale microenterprises.

However, specific retail and wholesale services have benefited from the trade facilitation measures. Microenterprises selling packaging and containers have seen major increases on business as sales orders for many products such as silk, fermented mud cloth, indigo dyed cloth and wicker baskets have risen rapidly. Wholesale enterprises selling automotive parts, IT products and electrical appliances have also recorded greater sales to the Lao People's Democratic Republic and Viet Nam.

In the case of educational services, the interviews revealed the fact that many Vietnamese students come to study tourism management and the Thai language to become tourist coordinators. Also, many Lao and Vietnamese students enroll at vocational training schools in Mukdahan and Nakhon Phanom provinces. Most Lao students earn scholarships to pursue their studies in Thailand under the capacity-building projects of the GMS programme. The educational programmes attracting Vietnamese and Lao students are mostly short courses on tourism and hotel management as well as training for technicians and mechanics.

Health-care services have also experienced a positive impact from trade facilitation measures. The interviews indicated that there had been an increase in health-care providers and clinics in the two provinces. Many patients receiving therapy at hospitals and clinics in these provinces came from the Lao People's Democratic Republic and Viet Nam. However, it is important to note that some of the patients receive free health-care services as part of the benefits for foreign workers from neighbouring countries. The interview with health-care providers in border communities indicated potential problems regarding undercapacity of health-care services due to subrogation of such benefits by foreign workers' family members or relatives.

*(c)*   *Migration flows*

The trade facilitation measures have led to migration, both from neighbouring countries and from other provinces of Thailand. The purposes of migration can be job seeking, investment, permanent residence and asset speculation.

Similar to other provinces of Thailand, Mukdahan and Nakhon Phanom are facing a lack of workers, especially housekeepers, servants, waitresses and other manual labourers. As a result, there is a steady flow of such workers from the Lao People's Democratic Republic to the two provinces. Labour migration has intensified as a result of the recent increase in Thailand's minimum wage requirement. However, from the interviews it became apparent that this labour migration was not resulting in unemployment among local people because foreign workers were filling the positions that local workers did not want to take up. However, the interviews with microenterprises and local workers indicated that labour migration from neighbouring countries might eventually cause a slow increase in local workers' wage rates, many of whom still receive salaries that are lower than the official minimum wage. The survey showed that labour migration mainly affects the income of blue-collar workers.

Some foreign workers also work as skilled labour. One example is that of Vietnamese who work as tourist coordinators for tour guide enterprises in the provinces.

Problems arising from labour migration may be related to the presence of illegal/ unregistered foreign workers. Illegal foreign workers do not undergo health certification procedures and lack access to legal counselling bodies. As a result, they can lead to a greater negative social impact such as the introduction of contagious diseases or increases in crime (see below).

The interviews also indicated that other reasons for migration included land speculation and changing residence. Permanent residential movement of Thai people from other provinces, especially in the north-eastern region, has shown a marked increase. Many people were moving permanently to Mukdahan and Nakhon Phanom provinces to seek business and career opportunities in order to improve the well-being of their families since trade facilitation measures had created more employment opportunities, better infrastructure, and improved educational and health-care services.

*(d)    Social impacts*

According to Cheewatrakoolpong (2009), local communities and especially the poor enjoy only limited benefits from the economic corridors and CBTA of the GMS programme. In many cases, the border communities are experiencing negative impacts from the initiatives due to substantial changes in job characteristics, economic structure, their way of life and the environment. The problems stem from a lack of coordination between the Government and the border communities during the formulation of the GMS-related policies. Stone and others (2010) also pointed to the negative impacts, and which cannot be addressed by the CGE model, on the poor from trafficking, traffic accidents, environmental effects and income disparities.

The interviews revealed negative impacts from the measures such as gambling, drugs, contagion and diseases, and prostitution.

*(i)    Gambling*

Gambling was one of the biggest concerns among all stakeholders interviewed. Casinos are prohibited from opening in Thailand by law but there is a big casino in Savannakhet called "Savan Vegas". Also, the opening of another casino is planned in Khammouan. The easy access to the casino is creating a gambling addiction problem among many local people in Mukdahan. Most gambling addicts are from the poor and middle-income groups such as manual workers, provincial government officers, teachers and nurses.

Gambling is responsible for several problems such as robbery, drug trafficking, human trafficking and other crimes as well as suicide, serious debt and poverty. Many gamblers resort to car theft, drug trafficking and human trafficking in order to repay their debts. Some have committed suicide due to huge gambling debts.

Furthermore, the casino uses the network system to bring more clients from all regions in Thailand. The van drivers earn commissions when they can persuade clients to visit the casino. In addition, only limited control of casino visits by Thai people is exercised by the Government of Thailand. Enormous advertisements for the casino can be seen in many areas such as on sky lab cars[49] and taxis. People who pass the border checkpoint to visit the casino are assisted rather than controlled. There are even supporting facilities such

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[49]    Sky lab cars or "Tuk Tuks" are auto rickshaws found in Thailand.

as banks, ATM machines, rental cars and vans at the border crossing areas for people visiting the casino.

### (ii)    Drug trafficking

There are two major reasons for drug trafficking in Mukdahan and Nakhon Phanom provinces. First, as mentioned above, many gamblers attempt drug trafficking in order to repay their debts. Second, the intense suppression of drug trafficking and stricter controls at other border crossing points such as Mae Sod in Tak province and Mae Sai in Chiang Rai province has led to drug dealers attempting to use the other border crossing points such as Mukdahan and Nakhon Phanom for their drug trafficking.

### (iii)    Diseases

Labour migration from the Lao People's Democratic Republic is also of concern from the perspective of health issues. As the Lao People's Democratic Republic is underdeveloped in terms of its health-care system, labour migration may result in the spread of contagious diseases, some of which have disappeared from Thailand. The main concern in this area is that illegal immigrants who may avoid health certification procedures required by Office of Foreign Workers' Administration.

Some health-care providers have also voiced concern about the subrogation of foreign workers' health-care benefits as the number of foreigners who have received related benefits is higher than the number of registered foreign workers. According to the Alien Employment Act of Thailand, low-skilled migrant workers with work permits or registered foreign workers have to pay a fee to obtain universal health-care coverage. However, health-care providers in the public hospitals near the border checkpoints have pointed out that many relatives or family members obtain health-care benefits under the name of the migrant workers. This has resulted in a burden being placed on the public health budget and created an under-cpacity of health-care providers.

### (iv)    Prostitution

Prostitution as a result of trade facilitation measures is another cause for concern among all stakeholders. The interviews with the relevant stakeholders revealed that some Lao women now take advantage of the improved links provided by the Thai-Lao Friendship Bridges and other connecting roads between Thailand and the Lao People's Democratic Republic to provide sexual services in the two provinces. Prostitution by Lao women is practiced openly in many areas such as at the Glass Tower in Mukdahan province. The interviews also revealed a growing number of sex tours were being organized for inhabitants of Thai communities in Mukdahan and Nakhon Phanom provinces to visit prostitutes in the Lao People's Democratic Republic. A related problem that is also of serous concern is the danger of the spread of HIV.

*(v)*     *Loss of residential and work places*

The construction of the bridges and related projects, such as the establishment of customs offices, distribution centres and product exhibition centres, requires the expropriation of land in local communities such as Baan Hom. Although some of the villagers had occupied land without propriety rights, they had lived there for several generations. The expropriation, which provides little compensation, involves a slow dispute settlement process with provincial government agencies and a lack of planning to alleviate the negative impact on local communities. Recently, the Member of Parliament for Nakhon Phanom had to act as a mediator in solving such a problem by offering the villagers substitute plantations and residential areas.

## E. Financial access problems and other obstacles facing the poor in benefiting from trade facilitation measures

Financial access is one of the main obstacles facing the poor in benefiting from trade facilitation and increased business opportunities. This problem is related to the peculiarities of the microfinance system in Thailand, and in the two provinces under study in particular.

Two types of microfinance institutions are available in Mukdahan and Nakhon Phanom provinces, i.e., formal institutions and semi-formal and informal institutions. The major formal microfinance institutions are BAAC and GSB. The semi-formal and informal institutions are village funds and savings groups in the local communities.

In the case of formal institutions, GSB provides microcredit in the urban areas to vendors in fresh food markets via the People's Bank Project in the form of group lending. The loan terms are flexible with a duration of up to eight years at an interest rate of between 0.5 per cent and 0.75 per cent per month. The maximum loan amount is Baht 200,000. However, the bank has experienced high non-performing loans in this project due to weak social linkages among borrowers in the same group. As a result, the GSB branches tend to limit microcredit under the People Bank Project to previous customers with good savings history. In addition, GSB has changed the condition for loans from group lending to a requirement for two guarantors. Some branches only lend money according to the People Bank project to employees with guarantors instead of to vendor groups in the markets. The interview with GSB in Nakhon Phanom revealed that loans to vendors in markets only accounted for 20 per cent of the total loans under the People Bank Project.

In addition, GSB provides loans for saving groups and village funds under the rural development project. However, according to the interviews with GSB officers, the project is unsuccessful. There are no loans according to this project in the branch in Muang district of Mukdahan since the strong savings groups have no need to depend on external finance while the small groups are not strong enough to be granted GSB loans. In Nakhon Phanom, GSB has high non-performing loans under this project.

The aim of BAAC is to provide loans to farmers and their families also with low interest rates and flexible loan conditions. However, the loans are limited to farmers with the proprietary land rights. As a result, poor farmers and agricultural employees may be unable to access loans provided by BAAC. Both GSB and BAAC experienced an increase in requests for microfinance loans following the implementation of trade facilitation measures in both provinces. Many farmers have requested loans for sugar cane and rubber planting. Trade facilitation has also increased the volume of sales in fresh food markets and in exports to the Indo-China market, which has boosted the ability of market vendors to repay their debts.

In addition to village funds and saving groups, the Thai Women Empowerment Fund is another type of microfinance institution.[50] However, interviews with related government agencies and banks showed that those groups in both provinces are relatively weak compared to saving groups in other regions of Thailand. The committees of the strong groups have a policy of depending on the groups' savings rather than on external finance, and they follow the philosophy of the sufficiency economy. Some local communities also rely on their children who seek jobs in the major cities and send money back home. Therefore, they have no inclination to ask for loans and expand business on their own. Some members of the groups claim that the loans they receive from the village funds and saving groups are lower than what they need, but if they use the money for occupational purposes such as raising farm animals and buying farming materials, the loans can still improve their well-being and raise their financial status. The difficulties that they experience arise from the fact that many members of the groups use their loans for consumption purposes such as buying cars.[51]

The interviews revealed other obstacles, which showed that improvement in microfinance alone will not be enough to help the poor and microenterprises. The most important obstacles are the lack of management, marketing and designing skills among the poor and microenterprises for making their products more suitable to meeting the requirements of the final consumers in Viet Nam and China. They also lack economic and market knowledge. Therefore, they need additional support in terms of capacity-building, business matching and integration into supply chains in order to gain the full benefits offered by trade facilitation measures.

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[50]    Thailand's village funds are the microcredit scheme initiated by former Prime Minister Thaksin Shinawatra. The Thai Women Empowerment Fund is a new microcredit scheme initiated by Prime Minister Yingluck Shinawatra to promote financial access for women. For details of savings groups, see footnote 12.

[51]    This confirms the finding by Townsend (2011) with regard to the "Million Baht per Village" project, which is seen as having a major impact on short-term credit and consumption while causing deterioration in overall asset growth.

# F. Stakeholder analysis

This section identifies the interest,[52] impact,[53] influence[54] and importance[55] of relevant stakeholders in enabling the poor and microenterprises to gain greater benefits from trade facilitation measures. The relevant stakeholders comprise provincial government agencies, provincial developers, chambers of commerce, and formal, semi-formal and informal microfinance institutions, large and medium-sized enterprises, microenterprises and local communities.

## 1. Provincial government agencies

The most important provincial government agencies responsible for poverty reduction in the provinces are the Department of Community Development and provincial developers. They are responsible for rising standard of livings and eradicating poverty of local communities. To do so, they promote occupations of local communities via skill training and market seeking for local products. They also give training on financial disciplines and financial literacy via many programmes such as coordinating the establishment of saving groups, creating sufficiency economy villages. Other relevant government agencies, even though having minor roles on poverty reduction, are District Highway Offices,[56] Office of Customs and Immigration as well as Custom Quarantine (ICQ) units at the borders,[57] and Provincial Offices of Commercial Affairs.[58]

The provincial government agencies, especially the Department of Community Development, and provincial developers, have strong interest in efforts to achieve poverty reduction. They bridge the gap between the central Government and local communities. The Department of Community Development and provincial developers are directly responsible for the promotion of community occupation opportunities as well as helping to establish village funds and saving groups that provide financial access for the poor and local communities. If the provincial government agencies have strong social linkages with local communities, it is easier to achieve the central plan for poverty reduction.

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[52]   The perceived level of interest/eagerness (i.e., ranging from commitment to the status quo to openness to change).

[53]   The degree of impact that the projects/initiatives will have on each stakeholder.

[54]   The influence of a stakeholder is measured by how important that stakeholder is to the success of the initiatives.

[55]   The importance of a stakeholder to the formulation and implementation of initiatives, i.e., the power a stakeholder has to facilitate or impede design and implementation of policy reform.

[56]   These offices are responsible for the formulation and implementation of trade facilitation measures related to their provinces.

[57]   These units are responsible for border crossing and customs procedures.

[58]   These offices are responsible for (a) the promotion of commercial activities and the economies of provinces, and (b) supporting and facilitating provincial enterprises in terms of trade, investment and the utilization of commercial privilege rights.

According to the interviews, most of the inhabitants of local communities are well-educated and want to promote the well-being of their communities. Their concern about the target of poverty reduction is policy consistency in the central Government. The interviews revealed that the central Government's policies and projects had altered several times, especially when there were changes of ministers or in the Cabinet. A lack of policy consistency makes it difficult for provincial developers to achieve poverty reduction.[59]

Poverty reduction and the greater involvement of local communities in utilizing trade facilitation measures to promote their well-being are seen as important by the Department of Community Development and provincial developers, but not by many other provincial government agencies. The example of land expropriation in Baan Hom communities indicates that some government agencies accord a low priority to communities' well-being as such action is often executed without either proper compensation and/or a relocation plan for the communities until a Member of Parliament (MP) intervenes.

## 2. Members of Parliament

An MP can communicate the problems, needs and interests of local communities to the Parliament and Government quickly. If MPs become involved closely with communities in their constituencies, and have high bargaining power, they can be very influential in achieving results. They form a "short-cut" between the central Government and local communities.[60] In principle, MPs should have a strong interest in the goal of poverty reduction and the improvement of community well-being since they need to maximize votes. However, in practice, that interest varies depending upon personal attitudes.

The priority that MPs place on poverty reduction and the involvement of the poor in the utilization of trade facilitation measures is varied. Some MPs place a high priority on this goal and bring about many important projects with that objective in mind. Nakhon Phanom province is a good example of the strong political side that has resulted in the implementation of several trade facilitation and infrastructure initiatives such as the third Thai-Lao Friendship Bridge, the Nakhon Phanom provincial airport, a distribution centre and product exhibition centre, Nakhon Phanom University, and the promotion of the Nakhon Phanom regional centre hospital.

## 3. Microfinance institutions

As mentioned above, both Mukdahan and Nakhon Phanom provinces have formal, semi-formal or informal microfinance institutions.

The formal microfinance institutions, GSB and BAAC also have other roles so they cannot focus only on microfinance activities. In fact, GSB has a relatively low level of interest in microfinancing due to insufficient personnel and the need to concentrate on other

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[59]   One example is the implementation of the debt moratorium project, which obstructed the long-term training of farmers and other villagers in financial disciplines.

[60]   The Member of Parliament who pursued the process of compensation and relocation for the villagers in Baan Hom whose land was expropriated shows the influence that such stakeholders can wield.

areas such as mortgage loans for those with higher income than people requiring microcredit. Because BAAC provides financing mainly for farmers with the propriety land rights, truly poor farmers are not always able to access BAAC services.

The semi-formal and informal institutions provide better access for the poor in local communities. However, because most of the saving groups in the two provinces are not as strong as similar ones in other regions of Thailand, they do not always have enough capital to provide financing needed by their members for business expansion or other investment purposes. They can only provide loans in emergencies or for minor consumption requirements.

Conversely, the strong saving groups have no interest in undertaking lending activities as their main objectives are to promote community savings and follow the philosophy of a sufficiency economy. Therefore, only village funds are available as a source of microcredit. However, village funds are policy-driven institutions. If any village fund committee decides not to depend on external finances, its ability to provide credit will be limited.

Since a lack of, or limited access to, financing remain a main obstacle to the poor and microenterprises to fully benefiting from trade facilitation measures, microfinance institutions have a very influential role to play in achieving poverty reduction.

## 4. Private sector

The relevant private sector agencies are provincial chambers of commerce and microenterprises. The objective of provincial chambers of commerce is to promote trade as well as agricultural, industrial and investment activities in the provinces. They provide economic and business information as well as business assistance and knowledge, and technology transfers to their members. Strong provincial chambers of commerce such as the one in Mukdahan can help microenterprises to improve their businesses and benefit from trade facilitation measures through: (a) the provision of advice on business opportunities and market trends; (b) assistance with exporting and trading processes; (c) business matching; and (d) organizing visits by microenterprises to business road shows in neighbouring countries.

Microenterprises are key stakeholders in the effort to successfully gain l benefits from trade facilitation measures. The realized benefits vary. Some microenterprises seek benefits from trade facilitation measures with regard to matching their products or services with the needs of new consumers. Others see the opportunities but lack the necessary financing for expanding, their businesses. Many microenterprises lack management and marketing skills, which prohibits them from taking advantage of the benefits of trade facilitation measures. A few microenterprises, such as retail services, experience a negative impact as trade facilitation can destroy their business opportunities.

Provincial chambers of commerce and microenterprises have a strong interest in trade facilitation measures as they regard such measures as a gateway to new markets and customers and a way of creating profitable business opportunities.

The priority placed by provincial chambers of commerce on using trade facilitation measures for poverty reduction varies. In Mukdahan province, the private sector is strong and well-connected, so the chamber of commerce has been able to initiate several projects to promote trade facilitation initiatives that benefit microenterprises.[61] However, because the private sector in Nakhon Phanom relatively weaker, the chamber of commerce has given a lower priority to such objectives. In addition, the chamber relies on assistance from the public sector in promoting microenterprise involvement in the usage of trade facilitation measures rather than initiate projects on its own.

Microenterprises place strong importance on utilizing trade facilitation measures for their businesses, and many regard such measures as great opportunities for business expansion and investment.

The private sector is a very influential factor in the successful use of trade facilitation measures for poverty reduction. The chambers of commerce can provide relevant information about new demands, market trends, trade and export processes, and financial and management knowledge as support for microenterprises in establishing or expanding business.

Microenterprises are also the key to the success of trade facilitation in achieving poverty reduction. If microenterprises have sufficient capacity and determination to seize opportunities as they arise, they are more likely to improve their business status via the utilization of trade facilitation measures.

## 5. Local communities

Local communities are the stakeholders most affected by the implementation of trade facilitation measures, both positively and negatively. Local communities pay great attention to trade facilitation initiatives since they may be able to use the measures for their occupation opportunities.[62] In addition, trade facilitation measures may sometimes lead to a change in their way of life and social structure. Some can even lose their homes and plantations due to land expropriation. However, the problems facing local communities is a lack of awareness of both the existence of the initiatives and how those initiatives can affect them or provide them with opportunities.

The communities surrounding the areas where the measures are implemented place greater importance on the initiatives, as they are likely to be affected the most. Although local communities experience the greatest impact from trade facilitation measures, they are unable to influence any projects concerning the utilization of trade facilitation measures for poverty reduction. They are the recipients of ineffective one-way communication from the Government, and thus lack the opportunity to express their

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[61]    Some example projects are the road shows of local products in neighbouring countries, business matching as well as helping microenterprises with capacity-building and adjusting production to meet new demands.

[62]    A good example is that of villagers who started street stalls selling food and groceries after the opening of the Thai-Lao Friendship Bridges resulted in a steadily rising number of visitors.

opinions regarding policy formulation. At times, policies are formulated without consulting the local communities, resulting in a negative impact on them.[63]

## 6. Summary

Since the two provinces have different interests with regard to the utilization of trade facilitation for poverty reduction, the influence, importance and interest of each category of stakeholder is shown in table 3.

**Table 3. Stakeholder influence in trade facilitation utilization for poverty reduction in Mukdahan and Nakhon Phanom provinces**

| Stakeholder | Influence | | Importance | | Interest | |
|---|---|---|---|---|---|---|
| | Power to facilitate or impede | | Actual priority given to stakeholder needs | | Actual commitment to change | |
| | Mukdahan | Nakhon Phanom | Mukdahan | Nakhon Phanom | Mukdahan | Nakhon Phanom |
| Department of Community Development and provincial developers | High | High | High | High | High | High |
| Other provincial government agencies | High | High | Low | Low | Low | Low |
| Member of Parliament | Low | High | Low | High | Medium | High |
| Microfinance institutions | High | High | Low | Low | Low | Low |
| Provincial chambers of commerce | High | High | High | Low | High | Medium |
| Microenterprises | Medium | Medium | High | High | High | High |
| Local communities | Low | Low | High | High | High | High |

Table 3 shows that almost all stakeholders in Mukdahan province are very interested in utilization of trade facilitation measures for poverty reduction. Table 4 summarizes the influence and importance of each stakeholder in Mukdahan.

The most interesting issue highlighted by the influence-importance matrix in Mukdahan province is that while microfinance institutions are very influential in the utilization of trade facilitation measures for poverty reduction, they still give it low priority in

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[63] One classic example is the distribution centre and product exhibition centre that have been established near the third Thai-Lao Friendship Bridge, and which involved land expropriation from the communities in that area.

**Table 4. Levels of influence and importance in utilizing trade facilitation measures for poverty reduction in Mukdahan province**

| Level of importance | High influence | Low influence |
|---|---|---|
| High importance | Department of Community Development and provincial developers, provincial chamber of commerce, microenterprises | Local communities |
| Low importance | Other provincial government agencies, microfinance institutions | Member of Parliament |

terms of financing. This problem prevents the full involvement of the poor and microenterprises in improving their economic status through the utilization of trade facilitation measures.

The difference in the stakeholder analysis of Mukdahan and Nakhon Phanom provinces comes from the roles of the respective MPs and provincial chambers of commerce. While Mukdahan province has a strong private sector, Nakhon Phanom benefits from solid political influence.

The influence and importance of each stakeholder in Nakhon Phanom is summarized in table 5.

**Table 5. Influence and importance in the utilization of trade facilitation measures for poverty reduction in Nakhon Phanom province**

| Level of importance | High influence | Low influence |
|---|---|---|
| High importance | Department of Community Development and provincial developers, Members of Parliament, microenterprises | Local communities |
| Low importance | Other provincial government agencies, provincial chamber of commerce and microfinance institutions | – |

While the problem regarding the microfinancing system in Nakhon Phanom province is similar to that in Mukdahan province, a relatively weak private sector and the reliance on the public sector prevent microenterprises from gaining benefits from trade facilitation measures.

## G. Development of microfinance products to support trade facilitation measures

This section first summarizes the problems regarding access to financial services by the poor and microenterprises in both provinces. It then proposes ways to develop microfinance institutions and products that promote better access to financial services so that the poor and microenterprises can achieve greater benefits from trade facilitation measures.

### 1. Problems regarding access by the poor and microenterprises to financial services

The limited access that the poor and microenterprises have to microfinance services in the two provinces stems from the following factors:

(a) Due to high non-performing loans of microcredit for group lending, microfinance institutions decided to reduce the amount of such loans, and now require collateral or guarantors instead. The failure of group lending comes from the fact that the GSB used this lending method in the urban areas to finance group businesses such as fresh food markets. However, Kamolshotiros (2011) found that social linkages among such people were weak. As a result, social sanction has failed to be a successful enforcement mechanism to ensure debt repayments;

(b) Given that the formal microfinance institutions now require collateral or guarantors as one of the conditions for granting loans, it is difficult for the poor and microenterprises to obtain credit from those institutions. In the case of BAAC, the loan condition is that the farmers must have the propriety land rights. Therefore, microcredit from formal microfinance institutions cannot reach the very poor and microenterprises;

(c) Many poor people and microenterprises feel that the process and required documentation involved in seeking credit are complicated. Some microenterprises do not have a trade licence, yet such a licence is required as evidence when requesting a loan;

(d) The formal microfinance institutions lack adequate personnel who are directly responsible for microfinancing services. However, such personnel are important for ensuring strong linkages with clients and for making frequent visits to clients' workplaces. Strong links between the institutions and their clients is crucial to promoting financial discipline among clients;

(e) Savings groups in the two provinces are relatively weak. The interviews with GSB in Nakhon Phanom revealed that most of the loans given to savings groups under the "community development loans" project had become non-performing loans. The reason for weak saving groups may b the result of the social structure in the north-eastern region where most working-age people leave their hometowns to work in other urban areas. This contrasts

strongly with the stronger social bonds among people in the northern or southern regions of Thailand, most of whom work in their hometowns, mainly in agricultural sector. Because of the weakness among north-eastern savings groups they cannot act as a supporting mechanism in providing microfinancing services to local communities;

(f)     The loan amounts granted to the poor and microenterprises, either from village funds or formal microfinance institutions, are mostly too little to meet their needs;

(g)     Microfinance institutions fail to verify whether the loans are used for the stated purpose. Many loans that that are requested for business start-ups or expansion are actually used for consumption purposes;

(h)     There are no specialized financial institutions that offer microfinancing services in Thailand. GSB provides various services, including savings stimulation, normal commercial bank services, policy-driven projects and microfinancing services. BAAC serves all farmers and agricultural workers but with the condition that they hold propriety land rights which excludes the very poor farmers. Because these financial institutions are involved in providing a wide range of services, they do not concentrate on microfinancing activities, which require more effort and yield fewer profits.

## 2. Suggestions for improving and developing in microfinance products and services

As mentioned in section D, the main benefits for the poor and microenterprises from job creation come from agricultural production, services and local products. This subsection contains suggestions for developing and improving microfinance products and services in order to help the poor and microenterprises gain access sources of financing and benefit more from trade facilitation measures. The authors have followed the system of Brand (1998) and Cheewatrakoolpong and others (2011) who divided microfinance development into three areas, i.e., microfinance products, microfinancing processes and microfinancing strategies. The suggestions are also separated according to whether they are short term or long term.

*(a)     Short-term suggestions*

The short-term suggestions are aimed at improving existing microfinance products and services or developing new products or services through existing microfinance institutions.

*(i)     Microfinancing products*

**Group-lending conditions:** One of the major obstacles facing the provision of microcredit by microfinance institutions is the failure of the group-lending system. Therefore, the answer to this problem would be better to alter the group-lending conditions to better match the social structure of the local communities. The current GSB requirement

is that the people in the group must be vendors in the same market. However, Hermes and Lensink (2001) indicated that groups of people living in the same community have stronger social bonds. As a result, it would be more helpful to require that people forming such a group should be living in the same community. Also, in the case of urban areas, in which social bonds are weaker, Bangladesh's Savesafe method that gives personal loans might be a better option.

**Required documentation:** Some microenterprise cannot obtain microcredit due to their inability to meet documentation requirement from financial institutions. For microenterprises, it may help facilitate the process of obtaining microcredit if the institutions relax the documentation requirements and instead review their workplace, production or service activities and income statements. This practice is similar to the case of the GSB People's Bank Project in which GSB credit officers inspect the vendors' stalls before granting credit.

**Save-first, borrow-later condition:** Recently, GSB changed its minimum three-month, save-first, borrow-later condition from three months to just having a savings account with the bank. However, the relaxation of this condition does not enable the poor to easily access credit since, in practice, GSB branches find granting credit to the poor to be a tough decision due to past non-performing loans. It would be better to reinstate this condition to make sure that the poor or microenterprises follow good financial discipline before granting loans. Also, after successfully passing the save-first, borrow-later condition, the credit-granting process might be made faster since GSB is already aware of the historical financial background of its clients. The loan amount could also be increased according to the number of prior months that each client is willing to save. To sum up, instead of relaxing the conditions regarding clients' financial discipline, it would be better to increase flexibility in terms of guarantors, collateral and loan amount as well as ensure a timely loan granting process.

**Leasing for farming or occupational equipment:** Since many of the poor as well as microenterprises do not have land or real estate that can be used as collateral, leasing farming or occupational equipment such as pushcarts, rickshaws, containers or trolleys could help them to access financing more easily. In some countries, livestock leasing is also acceptable.

**Progressive loans and flexible repayment periods for long-term projects:** Some types of plantation farming involve a lengthy growing period before they can provide farmers with income. For example, rubber requires more than five years of growing before the rubber-tapping process can start. Therefore, plantation farmers might not have ability to repay their debts during that initial growth period. Despite the fact that such plantations often yield high profits, this prevents poor farmers from accessing required microcredit. Therefore, microfinance institutions could adjust the conditions of loans intended for investment in rubber or other long-term plantation projects. For example, for a rubber plantation a progressive loan could be granted according to the stage of tree maturity, with debt repayment set to begin when the farmers can start to tap rubber. During the first five years, the farmers could be required to only pay interest.

*(ii)    Microfinancing process and strategies*

**Increase the number of officers directly responsible for microfinancing services:** According to the interviews, a lack of personnel is one main reason for the low coverage of microfinance services. Personnel are needed for visiting the work places of poor clients and microenterprises to collect their savings and debt repayments, and to observe their businesses. However, the limited number of personnel per branch impedes the expansion of microfinance services coverage. If the institutions have enough staff to provide microfinance services, the poor and microenterprises could be visited more frequently. This would promote financial discipline among the clients and facilitate microcredit granting process. Also, the institutions would be able to expand microfinance services to areas that are difficult to access.

**Establish a specific microfinancing unit within financial institutions:** Apart from the lack of personnel, each branch of a financial institution has to accomplish a range of objectives. As a result, they cannot focus specifically on microfinance services.[64] The establishment of special units responsible for microfinancing services could be a good strategy for accomplishing better services and coverage.

**Cooperation with community groups for microfinancing services:** Since financial institutions have symmetrically detailed information regarding the income status, financial discipline and dependency of the poor and microenterprises, collateral and guarantors for loans are needed. If a better mechanism is put in place to evaluate such information, the need for collateral and guarantors may not be necessary. Savings groups, village funds and occupational groups have closer linkages with people in their communities. As a result, they have comprehensive information regarding the local inhabitants and are therefore in a better position to assess the credit worthiness of the poor and microenterprises in their communities. In regions with strong community groups, such as Ayutthaya and Trat provinces, both BAAC and GSB use the groups as a channel for providing savings and lending services to villagers. However, such cooperation is not apparent in Mukdahan and Nakhon Phanom provinces. The financial institutions should stimulate and strengthen such cooperation within community groups, starting with the provision of more detailed financial and management knowledge to group committees and members. The groups will then be able to bridge the gap between the institutions and communities, and help the poor and microenterprises to gain better access to financial assistance.

*(b)    Long-term suggestions*

*(i)    Development of strong savings groups or community groups within Mukdahan and Nakhon Phanom provinces.*

The previous subsection considered the possibility of providing microfinance services via community groups. The groups can be good intermediaries if they are strong

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[64]    Bank Rakyat Indonesia is a good example of a financial institution that has established a special microfinance unit, called BRI Village Units (*Unit Desa*) and becomes successful in microfinance activities.

enough. However, most community groups in Mukdahan and Nakhon Phanom provinces do not have sufficient capability to provide such services. The differences between the groups in these two provinces and those in other regions of Thailand arise from the culture of north-eastern people who tend to leave hometown and work in urban areas. This results in weaker social bonds within north-eastern communities. However, since the implementation of trade facilitation measures is providing more occupational opportunities in the two provinces, it should be possible to develop strong community groups in terms of technology, management skills and financial knowledge in the future with assistance from provincial developers, the offices of provincial development, and the formal financial institutions.

**Establishment of integrated credit ratings for savings and community groups:** The failure of the community development loan project in the two provinces is the result of the financial institutions' inability to assess the quality of savings groups. The credit rating provided by the Department of Community Development contains inadequate information about financial status and behaviour. As a result, the establishment of an integrated credit rating for savings and community groups could help formal financial institutions to utilize the groups as their intermediaries.

**Establishment of specialized microfinance institutions:** Thailand does not have any financial institution that specializes in microfinance services, and none of the existing institutions focus specifically on microfinance. Therefore, the establishment of an institution similar to Bangladesh's Grameen Bank or India's National Bank for Agricultural and Rural Development could be of great help in developing the microfinance system in Thailand.

**Coordination with the offices of provincial development, chambers of commerce and academic centres:** Coordination in promoting related skills and knowledge is needed, as such action would be of considerable assistance in efforts to achieve poverty reduction.

# H. Conclusion

The current study reveals that there are many opportunities for the poor and microenterprises to benefit from trade facilitation measures in Mukdahan and Nakhon Phanom provinces, especially in the agricultural, services and investment sectors. There is growing demand in Viet Nam and China for agricultural products, especially organic rice, tapioca, rubber, sugar and fresh fruit. Farmers and agricultural employees in the two provinces can benefit more now from trade facilitation measures by harvesting and exporting such agricultural products to Viet Nam and China via the improved road infrastructure. Many products such as fresh fruit could not be exported in the past since the poor infrastructure led to lengthy transportation times that resulted in fruit going rotten and the quality of other products deteriorating during transportation.

In the service sector, jobs and business opportunities have increased, especially in hotels, restaurants and other tourism-related services, logistics, educational services and

health-care services. Retail and wholesale businesses have experienced mixed results, but there has been some increase in opportunities in certain enterprises such as packaging and container services, automotive parts and electrical appliances.

Opportunities have also increased in businesses related to exporting local and OTOP products such as silk, fermented mud cloth, indigo dye cloth and wicker baskets to Viet Nam and China.

Trade facilitation measures have brought about major improvements in transportation between Thailand and its neighbouring countries, such as the Lao People's Democratic Republic, Viet Nam and southern China. This has helped considerably in promoting tourism, export activities, labour movement and investment activities.

However, the poor and microenterprises still face many obstacles in taking advantage of such opportunities due to their inability to access financing as well as a lack of relevant skills and knowledge.

The survey revealed that limited access among the poor and microenterprises to financial services in the two provinces was the main obstacle to benefiting from trade facilitation measures. Microenterprises face difficulties in obtaining loans from financial institutions due to a lack of required collateral or guarantors, the complication documentation requirements, a lack of commercial registration, and a mismatch between loan amounts and maturity dates granted by financial institutions and needed by microenterprises. As a result, microenterprises depend more on equity to run their businesses. Poor local workers, vendors, OTOP groups and farmers without land face even more problems concerning financial access as it is very difficult for them to find collateral or guarantors.

The stakeholder analysis explores the fact that microfinance institutions in the two provinces do not focus on microcredit activities. Some important stakeholders, such as provincial government agencies, in addition to the offices of provincial development and some chambers of commerce, lack interest in promoting the involvement of the poor and microenterprises in trade facilitation measures for poverty reduction.

Local communities are the stakeholders most affected by the implementation of trade facilitation measures. On the positive side, they experience more job opportunities, higher values of their agricultural and other local products, better transportation between the provinces and neighbouring countries, and increased availability of low-skilled labour. In contrast, some local communities have experienced negative impacts from trade facilitation measures, such as land expropriation and speculation, gambling, drug dealing, prostitution and other crimes, overburdening of for health care and education services, and low increases in wage rates due to rapid increases in the availability of foreign workers.

The stakeholder analysis of both provinces reveals several interesting issues, which are summarized below:

(a) There are no financial institutions, either formal or informal, that provide sufficient assistance in meeting the financial needs of the poor and local communities in utilizing trade facilitation measures for their occupational activities, investments and welfare;

(b) Apart from the offices of provincial development and provincial developers, other provincial government agencies do not get involved with initiatives that encourage the poor and microenterprises to use trade facilitation measures for poverty reduction. Policies of other government agencies rarely take into account the needs and interests of local communities and microenterprises;

(c) The involvement of provincial chambers of commerce as well as large and medium-sized enterprises is an important factor in helping microenterprises to enter value chains or benefit from trade facilitation measures. Chambers and commercial enterprises can provide guidelines regarding economic and marketing knowledge, market trends, short cuts to initiating trade and export activities in neighbouring countries, accessing financial services, privilege rights, tax exemption, tariff privileges, and other legal and regulation issues;

(d) The provinces with active and influential Members of Parliament can benefit from their role as a bridge between the central/provincial governments and local communities;

(e) Local communities and microenterprises are important stakeholders but have relatively lower influence. However, government agencies and other related parties need to consult them more in order to ensure effective policy formulation and implementation regarding the utilization of trade facilitation measures for poverty reduction.

This study offers suggestions for improving and developing microfinance products and services in order to help the poor and microenterprises access credits more easily. The suggestions for the short term are to revise the group-lending conditions, bring back the save-first, borrow-later condition, make the requirements regarding documentation more practical, implement leasing for farm and occupational equipment, provide progressive loan and flexible repayment periods for long-term projects such as rubber plantations, increase the number of personnel directly responsible for microfinancing services, set up specific microfinance units within financial institutions, and expand cooperation with community groups in providing lending and saving services.

The long-term suggestions concern the development of strong savings or local community groups within the two provinces, the establishment of integrated credit rating for such groups, and the establishment of specialized microfinance institutions.

In addition, the improvement of the microfinancing system and the development of microfinance products mentioned above will help the poor and microenterprises to gain better access to financial services, which, in turn, will increase the opportunities for them to benefit from trade facilitation measures.

The survey interviews clearly indicated that better financial access alone cannot eradicate poverty or help the poor and microenterprises to benefit from trade facilitation measures. They need additional skills and knowledge in areas such as management, accounting, finance and economics, marketing, product design, regulations and privilege rights for trading, investing and exporting activities, and other related rules. Therefore, microfinance institutions should cooperate with the offices of provincial development, provincial chambers of commerce and other academic institutions such as vocational schools or universities in order to provide these necessary skills and knowledge to the poor and microenterprises. The community groups could also be used as a channel for knowledge transfer to villagers.

The comparison between Mukdahan and Nakhon Phanom provinces reveals that the support provided by the provincial chambers of commerce and larger enterprises is one of the key factors in enabling the poor and microenterprises to successfully obtain benefits from trade facilitation measures. This stems from the fact that the provincial chambers of commerce can provide the necessary knowledge, skills and information such as international trade procedures, procedures for obtaining loans from financial institutions, the marketing and regulatory environments in neighbouring countries, and the differences in consumer demands in the markets of those countries.

# Annex 1

## List of interviewed agencies and individuals

### Mukdahan province

Bank for Agriculture and Agricultural Cooperatives (BAAC), Muang district branch.

Government Savings Bank (GSB), Muang district branch.

Committee of the Village Fund and Savings Group in Soon Mai village, Muang district.

Mukdahan Chamber of Commerce.

Nine villagers (five farmers, two labourers and two service sector employees).

Seven microenterprises in border communities (retail and repair shops, tour guides, restaurants, automobile parts, wicker basket production and mud fermented cloth).

Office of Provincial Community Development and provincial developers in Mukdahan province (two officers and two developers).

Lao workers in a Thai restaurant.

Thai restaurant owner in Savannaket, the Lao People's Democratic Republic.

The owner of OTOP in Savannaket, the Lao People's Democratic Republic.

### Nakhon Phanom province

Bank for Agriculture and Agricultural Cooperatives (BAAC), Muang district branch.

Government Savings Bank (GSB), Muang district branch.

Nakhon Phanom Chamber of Commerce.

Fifteen villagers in border communities, Baan Hom, Muang district.

Eight microenterprises in local communities (construction, construction materials, automotive parts, insurance, street food shop, electrical appliances and two general retail shops).

Office of Community Development and provincial developers in Nakhon Phanom province (one officer and two developers).

The Member of Parliament for Nakhon Phanom.

# Annex 2

## Interview questions

### Microfinance institutions

1. Current financial services to the poor and microenterprises.

2. Variety of products, distribution channels and strategies for microfinancing.

3. Awareness of trade facilitation measures in the area.

4. Realization of employment and business opportunities provided by trade facilitation measures.

5. Responses to employment and business opportunities provided by trade facilitation measures:

   (a) A change in microfinance loan amounts;

   (b) A change in the number of microfinance customers who come to seek MFI services;

   (c) A change in the number of microfinance applications that receive approval;

   (d) A change in maturity and loan conditions of microfinance loans to match the needs of new business and employment opportunities;

   (e) A change in the financial discipline of microfinance customers;

   (f) Any new microfinancing products that specifically target the opportunities from trade facilitation measures.

6. Concerns regarding socio-economic impacts on the poor that might affect their financial discipline or status (e.g., the easy access to casino in Savannakhet in the case of Mukdahan).

### The poor and microenterprises

1. Current occupation, educational level, income, family members, expenses.

2. Awareness of trade facilitation measures.

3. Realization of employment and business opportunities provided by trade facilitation measures.

4. Expectation and realization from trade facilitation measures in terms of employment and occupation opportunities, poverty reduction and quality of life.

5. A change or expected change in occupation or employment pattern after implementation of trade facilitation measures.

6. Ability to gain employment or benefit from occupational opportunities provided by trade facilitation measures.

7. Obstacles that prevent achieving the full benefits from trade facilitation measures:

   (a) Skills;

   (b) Lack of funding;

(c)  Competition from other areas;

(d)  Other reasons.

8.  Current access to microfinance institutions' services.

9.  Importance of microfinancing with regard to gaining greater benefit from trade facilitation measures.

10.  Needs for new or improvement of current microfinancing products offered by MFIs to enable them to benefit fully from trade facilitation measures:

(a)  Conditions such as repayment amounts, interest rates;

(b)  Loan amount;

(c)  Maturity dates;

(d)  Collateral and guarantee conditions such as joint liability group;

(e)  Flexibility of loans;

(f)  Specific products targeting the opportunities provided by trade facilitation measures;

(g)  Distribution channels;

(h)  Processing;

(i)  Other needs or concerns.

11.  The negative impacts of, or concerns arising from trade facilitation measures.

**Government agencies**

1.  Trade facilitation measures of both the Greater Mekong Subregion and the Government of Thailand.

2.  Contribution expectations and realization from the trade facilitation measures on poverty reduction and their realization.

3.  Change or expected change in the economic situation, employment pattern and business opportunities following implementation of trade facilitation measures.

7.  Realization of employment and business opportunities provided by trade facilitation measures.

4.  Assistance from government agencies in helping the poor and microenterprises to benefit from trade facilitation measures in terms of:

(a)  Capacity-building and training;

(b)  Thai Women's Empowerment fund

(c)  Information sharing;

(d)  Funding;

(e)  Others.

5.  Government plans for supporting the implementation of trade facilitation measures, especially in terms of poverty reduction.

6.  The negative impacts (e.g., human trafficking, drug dealing and other crimes, foreign intrusion, gambling etc.) of trade facilitation measures and the ways in which the government agencies will lessen such impacts.

7.  Need for, and ease of access to funding among the poor and microenterprises in order to benefit from trade facilitation measures.

8.  The role of the Government of Thailand in helping the poor to gain better access to microfinancing.

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# Chapter VI

# Trade facilitation and poverty reduction in Asia and the Pacific: A case study of a South Asian Economic Corridor

Prabir De and Ajitava Raychaudhuri

## A. Introduction

The relationship between trade, inequality and poverty within any country is not immune to controversy. Under free trade and competitive conditions, trade promotes growth; that growth, in turn, reduces poverty. Reducing trade costs can have a profound impact on poverty (Winters and others, 2004). In general, trade liberalization has long been seen as an important element of an effective and sound economic policy, and trade facilitation is a necessary step towards achieving that objective (Winters, 2002). Trade facilitation is aimed at ensuring the movement and clearance of goods across borders within the shortest possible time at the minimum cost.

During the past two decades, import tariffs have decreased significantly and non-tariff measures aimed at further reducing international transaction costs have gained more importance in promoting trade across countries. Removal of non-tariff measures has been shown as a significant element in easing a country's economic isolation (Arvis and others, 2012). Efficient transportation networks have become a more important factor in regional cooperation, both in absolute and relative terms. Better trade and transportation infrastructure (termed as economic corridors) would encourage fragmentation of production across borders, enhance regional and global trade, and help in realizing the economic integration process.[65]

Economic corridors became popular due to the Asian Development Bank (ADB) project in the Greater Mekong Subregion (GMS).[66] An economic corridor can be national (e.g., the Delhi-Mumbai Industrial Corridor), regional (e.g., GMS corridors) or even international (e.g., submarine telecommunication cables). In South Asia, the South Asian Association for Regional Cooperation (SAARC) Regional Multimodal Transport Study (SRMTS) has identified 10 highway corridors for the region; the SAARC Corridor 1

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[65] See, for example, Brooks and Stone, 2010.

[66] The economic corridor concept is one in which regions, covering two or more countries, are identified where infrastructure is specially promoted to strengthen trade and economic integration. The basic idea behind this concept is not just the promotion of trade across borders, but also economic development along such trade routes (Wiemer, 2009). The main advantage of promoting economic corridors is realized when trade across such corridors is sufficiently liberalized and seamless, thus lowering the cost of cross-border trading.

(hereinafter referred to as SC 1) was selected for this study to assess the empirical relationship between trade facilitation and poverty reduction.[67]

Distinct economic corridors can have the following specific benefits:[68]

(a)    Improvement of national and regional connectivity by making it faster, cheaper, and easier for people and goods to move within and across borders;

(b)    Aiding the reduction of poverty by improving poor people's access to economic opportunities, lowering the cost of the goods and services that they consume, and providing better access to essential infrastructure services such as electricity supply.

For most developing economies, economic corridors are viewed as stocks of public capital, thereby constituting a major constraint to growth. Shortages of economic corridors (i.e., infrastructure) cause congestion and, as a result, a strong tendency towards diminishing returns on capital in industry. A consequent low rate of return acts as a disincentive to investment and trade facilitation.

The issue of poverty reduction is always an important one, and trade facilitation may help in the process since it enhances competitiveness of a country or a region.[69] The objective of the current study is to identify some causal factors that relate trade facilitation to poverty reduction. It is important to assess the trade facilitation and poverty linkage, since it can help countries to undertake policy reforms in order to facilitate trade (e.g., by making improvements in trade logistics).

In particular, this study attempts to assess the potential impact of trade facilitation on poverty reduction in SC 1. The focus of the study is on the Indian side of the corridor since India has undertaken trade facilitation measures relatively more intensively than its neighbouring countries who are connected by this corridor.[70]

This chapter is structured as follows. Section B carries a literature review on economic corridor, trade facilitation and poverty, and identifies the research gaps. Data and methodology are briefed in section C. Section D presents India's trade with Bangladesh and Pakistan, more through land borders. The primary survey results and analysis are presented in section E, followed by the conclusion in section F.

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[67]    It was necessary to select a SAARC Highway Corridor (SAARC Corridor) for this study as the region, unlike GMS, does not yet have an economic corridor in operation. Annex 1 contains a map of SC 1, which originates in the State of Tripura, located in north-eastern India, passes through Bangladesh, re-enters India from the east and then moves north into Pakistan through India's western border.

[68]    See to Srivastava and Kumar (2012), in which a detailed account is provided of the economic benefits of GMS economic corridors.

[69]    See, for example, Bandara and others (2011).

[70]    The idea being that where India has undertaken many more unilateral trade facilitation measures than its partners of the corridor, then those partners may enjoy the same gains if they accelerate their trade facilitation measures and vice versa. For example, India's Integrated Check Post (ICP) project has motivated its neighbours to develop their border infrastructure.

# B. Relevant literature

Infrastructure development appears as a complementary factor that facilitates trade.[71] This will visible in a strong positive influence on either (a) trade volume (Deardorff, 2001) or (b) trade costs (Anderson and van Wincoop 2004). Annex 2 provides a schematic view of the links between trade and poverty. Falling trade costs can have a profound impact on poverty in developing countries.

Development of infrastructure for economic corridors may have greater influence than tariff and non-tariff barriers on trade costs, but measuring them is likely to be more difficult. Infrastructure is a composite term that is, for example, measured as an average of the road network density, paved road network, rail network and the number of telephone main lines per person. The supposed impact of tariff and non-tariff barriers may be less in magnitude compared to inefficiency-related and enforcement-related costs of infrastructure. Although it is difficult to measure accurately and directly, according to Limao and Venables (2001) trade costs depend heavily on infrastructure. A similar conclusion was reached in other recent studies, which showed that port infrastructure was the most important factor in the reduction of trade costs for Asian countries, given the preponderance of sea freight in those countries (De, 2009a; Brooks and Hummels, 2009).

After analysing border processing quality across 102 countries, the Organisation for Economic Co-operation and Development (2003) found that those countries with a higher per capita income generally scored better with regard to border processing quality than countries whose inhabitants were less well off. However, some countries that were not particularly well off also exhibited better border processing. The study concluded that low-income countries did not necessarily have to wait until they became wealthy before being able to adopt good border practices. Meschi and Vivarelli (2009) analysed intra-country income differences by reviewing 65 developing countries spanning 1980-1999. Using a dynamic panel data analysis of the Arellano and Bond variety, the authors found that while trade did not exert a significant influence on income inequality within countries, some other control variables such as education (through skill formation) and inflation rate did have a significant impact.

Reducing trade costs and facilitating transit are two of the key approaches to achieving a more inclusive growth through trade, i.e., one that will reduce the gap between the economic core and the outer periphery of each of the South Asian economies (De, 2009b). Doing so will encourage economic activity at and across borders, eventually generating employment through industrialization as well as benefiting the poor in the border areas and in landlocked countries. However, governments will also need to provide adequate education and capacity-building opportunities for people living in such areas so that they can effectively engage in trade.

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[71]  In some of the literature, trade facilitation has been seen as a process for improving a country's infrastructure. See, for example, Brooks and Stone, 2010.

The GMS case shows that improved regional connectivity is an important element in reducing poverty and making growth more inclusive through expansion of trade

## C. Data and methodology

This study is based on both secondary and primary data. Econometric methods were used (e.g., ordered categorical regressions) to identify the existence of specific barriers to facilitation and to make a quantitative assessment of the impact of trade facilitation on poverty reduction. The analysis was based on field survey data, collected at selected places on the Indian side of SC 1. Firms and individuals were both covered through primary survey. The route of SC 1 (which is part of the Asian Highway 1) is via Lahore-New Delhi-Kolkata-Dhaka-Agartala. It connects three SAARC countries, i.e., Bangladesh, India, and Pakistan, and therefore carries a considerable amount of regional trade. Figure 1 shows the survey region and corresponding sample sizes. The field survey was conducted through a structured questionnaire (see annex 3) on a small sample (279 sample size) in the form of a pilot survey. The primary objective was to gain information quickly on the empirical relationship between trade facilitation and poverty reduction as well as to improve the efficiency of the main survey if conducted in future.[72]

### Figure 1. Sample size and distribution
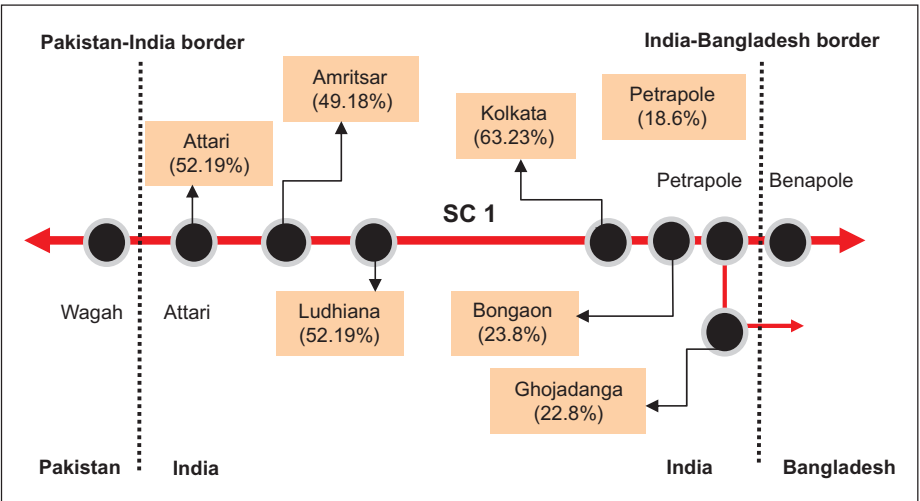


*Note:* Numbers in parentheses are sample size and corresponding share of total. Total sample is 279, of which samples of firms and individuals are 100 and 179, respectively.

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[72] The time and resources available for completing the project were sufficient for the pilot survey. This was exactly the purpose of this survey. A large-scale survey is possible now since the results from the pilot survey give a clearer vision of the role of trade facilitation in poverty reduction, based on perceptions of individuals and firms. However, a large-scale survey will need large-scale funding and sufficient time (for example, 24 months).

Another objective for selecting SC 1 was that some of the industrial clusters connected by this corridor supply intermediate products to regional/bilateral production networks in the South Asia region. Exports of yarn from India's Ludhiana, India, to Dhaka, Bangladesh are a case in point.[73] As a large number of people are involved when international trade is conducted along SC 1, their employment is directly linked with trade flows. The primary survey therefore looked at whether or not improvement in trade facilitation along SC 1 has helped remove poverty.

Trade facilitation in SC 1 is therefore an important factor contributing not only to the expansion of trade but also production fragmentation within or across countries such as Bangladesh. With production processes and tasks becoming increasingly fragmented across national borders, trade facilitation measures such as time-sensitive logistics services together with information and communication technology are the key to assisting production networks across borders. The primary survey data identify the barriers to trading with Bangladesh and Pakistan along SC 1.

## D. India's trade with Bangladesh and Pakistan

Bilateral trade between India and Pakistan witnessed an upward trend only in the second half of the past decade, when it increased sharply owing much to the India-Pakistan "Composite Dialogue" in 2004. India's trade with Pakistan trebled in 2010 and reached an all-time record of US$ 2.56 billion (table 1). India's exports to Pakistan increased much faster than imports from the latter country, thereby increasing India's trade surplus from less than US$ 100 million at the beginning of the past decade to just over US$ 1.94 billion in the first year of the ongoing decade (table 1). However, compared to their economic strength, trade between India and Pakistan is negligible and much below potential.

**Table 1. India's trade with Pakistan**

| | | | (US$ million) |
|---|---|---|---|
| **Year** | **Exports** | **Imports** | **Total trade** |
| 1990 | 43.49 | 44.86 | 88.35 |
| 1995 | 70.4 | 37.37 | 107.77 |
| 2000 | 163.33 | 65.05 | 228.38 |
| 2005 | 647.19 | 158.42 | 805.61 |
| 2010 | 2 252.89 | 310.44 | 2 563.33 |
| CAGR (%) | | | |
| 1990-1999 | 9.22 | 9.88 | 9.56 |
| 2000-2009 | 27.45 | 17.32 | 25.18 |

*Source:* United Nations COMTRADE database.

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[73] Exports of yarn from India to Bangladesh alone contributed about 35 per cent of India's total exports to Bangladesh in 2010. In 2010, India exported over US$ 1 billion textile goods including yarn to Bangladesh, where most of the yarn export originates at Ludhiana in Punjab state of India.

The composition of Indian exports to Pakistan was primarily limited to about 14 commodities in 2010-2011, and which on average accounted for some 78 per cent of the total Indian exports to Pakistan. These commodities include sugar, raw cotton, synthetic fabrics, tea, petroleum products and chemicals, reflecting India's more diversified industrial base. Shares of both raw cotton and woven fabrics in India's exports to Pakistan increased from almost zero in 2000 to more than 13 per cent in 2010, whereas the share of oil-cake and other solid residues contracted from about 16 per cent to 3 per cent during the same period. The composition of official major imports from Pakistan to India has been limited to 18 commodities, such as fruit and vegetables, wool and wool products, petroleum products, chemicals, lead and, more recently, cement. These products together share about 88 per cent of India's total import from Pakistan. In 2010, the sectors with large shares in Pakistan's exports to India were fruit (19 per cent), followed by petroleum products (12 per cent), and cement (11 per cent) (De and others, 2013).

Trade between India and Pakistan has never expanded to the extent that it would have been in a normal trade environment due mainly to political disturbances. Until recently, the restrictive trade policies of both countries, with a variety of embedded trade barriers aimed at each other's market, did not allow bilateral trade to grow. Pakistan has 1,209 items on the negative list that are likely to be phased out, and there will be no restriction on tradeable items; this would encourage border trade between the two countries, particularly through Attari and Wagah, along SC 1. Trade valued at about Rs 41.79 billion was carried out in 2010-2011 through the Attari-Wagah border (table 2); this is likely to increase in view of Pakistan's proposal to India for most favoured nation (MFN) status and the dismantling of the positive list of trade at the India-Pakistan land border.

#### Table 2. India-Pakistan trade through the
#### Attari-Wagah border

(Unit: Rs billion)

| Year | Exports | Imports | Total |
|------|---------|---------|-------|
| 2007-2008 | 17.40 | 34.67 | 52.07 |
| 2008-2009 | 43.53 | 42.12 | 85.65 |
| 2009-2010 | 79.81 | 39.59 | 119.40 |
| 2010-2011 | 37.17 | 4.62 | 41.79 |

*Source:* Sahai and Laxmi, 2013, based on Indian customs data.

Trade by Bangladesh with India has been growing steadily. India is Bangladesh's primary trading partner in South Asia, followed by Pakistan. Bangladesh has a high deficit in its trade with India – having increased from US$ 44 million in 1981 to US$ 2.5 billion in 2009. The 10-year period of 2000-2009 saw the fastest rise in Bangladesh's exports to India (20.49 per cent CAGR), while the growth of imports from India declined to 12.59 per cent per annum (table 3). Nevertheless, Bangladesh exports account for only 1 per cent of India's total imports and the range of products is small, comprising mostly fertilizers and

jute products. Ready-made garments form Bangladesh's major exports, but the share going to India is very small, at least so far. A large part of India-Bangladesh trade passes through Petrapole (India) and Benapole (Bangladesh) along SC 1.

Table 4 gives some idea about the trade that passes through this border along SC 1. It clearly shows that land trade overwhelmingly outweighs sea trade, with the Petrapole border alone contributing about 57 per cent of India's exports to Bangladesh. Hence, the importance of SC 1 in regional trade cannot be ignored. This fact alone was an important reason for selecting this corridor for further investigation of the empirical relationship between trade facilitation and poverty.

### Table 3. Bangladesh trade with India

|  |  | (Unit: US$ million) |
| --- | --- | --- |
| Year | Exports | Imports |
| 1990 | 21.68 | 170.27 |
| 2000 | 50.13 | 945.45 |
| 2010 | 320.91 | 3 859.82 |
| CAGR (1990s), (%) | 9.61 | 22.06 |
| CAGR (2000s), (%) | 20.49 | 12.59 |

*Source:* United Nations COMTRADE database.

### Table 4. India's exports through major ports

|  |  |  | (Unit: Per cent) |
| --- | --- | --- | --- |
|  | 1996-1997 | 2003-2004 | 2010-2011* |
| **Land (road and rail)** |  |  |  |
| Petrapole (mainly road) | 56.6 | 36.2 | 57.2 |
| Ranaghat (Gede) (rail) | 5.2 | 11.5 | 17.5 |
| Radhikapur (rail) | 0.6 | 1.9 | 2.4 |
| Hili (Road) | 2.9 | 5.9 | 6.1 |
| Kotwaligate (Mohedipur by road) | 4.3 | 6.9 | 2.8 |
| **Sea** |  |  |  |
| Mumbai | 9.3 | 1.3 | 0.6 |
| Nhava Seva | 3.3 | 5.3 | 7.1 |
| Chennai | 1.9 | 2.5 | 1.3 |
| Tuticorin | 1.8 | 1.5 | 0.7 |
| Vishakapatnam | 0.7 | 2.8 | 1.1 |
| Kakinada | 0.9 | 2.5 | 0.4 |
| Others | 12.5 | 21.7 | 2.8 |

*Source:* Calculated based on DGCIS, Ministry of Commerce, Government of India.
* Based on Indian Customs data.

As shown in table 5, SC 1 passes through six Indian States (table 5), of which two – Bihar and Uttar Pradesh – have poverty rates that are higher than the national average.[74] In addition, in absolute numbers, the percentage of poor people is relatively higher in those two States, compared to the other four States. Between 2004-2005 and 2009-2010 the rural poverty rate in Bihar only declined marginally from 55.7 per cent to 55.3 per cent, respectively. Therefore, trade facilitation in SC 1 is an important avenue for the lowering poverty rate.

**Table 5. Poverty rate, Tendulkar Methodology**

(Unit: Per cent)

| State | 2004-2005 | | | 2009-2010 | | |
|---|---|---|---|---|---|---|
| | Rural | Urban | Total | Rural | Urban | Total |
| Bihar | 55.7 | 43.7 | 54.4 | 55.3 | 39.4 | 53.5 |
| Delhi | 15.6 | 12.9 | 13.0 | 7.7 | 14.4 | 14.2 |
| Haryana | 24.8 | 22.4 | 24.1 | 18.6 | 23.0 | 20.1 |
| Punjab | 22.1 | 18.7 | 20.9 | 14.6 | 18.1 | 15.9 |
| Uttar Pradesh | 42.7 | 34.1 | 40.9 | 39.4 | 31.7 | 37.7 |
| West Bengal | 38.2 | 24.4 | 34.2 | 28.8 | 22.0 | 26.7 |
| India | 42.0 | 25.5 | 37.2 | 33.8 | 20.9 | 29.8 |

*Source:* "Press Note on Poverty Estimates, 2009-2010", Planning Commission, Government of India, 13 March 2012.

## E. Trade facilitation and poverty: Major empirical findings

The primary survey was conducted among individuals residing near the borders at Attari (India-Pakistan), and Petrapole and Ghojadanga (India-Bangladesh), and who were dependent on trade with Bangladesh and Pakistan along SC 1. This section presents the major findings of the field survey for two separate categories – individuals and firms.

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[74] The poverty rate developed by the Tendulkar Committee was followed here. The methodology uses implicit prices for estimating State-wise poverty lines for 2004-2005. Using these poverty lines and the distribution of monthly per capita consumption expenditure, based on a mixed reference period, the Tendulkar Committee estimated poverty ratios for 2004-2005. Implicit price indices (Fisher Price Index) have been computed from the 66th Round NSS (2009-2010) data on the Household Consumer Expenditure Survey. As per Tendulkar Committee recommendations, the State-wise urban poverty lines of 2004-2005 have been updated for 2009-2010 based on price rises during this period, using Fisher Price indices. The State-wise rural-urban price differential for 2009-2010 has been applied on State-specific urban poverty lines in order to get State-specific rural poverty lines. The head count ratio (HCR) is obtained using urban and rural poverty lines, which have been applied to the MPCE distribution of the States. The aggregated BPL population of the States has been used to obtain the final all-India HCR and poverty lines in rural and urban areas.

# 1. Individual respondents

Of 179 individual respondents directly associated with trading by India with Bangladesh and Pakistan, the survey found 49 per cent respondents were skilled while 42 per cent and 9 per cent were semi-skilled and unskilled, respectively (figure 2). Therefore, the respondents were assumed to be relatively aware of the need for, and benefits of trade facilitation in India.

**Figure 2. Skill composition of individual respondents**
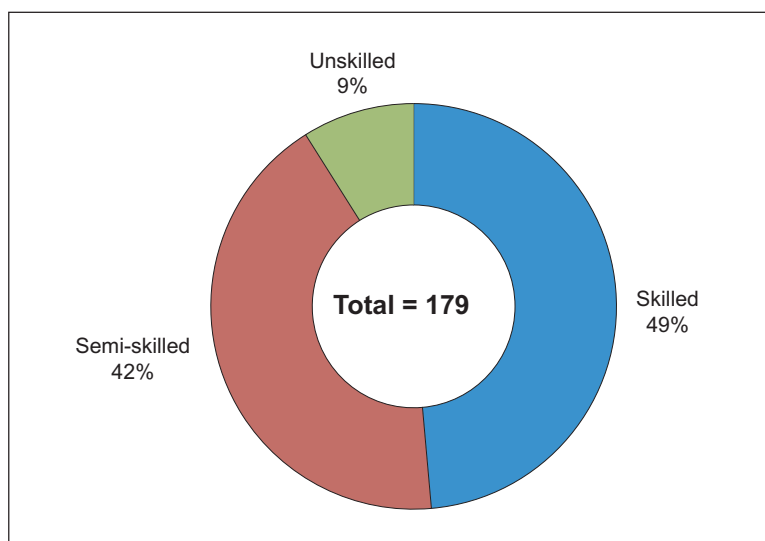


*Note:*     Sample size is in absolute number, and share is a percentage.

*(a)     Quality of trade infrastructure*

The majority of the respondents said trade infrastructure such as customs and transport had improved over time. However, compared to customs and transport, the performance of banks, hotels and restaurants, servicing facilities and communication facilities were way behind the average (figure 3). The perception of the respondents also indicated further scope for improvement in trade facilitation.

*(b)     Quality of governance*

The perception of the respondents revealed a mixed result for quality of governance (figure 4). The opinion of individual respondents was that trade along SC 1 had not been disturbed by local mafia, cheating and fraud, or religious tensions. These aspects, therefore, cannot be termed as barriers to trade. However, trading faces major security issues. Strikes and closedowns do happen, but they are not a major issue.

# Figure 3. Opinion of respondents about quality of trade infrastructure



**Customs**

- 0%
- 0%
- 12%
- 31%
- 57%

Legend: Very bad, Bad, Average, Good, Very good

**Transport infrastructure**

- 31%
- 35%
- 4%
- 8%
- 22%

Legend: Very bad, Bad, Average, Good, Very good

**Banks**

- 37%
- 22%
- 13%
- 5%
- 23%

Legend: Very bad, Bad, Average, Good, Very good

**Hotels and restaurants**

- 18%
- 29%
- 6%
- 1%
- 46%

Legend: Very bad, Bad, Average, Good, Very good

**Servicing facilities**

- 17%
- 42%
- 7%
- 10%
- 24%

Legend: Very bad, Bad, Average, Good, Very good

**Communications facilities**

- 16%
- 25%
- 12%
- 10%
- 37%

Legend: Very bad, Bad, Average, Good, Very good

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# Figure 4. Opinion of individual respondents on governance

## High security

47%

53%

- Good
- Very good

## Local mafia

2% 1%
4%
6%

87%

- Very bad
- Bad
- Average
- Good
- Very good

## Non-transparency in information

6% 6%

9%

27%

52%

- Very bad
- Bad
- Average
- Good
- Very good

## Minority/religious tensions

0%
1%
0%
1%

98%

- Very bad
- Bad
- Average
- Good
- Very good

## Cheating and fraud

0% 1%
5%
14%

80%

- Very bad
- Bad
- Average
- Good
- Very good

## Strikes and closedown of operation

0% 1%
9%

35%

55%

- Very bad
- Bad
- Average
- Good
- Very good

*(c)    Individual perceptions about trade barriers*

All the respondents agreed that better trade would reduce poverty through the creation of more jobs, higher skill levels, better income opportunities and higher local production, among other positive advances. Thus, more extensive border trade was perceived by the local populations as reducing poverty in the dimensions mentioned above. The present survey thus attempted to find out, from the perspective of local individuals, what the most important barriers were to increasing border trade between India and Pakistan as well as between Pakistan and Bangladesh.

The methodology used for the survey was a detailed questionnaire that was given to 179 individuals connected with the border trade process. The respondents were asked about their types of job (either skilled or unskilled), their experience and their annual income. All these variables were taken as control variables. On the other hand, the perception of the individuals was ranked on a scale of 1 to 5, with 1 representing the highest barrier and 5 as the least barrier. The following categories of variables were taken as acting as barriers to trade (hence, obstacles to poverty reduction through trade):

(a)    A lack of infrastructure, i.e., customs, transport, banks, hotels and restaurants, servicing facilities, communication;

(b)    A lack of governance, i.e., security, mafia presence, non-transparency in information, cheating and strikes.

### Table 6. Marginal effects in elasticity of Ordered Probit Regression

(Calculated at mean values)

| Variables | Skill levels | Experience | Annual income |
|---|---|---|---|
| Customs | 0.0730 | -0.2238 | 0.1978** |
| Transport | -0.0453 | 0.0374 | -0.0424 |
| Banks | -0.1446 | -0.0716 | 0.1411 |
| Hotels | 0.0645 | -0.2767 | 0.2609** |
| Servicing facilities | -0.2052 | -0.3206 | 0.1744 |
| Communication | -0.2171 | -0.3736* | 0.1734 |
| Lack of security | 0.2607 | 0.0760 | 0.0328 |
| Mafia dominance | 4.4633*** | -1.6234 | -0.4178 |
| Lack of transparent information | -2.0745*** | -0.5506* | 0.1208 |
| Cheating in transactions | 4.0489*** | 0.2563 | -0.3357 |
| Strikes by workers | -2.1594** | -0.0024 | -0.4132 |

*Notes:*    (a)  The values are the changes in probability of having an outcome value of 5 in the ranking of the respective categorical variables. Thus, a negative sign indicates less area under that value in the probability of outcome curves, and the opposite for a positive sign;

(b)  The values are all elasticities, and a value greater than 1 indicates elastic and less than 1 implies inelastic;

(c)  The asterisks denote significance levels, with * = 10 per cent, ** = 5 per cent and *** = 1 per cent significance.

Although the survey involved a total of 179 respondents, the observations of only 143 were actually used since the remaining respondents provided incomplete responses or, in some cases, indicated income levels that were too high. An Ordered Probit Regression analysis was made of the categorical variables on which the ordered responses were received. The main purpose of the study was not to deliberate on the coefficients of the regression but on the resulting marginal effects that showed the shift of the underlying probability distribution consequent upon change in the levels of some of the control variables. The aim was to get an estimate of the degree and sign of change in the perception of those individuals who considered the respective barrier to be the least problematic. Table 6 summarises the Ordered Probit regression results.

With regard to infrastructure barriers to trade, surprisingly none of the independent variables affect the outcome probabilities significantly, except for (a) income, which affects customs and hotels; and (b) experience, which affects communications. Those with higher incomes considered customs and hotels to be lesser barriers. The respondents with more extensive experience in their jobs considered communications to be more of a barrier. Other values were not significant. Thus, perceptions of individuals about possible barriers were not significantly related to either skill levels or experience, or even income levels, except in just three cases. Further, the changes were not elastic, signifying a less dramatic response to changes in the control variables.

With regard to governance-related issues, the skills variable is the most important. People with more skills are likely to consider mafia dominance as well cheating as less of a problem. Also, they consider a lack of transparent information and strikes by workers as more of a hindrance to trade. These are all highly significant effects. At the same time, they are highly elastic, signifying dramatic change in perception as a person moves up the skills ladder. Experience significantly affects the perception of a lack of transparent information as a possible barrier. Income levels do not affect perception significantly in these categories.

Looking at table 6, it can be seen that the type of job, i.e., skilled or less skilled, matters most in the formation of differential perceptions about barriers. Thus, a loader on a truck or a restaurant worker view mafia and cheating as hindering the trade more compared with the perception of a clearing agent or exporter. Although this may appear disturbing it could point towards a nexus between the latter and mafia and cheating practices. However, this can only be established conclusively by larger and focused surveys. Experience in terms of the number of years worked does matter, as the more experienced respondents complained more about the lack of both communications and transparency in information.

Surprisingly, income levels play a comparatively moderate role. People with either higher or lower incomes did not differ much in perception except with regard to customs and hotels. Thus, the poor and the wealthy connected with trade in the border areas, indicated relatively similar views of trade barriers. All the respondents believed that trade would reduce poverty through the creation of more jobs and skills as well as more local production, and those at the bottom of the income scale did not view possible trade barriers

any differently from those at the top of the scale. Therefore, poverty reduction, in the perception of the individuals connected with trade along SC 1, depends on the reduction of trade barriers through better trade facilitation. The type of trade facilitation that may help in reducing poverty does not appear to differ according to whether a person is wealthy or poor.

*(d)      Opinions about trade, trade facilitation and poverty reduction*

When asked whether trade was one of the responsible factors in reducing poverty, 59 per cent of the respondents agreed (figure 5). However, the other 41 per cent felt that trade had not succeeded in reducing poverty. Therefore, in an attempt to understand whether or not the opinions of respondents regarding trade facilitation showed any relationship with poverty reduction, a Logit regression was employed to assess this point. There are two issues: (a) trade reduces poverty; and (b) trade facilitation accelerates trade. In a logistic regression, both cannot be there in the Odds Ratio. Assuming that the second issue is true by definition, the logic of transitivity implies an Odds Ratio, in terms of whether individuals or firms believe trade reduces poverty, that allows the binary variable (where 1 = Yes and 0 = No) to be regressed on categorical variables that are entirely trade facilitation variables. Thus, it is possible to answer the question of whether it is likely, from the perception of those who are involved in cross-border trade, that trade facilitation will reduce poverty.[75]

**Figure 5. Opinion of respondents on role of trade in poverty reduction**



No
41%

Yes
59%

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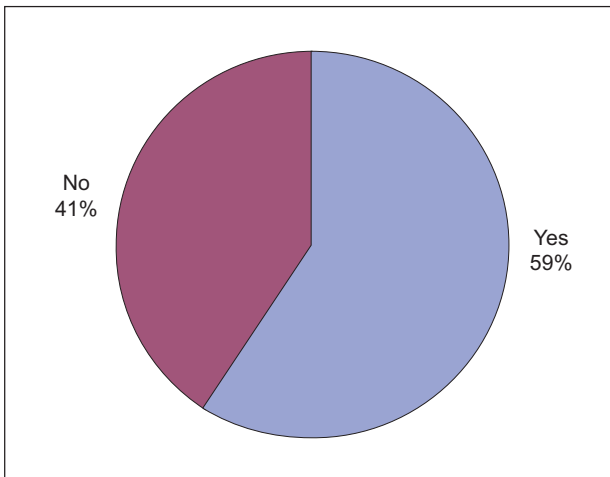
[75]    A Logit analysis based on perception survey is not historical in nature. However, the significance of predictions is checked based on such surveys. Hence, in a sense it cannot be a prediction based on historical time-series or panel data. On the other hand, since this study takes theapproach that higher trade facilitation promotes more trade, the Logit analysis does show a direct link between trade facilitation and poverty reduction.

The Odds Ratio in the Logit regression is the probability that trade has reduced poverty. The independent variables are category ranking responses on a scale of 1 to 5 regarding the perception of barriers to trade by individuals. A value of 5 implies a low barrier of the concerned variable and 1 implies a high barrier. Thus, the sign of the coefficients of the regression implies how a one unit change in the explanatory category variable affects the Odds Ratio.

**Table 7. Logit regression results (individuals): Trade facilitation to reduce poverty**
**(DV = Log of Odds Ratio by which poverty is reduced)**

| Variables | Estimated coefficient |
|---|---|
| Better customs | -2.488*** |
| | (1.853) |
| Better transport infrastructure | -1.801*** |
| | (0.360) |
| More banks | 0.677* |
| | (0.493) |
| More hotels and restaurants | -0.324 |
| | (0.779) |
| Better servicing facilities | 1.387** |
| | (0.883) |
| Better communications facilities | -0.0737 |
| | (0.786) |
| Higher security | -1.732* |
| | (0.933) |
| Less local mafia | -1.163** |
| | (0.490) |
| More transparency in information | 1.015** |
| | (0.577) |
| Less cheating | 1.541** |
| | (0.735) |
| Fewer strikes/closedowns of operation | -0.586 |
| | (1.203) |
| Constant | 19.561*** |
| | (12.145) |
| Observations | 175 |
| Pseudo $R^2$ | 0.619 |
| Wald chi$^2$ (11) | 113.26 |
| Prob > chi$^2$ | 0 |

*Note:* Robust standard errors in parentheses; *** p<0.01, ** p<0.05 and * p<0.1.

Table 7 presents the Logit regression results. It can be seen that in the perception of individuals, only four trade barriers (or facilitation) variables affect the reduction of poverty, i.e., banks, servicing facilities, more transparency in information and less cheating in transactions. These are all statistically significant variables. However, better facilitation in terms of infrastructure variables such as customs or transport, and governance variables such as local mafia or high security does not appear to be important in increasing the probability of a positive response regarding poverty reduction. The usual caveat is that the Logit regression result needs deeper introspection. In other words, in the view of individuals engaged in trade along SC 1, trade facilitation alone may not create opportunities for poverty reduction.

## 2. Opinions of firms

Interviews were held with 100 Indian firms doing business with Pakistan and Bangladesh, mostly located along SC 1 in places such as Amritsar, Ludhiana and Kolkata, of which 58 per cent are trading with Bangladesh, 21 per cent with Pakistan and the remaining 21 per cent with other countries such as Afghanistan, Central Asia, the Middle East and Gulf States, Europe and East Asia (figure 6). As of March 2012, the interviewed firms had generated direct employment of 32,820 people, of whom 89 per cent were skilled employees and remainder unskilled (figure 7). The surveyed firms were exporting and importing various goods, including agricultural products, via SC 1. Such goods pass through Attari-Wagah (trade with Pakistan) and Petrapole-Benapole (trade with Bangladesh).[76]

**Figure 6. Distribution of firms in terms of trading partners**



_____
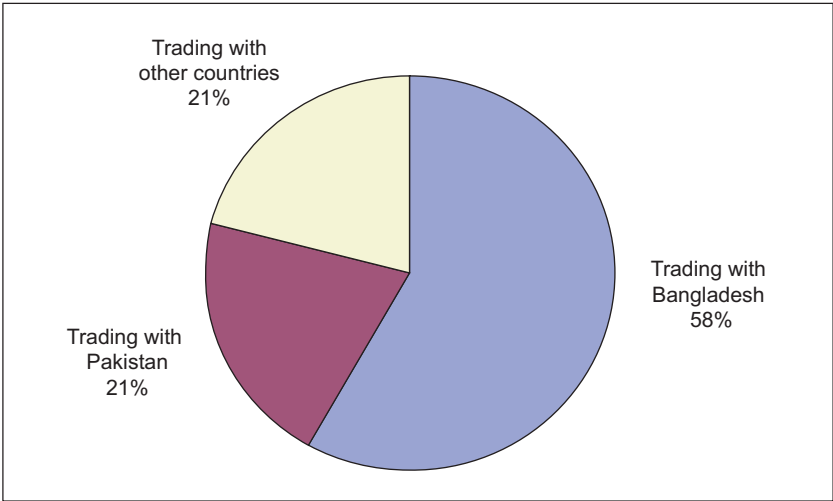
[76] These traded items are not discussed here as that is beyond the scope of this study. However, a list of such items is available on request.

**Figure 7. Skills composition in employment**



Unskilked
(11%)

Skilled
(89%)
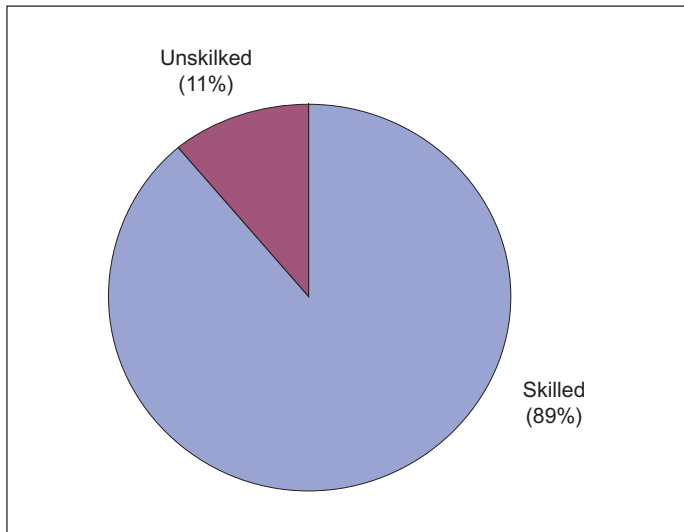
*(a)      Availability of trade infrastructure*

Table 8 presents the perception of the surveyed firms concerning the availability of trade infrastructure. All the firms felt that dispute settlement arrangements and weigh bridge facilities were available. However, regarding the availability of the remaining facilities and services, perception varied across firms. While only 10 per cent of the respondents said container handling equipment was available (90 per cent disagreed with this perception), 33 per cent firms said telephone facilities were not available (67 per cent disagreed with this view). Nonetheless, all the firms said some facilities were not available at all such as transit services, fast track cargo clearance, post offices, waiting rooms, health facilities and banks.

*(b)      Opinions about logistics costs in SC 1*

While the opinions of the majority of respondents indicated port and airport charges in India were high, a large majority suggested that the rate of road and rail transportation charges as well as warehouse and loading service charges were average (figure 8). Thus, logistics costs (domestic) are a critical factor in facilitating trade with Bangladesh and Pakistan.

*(c)      Transaction time at border*

The opinions of firms indicate that the processing of India's exports to Pakistan take a shorter time at the border compared with India's exports to Bangladesh. According to 97 per cent of the respondents, India's exports to Pakistan take one day without physical

**Table 8. Physical and non-physical trade barriers at Indian borders with Bangladesh and Pakistan\***

**(a) Availability of facilities**

| Availability | Perception (%) |
| --- | :---: |
| Weigh bridge | 100 |
| Dispute settlement | 100 |
| Telephone | 67 |
| Customs | 56 |
| Security | 56 |
| Container handling yard | 56 |
| Standards (customs) | 56 |
| Internet | 46 |
| Shops, hotels and restaurants | 36 |
| Immigration | 33 |
| Warehouse and parking | 33 |
| E-commerce of customs | 23 |
| Currency exchange | 23 |
| Container handling equipment | 10 |

**(b) Non-availability of facilities**

| Non-availability | Perception (%) |
| --- | :---: |
| Banks | 100 |
| Health facilities | 100 |
| Waiting rooms | 100 |
| Post offices | 100 |
| Fast track cargo clearance | 100 |
| Transit | 100 |

\* Border check posts/land customs stations only on SC 1.

# Figure 8. Opinions on operational logistics costs



**Airport charges**

- Very high
- High
- Average
- Low
- Very low

4%
18%
78%

**Warehouses/loading service charges**

- Very high
- High
- Average
- Low
- Very low

2%
1%
19%
78%

**Port charges**

- Very high
- High
- Average
- Low
- Very low

2%
18%
80%

**CHA fees**

- Very high
- High
- Average
- Low
- Very low

11%
43%
46%

**Rail transport rates**

- Very high
- High
- Average
- Low
- Very low

0%
10%
18%
72%

**Road transport rates**

- Very high
- High
- Average
- Low
- Very low

12%
29%
59%

inspection, while 88 per cent of the respondents said processing required two days with physical inspections (table 9).

However, the results were mixed for Indian exports to Bangladesh. Although 66 per cent of the firms said Indian exports to Bangladesh took one day with or without a physical inspection, 27 per cent said it took two days without physical inspection. At the same time, about 7 per cent and 22 per cent of the respondents said it took three days at the border without and with physical inspections, respectively.

### Table 9. Border transaction times

#### (a) Indian exports to Pakistan

(Unit: Per cent)

| Time | Without physical inspection | With physical inspection |
|------|------------------------------|---------------------------|
| 1 day | 97 | – |
| 2 days | 3 | – |
| 1 day | – | 12 |
| 2 days | – | 88 |

#### (b) Indian exports to Bangladesh

(Unit: Per cent)

| Time | Without physical inspection | With physical inspection |
|------|------------------------------|---------------------------|
| 1 day | 66 | – |
| 2 days | 27 | – |
| 3 days | 7 | – |
| 1 day | – | 66 |
| 2 days | – | 12 |
| 3 days | – | 22 |

*(d)    Perception of customs process*

The perception among firms regarding the customs process was mixed. As shown in table 10, about 77 per cent of the respondents said they were unaware of being able to complete customs declarations online, whereas all the respondents said customs does not:

(a)    Allow pre-arrival clearance of merchandise/shipments for imports:

(b)    Use post clearance audit for imports:

(c)    Allow traders (or their agents) to choose the location of the final clearance of goods for imports:

(d)     Allow goods to be released pending final clearance against an accepted guarantee.

At the same time, all the firms said that the customs code required importers to use a licenced customs broker to clear goods, Customs does interact formally to discuss about policy, and receive advance notification of binding changes with regard to tariff classification, valuation or rules of origin from customs. In addition, about 35 per cent of the respondents were unaware of the availability of a review/appeal procedure in cases of disputes with Customs.

**Table 10. Perception about customs processing at border crossings**

(Unit: Per cent)

|  | Yes | No | Do not know |
|---|---|---|---|
| Can a customs declaration be submitted online? | 23 | 77 | |
| Does customs allow for pre-arrival clearance of merchandise/shipments for import? | | 100 | |
| Does the custom code require importers to use a licenced custom broker to clear goods? | 100 | | |
| Does customs use a post-clearance audit for imports? | | 100 | |
| Are you and your customers able to choose the location of the final clearance of goods for imports? | | 100 | |
| Can goods be released pending final clearance against an accepted guarantee? | | 100 | |
| Are you and your peers invited for dialogue by Customs through a formal process (periodic meetings, consultative forums or committees etc.)? | 100 | | |
| In cases of disputes with customs or other border agencies, is a review/appeal procedure available? | 65 | | 35 |
| Do you receive advance notification of binding changes with regard to tariff classification, valuation or rules of origin? | 100 | | |

*(e)     Trade barriers identified by Indian exporters and importers*

During the survey, 40 per cent of the interviewed firms identified some barriers that they had faced while exporting and importing with Bangladesh and Pakistan. Tables 11(a) and 11(b) contain lists of barriers and relevant regulators. These barriers are a mixture of physical and non-physical bottlenecks, and cover many issues ranging from the repair and development of roads and highways to slow access to the Electronic Data Interchange (EDI) system. Subnational cases such as value-added tax (VAT) were also identified as a barrier to trade.

**Table 11(a). Trade barriers faced by Indian exporters and importers with Pakistan**

| Sr. No. | Types of barriers | Authority/subject |
|:---:|---|---|
| 1 | Although cheaper, rail is time-consuming because (a) absence of wrecks, and (b) availability of equal numbers from both sides for exchange. | Railways |
| 2 | Traders are afraid to send cargo by rail because of drug incidents. | Customs |
| 3 | A bank is only in Amritsar Town. There are no banks in or near Attari ICP. | Banks |
| 4 | Imported crude drugs get wet in the rain as there are not enough sheds to accommodate the cargo. | Storage and warehousing (CWC) |
| 5 | Storage space made for trade but used by Border Security Force (BSF) for their accommodation. | Security and storage and warehousing |
| 6 | Products are taken away by customs as samples, thereby causing shortages of merchandise. | Customs |
| 7 | Both weighing bridges at Attari ICP are defective. | Highways |
| 8 | Free trade through Kashmir is affecting trade at Attar. | Customs, Directorate-General of Foreign Trade (DGFT) |
| 9 | VAT in Punjab is 1 per cent higher than in adjoining States making products uncompetitive. | Punjab Government |
| 10 | Contract registration required for exporting cotton yarn is valid for only 30 days. If export is not made in time a penalty of Rs 10,000, or 1 per cent of value is incurred, whichever is higher. | DGFT |
| 11 | Insufficient space, so less time available for loading and unloading of vessels. | Shipping |
| 12 | Road conditions in Ludhiana are very bad. | Highways, Punjab Government |
| 13 | Machinery at Ludhiana dry ports is very old. | Railways |
| 14 | Gateway ports are very congested. | Shipping |
| 15 | Exporters and importers prefer forwarders in lieu of carriers as they give credit. | Banks, customs |
| 16 | Strikes at ports disturb the entire chain. | Labour, shipping |
| 17 | Policies related to exporting changes frequently, which puts exporters in a bad position with customers. | Commerce |

**Table 11(b). Trade barriers faced by Indian exporters and importers with Bangladesh**

| Sr. No. | Types of barriers | Authority/subject |
|---|---|---|
| 1 | Policies related to export changes frequently puts firms in a bad position with customers. | Commerce |
| 2 | Frequent strikes at port. | Labour, shipping |
| 3 | VAT is high. | West Bengal Government |
| 4 | If cargoes miss a vessel then the next ship is available after a week. Traders have to bear daily port charges and give discounts to customers. Roll-over charges are also expensive. | Ports |
| 5 | EDI system of customs is very slow. | Customs |
| 6 | The number of shipping lines sailing to Bangladesh is steadily declining. Previously there were five shipping lines; this figure is now only two shipping lines today (APL and NYK). | Shipping |
| 7 | Shortage of electricity. | Power |
| 8 | EDI system of customs is slow. | Customs |
| 9 | The United States dollar exchange rate is high. | Finance, RBI |
| 10 | High labour rate at CWC (Rs 3,000) whereas outside labour rate is Rs 1,500. | CWC |
| 11 | Private parking is Rs 50 per day and Rs 80 per day at the CWC warehouse, | CWC |
| 12 | A Bangladesh warehouse can accommodate 300-400 trucks, whereas in India 80-100 trucks can be accommodated. | CWC |
| 13 | There are no online document exchange facilities between India and Bangladesh. | DGFT, customs |
| 14 | Ghojadanga LCS has no phytosanitary and quarantine office. | Customs |
| 15 | No bank at Ghojadanga LCS. | Bank |
| 16 | No warehouse at Ghojadanga LCS. | CWC |
| 17 | No government parking at Ghojadanga LCS. | CWC |
| 18 | No import through Ghojadanga LCS. | DGFT |
| 19 | Bridge leading to Ghojadanga border is damaged, so heavy trucks (10 wheels and above) are not allowed. | Highways |

*(e)     Opinions of firms about trade facilitation and poverty*

In the survey, about 86 per cent of the respondents said poverty had declined during the past five years, 72 per cent of whom felt India's trade with India and Pakistan was one of the major factors responsible for the reduction of poverty (figure 9). The survey therefore attempted with the help of Logit regression to assess whether or not there was any empirical relationship between trade facilitation and poverty reduction from the perspective of exporters and importers.

**Figure 9. Perception about poverty and trade facilitation**
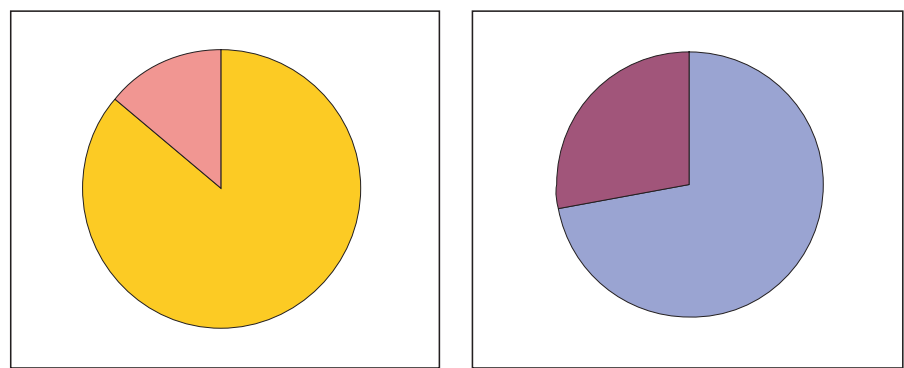


**Table 12. Logit regression results (firms): Reduction of poverty by trade facilitation
(DV = Log of Odds Ratio by which poverty is reduced)**

| Variables | Estimated coefficients |
|---|---|
| Better infrastructure at checkpoints | 9.59*** |
|  | (1.413) |
| Better transportation infrastructure for accessing checkpoints | 31.70*** |
|  | (1.552) |
| Better telecommunications infrastructure at checkpoints | -6.76*** |
|  | (0.518) |
| Less bureaucracy and red-tape at checkpoints | 47.09*** |
|  | (2.863) |
| Less corruption and bribery at checkpoints | -15.87*** |
|  | (1.035) |
| Faster handling equipment | 27.96*** |
|  | (1.577) |
| Less lengthy paper work at checkpoints | -79.31*** |
|  | (1.526) |
| Observations | 100 |
| Pseudo $R^2$ | 0.869 |
| Wald $chi^2$ (Prob > $chi^2$) | 70.91 (0) |

*Note:*     Robust standard errors in parentheses; ***p<0.01, **p<0.05 and *p<0.1.

Table 12 presents the Logit regression results. As discussed above, the Logit regression presents the probability that trade has reduced poverty. The opinions of firms towards poverty and trade facilitation are considered here. The independent variables are categorical ranking responses on a scale of 1 to 5 with regard to perception of barriers to trade by the firms. A value of 5 implies the lowest barrier of the concerned variable as in the individual regression while 1 implies a very high barrier. Thus, the sign of the coefficients of the regression implies how one unit changes the explanatory variable affects the Odds Ratio (outcome variable). It was found that four trade barrier (or facilitation) variables were perceived as affecting reduction of poverty, i.e., less bureaucracy and red-tape, better infrastructure, better transportation and faster handling equipment. These variables are statistically significant at the 1 per cent level. With 87 per cent Pseudo $R^2$, regression is also robust. However, poor border telecommunications infrastructure, less corruption and bribery at checkpoints and lengthy paperwork do not appear to be significantly important in increasing the probability of a positive response regarding poverty reduction.

The results obtained from the survey are quite startling. This may be due to the pooled regression of firms operating at the two borders – Wagah at the India-Pakistan border and Petrapole at the India-Bangladesh border. Although the infrastructure at Wagah has improved considerably in the past few years, the same is not the case at Petrapole. More firms operating on the Bangladesh border believe that poverty has declined despite the inadequate trade-related infrastructure. In the case of governance-related variables, there is not much difference. Thus, poor transportation or inadequate infrastructure may be hampering cross-border trade, especially between India and Bangladesh, but that has not prevented firms from believing that poverty is getting less over time.

With regard to governance-related variables, the survey shows that even if firms believe that less corruption and bribery or less lengthy paperwork may facilitate trade, they have not influenced the firms' perception of poverty reduction. In other words, in general, the perception of firms engaged in trade along SC 1 is that trade facilitation may create opportunities for reduction of poverty. However, the perception is mixed and the connection of the variables to poverty alleviation needs to be clarified through follow-up surveys of the specific variables. Thus, the usual caveat is that the Logit regression result needs more detailed assessment.

# F. Conclusion

The major findings of the study are presented in two separate categories – individuals and firms. The majority of the individual respondents noted that trade infrastructure quality such as customs and transport had improved over time. However, compared to customs and transport, the respondents indicated that the performance of banks, hotels and restaurants, servicing facilities and communication facilities were much below average. They also indicated that a there was further scope for improvement in trade facilitation. However, trading faces the issue of heavy security.

With regard to the quality of trade governance, of the reactions of the individual respondents was mixed. They indicated that trade along SC 1 had not been disturbed by the local mafia, cheating and fraud or religious tension. These issues therefore cannot be termed as barriers to trade in the present context. Although strikes and closedowns occur, they are also not a major issue. However, trading faces the issue of heavy security. The individual respondents all agreed that better trade would reduce poverty through the creation of more jobs, higher skills, better income opportunities and higher local production, among other benefits. Thus, expansion of border trade was perceived as helping to reduce poverty within the dimensions discussed in this study.

Regarding infrastructure barriers to trade, surprisingly none of the independent variables had affected the outcome probabilities significantly with the exceptions of income, which had affected customs and hotels, and experience, which had affected communications. Those with higher incomes considered customs and hotels to be lesser barriers. People with more experience in jobs considered communications as a more significant barrier. Other values were not found to be significant. Thus, the perceptions of individuals about possible barriers were not significantly related to either skill levels or experience, or even income levels, except in just three cases. In addition, the changes are not elastic signifying a less dramatic response to changes in the control variables.

With regard to governance-related issues, it was found that the skills variable was found to be the most important. People with better skills were to be more likely to consider mafia dominance and cheating as less of a problem. Instead, they considered a lack of transparent information and strikes by workers to be more of a problem hampering trade. These are all highly significant effects and are highly elastic, signifying dramatic changes in perception while moving up the skill ladder. Likewise, experience significantly affected the perception of a lack of transparent information as a possible barrier. Income levels, however, did not significantly affect perception of these categories.

It can be concluded that the type of job, i.e., skilled or less-skilled, matters most in forming perceptions about barriers. Thus, a loader on a truck or a restaurant worker view mafia and cheating as hampering trade more compared with the perception of a clearing agent or exporter. While this may appear disturbing it might point towards a nexus between the latter and both the mafia and cheating practices; but this can only be confirmed by larger and focused surveys. However, experience, in terms of the number of working years, does matter as the more experienced respondents placed greater emphasis on complains about the lack of communications and transparency in information.

Surprisingly, income levels were found to play a comparatively minor role. Respondents with higher or lower income levels differed little in perception except in the case of customs and hotels. Thus, the poor and the wealthy connected with trading in the border areas had similar views of trade barriers. All believed that trade facilitation reduced poverty through more jobs and skills creation, and increased local production. Thus, in the opinion of those individuals connected with border trade, poverty reduction depended on a reduction of trade barriers through better trade facilitation. Also, whether a respondent

was wealthy or poor, there was generally little difference in the perception of the type of trade facilitation that might help to reduce poverty.

On the question of whether trade was one of the factors responsible for the reduction of poverty, 59 per cent of the respondents gave an affirmative reply. However, the other 41 per cent felt that trade had not succeeded to reduce poverty so far. This study shows that in the perception of the individuals, only four trade barriers (or facilitation) variables affect the reduction of poverty, i.e., banks, servicing facilities, more transparency in information and less cheating in transactions. These are all statistically significant. On the other hand, better facilitation in terms of infrastructure variables (such as customs and transportation) and governance variables (such as local mafia or high security) did not appear to be important in increasing the probability of a positive response regarding poverty reduction.

A similar exercise carried out with firms revealed that 86 per cent believed poverty had declined and 72 per cent saw trade as major catalyst for that result. It is important to note that the India-Pakistan border trade infrastructure was found to be much better than that for India-Bangladesh border trade. In terms of governance variables (such as mafia, security and bribery), the difference in perception was much less. However, for the Logit regression to assess the link between trade facilitating variables and poverty reduction in the perception of the firms, a pooled regression was taken in order to provide a reasonable sample size. This might have even out the responses to a certain extent. In general, in the perception of the firms, better infrastructure that encouraged more trade was also seen as facilitating a decline in poverty. However, the same was not true with the perception of some governance variables, such as cheating or extensive paperwork requirements.

The pilot survey described here is on cross-border trade. It must be kept in mind that a major proportion of the income earners covered by the survey are employed in unskilled and semi-skilled jobs on an informal contract basis. However, it was almost impossible to get any official historical data about these workers and the analysis was thus unable to progress any further. So, the perception survey appears to be the best alternative. Large-scale surveys spanning a wide region can certainly be an alternative.

The results, for both individual and firms, need more in-depth examination as, in the perception of those firms engaged in trade along SC 1, simply facilitating more trade may not create opportunities for the reduction of poverty; it may be necessary to do so together with better governance. The perception is mixed and the connection of the perception variables to poverty alleviation needs to be clarified through follow-up surveys that focus on the specific variables.

# Annex 1

## SAARC Highway Corridor 1
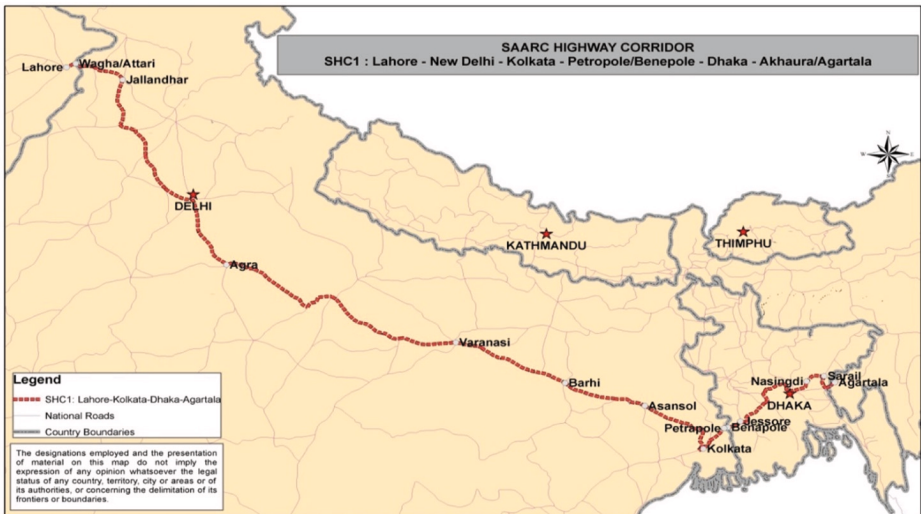


*Source:*    SAARC Secretariat, Kathmandu.

# Annex 2

## Trade policy and poverty: Causal connections
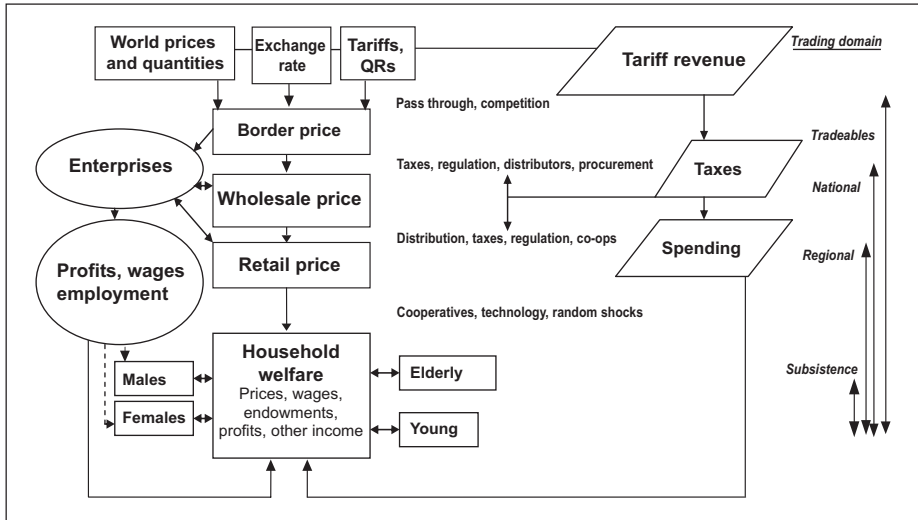


*Source:*    Winters, (2002).

# Annex 3

## Questionnaire survey for trading firms

Sr. No. ☐ ☐ ☐

| 1. Identification of the sample |
| --- |

1.1  Name of the respondent: _____

1.2  Address
_____
_____
_____
_____

Telephone: _____ Fax: _____

Mobile: _____ E-mail: _____

Website (if any): _____

1.3  Name of the enumerator: Mr/Ms _____

1.4  Date of survey: _____

*For Office Use Only:*

•     Co-operation of respondent: Good/Moderate/Poor

•     Reliability of information: High/Moderate/Poor/Very Poor

Reviewed by: _____ Date: _____

If sent back for verification/correction:

Verification done: Yes/No     If yes, date of verification: _____

Verified by: _____ Date: _____

| 2. Background |
| --- |

**2.1  Type of ownership**

Codes: 1 = Individual proprietorship

        2 = Joint family (HUF)

        3 = Partnership

        4 = Private Limited Company

        5 = Public Limited Company

        6 = Government department enterprises

        7 = Joint venture between domestic and foreign private companies

        8 = Joint venture between domestic private company and government enterprises

        9 = Co-operative Society

        10 = Other (specify) _____

**2.2  How would you describe your business in terms of capital when it was established?**

      (1)  Status of the company _____

Codes: 1 = Independent

        2 = Under holding company

        3 = Subsidiary of domestic firm

        4 = Subsidiary of foreign firm

        5 = Other (specify) _____

        If (3) or (4), name of the parent firm _____

      (2)  Family based?         Yes/No

**2.3  Year of establishment:** _____

**3.1** **Major export/import products. (Please add separate page, if needed.)**

| Sr. No. | Name of export/import products | HS codes | Volume 2000-2001 (Rs) | Volume 2006-2007 (Rs) | Volume 2011-2012 (Rs) | Destinations/ sources |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

**3.2** **What are the major barriers you face while exporting or importing your products with Bangladesh/Pakistan/both? (Please add separate page, if needed.)**

| Sr. No. | Type of barrier | Regulating authority(s) | Scope of improvement |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

**3.3** **Cost components of export (for every unit of major export) specifically to Bangladesh/Pakistan/both (Rs, or specify unit: _____ )**
 (i) "Production costs _____
 (ii) Transportation costs _____
   (a) India part _____
   (b) Bangladesh/Pakistan part _____
 (iii) Insurance costs _____
   (a) India part _____
   (b) Bangladesh/Pakistan part _____
 (iv) Bank charges _____
   (a) India part _____
   (b) Bangladesh/Pakistan part _____
 (v) Export duty (net of duty drawback) _____
 (vi) Import tariff _____
 (vii) Other charges/costs (specify) _____

**3.4** **What are the checkpoints (customs stations) through which your product is exported/imported to/from Bangladesh/Pakistan? (Please add separate page, if needed.)**

| Name of checkpoint | Pakistan | Bangladesh |
|---|---|---|
| Attari | Wagah | |
| Petrapole | | Benapole |
| | | |
| | | |
| | | |

**3.5 Impediments to exports/imports at the checkpoints**

    (a) Waiting time at the check-posts         Yes/No

        If Yes, no. of days for each consignment _____

    (b) Paper work at the customs            Yes/No

        If Yes, costs and time incurred in clearance: Rs _____ or time _____

    (c) Different insurance for two countries    Yes/No

        If Yes, Bangladesh/Pakistan side insurance amount: Rs _____

            India side insurance amount: Rs _____

    (d) Different bank charges in two countries    Yes/No

        If Yes, Bangladesh/Pakistan side bank charges: Rs _____ or % _____

            India side bank charges: Rs _____ or % _____

**3.6 Facilities available for imports/exports at the checkpoints (put a √ against each facility)**

| Physical impediments | Non-physical impediments |
|---|---|
| ■ Customs<br>■ Immigration<br>■ Security<br>■ Bank<br>■ Health<br>■ Warehouse and parking<br>■ Weigh bridge<br>■ Container handling yard<br>■ Container handling equipment<br>■ Waiting room<br>■ Shops, hotels and restaurants<br>■ Internet<br>■ Telephone<br>■ Post office<br>■ Currency exchange<br>■ Any other | ■ e-commerce of customs<br>■ Fast-track cargo clearance<br>■ Working days (per week) for customs<br>■ Transit<br>■ Dispute settlement<br>■ Standards<br>■ Any other |

**3.7 Barriers faced by exporters/importers at the checkpoints (put a √ against each barrier)**

| | Very low | Low | Average | High | Very High |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Inadequate infrastructure at checkpoint | | | | | |
| Poor transportation infrastructure to access the checkpoint | | | | | |
| Poor telecommunications infrastructure at checkpoint | | | | | |
| Bureaucracy and red-tape at checkpoint | | | | | |
| Corruption and bribery at checkpoint | | | | | |
| Restrictive government policy and regulations | | | | | |
| High cost of transportation | | | | | |
| Lack of warehouse facilities | | | | | |
| Lack of faster handling equipment | | | | | |
| Lack of trained human resources | | | | | |
| Lengthy paper work at checkpoint | | | | | |
| Others (if any) (specify) | | | | | |

**4.1  Number of employees**

**Please fill in the following table for employees (possibly average, if not at the end of the periods)**

|  | At the time of establishment (specify year _____ ) | 2006-2007 | 2011-2012 (Other, specify _____ ) |
|---|---|---|---|
| Total employees |  |  |  |
| Skilled |  |  |  |
|     Permanent |  |  |  |
|     Casual |  |  |  |
| Unskilled |  |  |  |
|     Permanent |  |  |  |
|     Casual |  |  |  |

## 5. Service Quality

**5.1  Rate the efficiency of the clearance process (e.g., speed, simplicity and predictability of formalities) by border control agencies including customs (put a √ in the relevant cell)**

**(a)  Speed**

| LCS | Country | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|---|
|  |  | 1 | 2 | 3 | 4 | 5 |
| Attari | India |  |  |  |  |  |
| Petrapole | India |  |  |  |  |  |
| Wagha | Pakistan |  |  |  |  |  |
| Benapole | Bangladesh |  |  |  |  |  |

**(b)  Simplicity**

| LCS | Country | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|---|
|  |  | 1 | 2 | 3 | 4 | 5 |
| Attari | India |  |  |  |  |  |
| Petrapole | Pakistan |  |  |  |  |  |
| Wagha | Bangladesh |  |  |  |  |  |
| Benapole |  |  |  |  |  |  |

**(c)  Adherence to rules**

| LCS | Country | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|---|
|  |  | 1 | 2 | 3 | 4 | 5 |
| Attari | India |  |  |  |  |  |
| Petrapole | Pakistan |  |  |  |  |  |
| Wagha | Bangladesh |  |  |  |  |  |
| Benapole |  |  |  |  |  |  |

**5.2** Evaluate the quality of services in trade and transport related infrastructure (i.e. airports, ports, railways, roads, information technologies, etc.) (put a √ in the relevant cell)

(a) **Airport**

|  | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

(b) **Rail**

|  | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

(c) **Road**

|  | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

(d) **Ports**

|  | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

(e) **Information technology**

|  | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

**5.3** What is the level of your overall ease of trading with the following countries? (put a √ in the relevant cell)

|  | Very difficult | Difficult | Average | Easy | Very easy |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

**5.4** Rate the ability to track and trace your consignment while in transit to the following countries (put a √ in the relevant cell)

|  | Very difficult | Difficult | Average | Easy | Very easy |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

**5.5** Evaluate the cargo shipment requirements such as logistics, security and insurance requirements (i.e., screening, advance information etc.) (put a √ in the relevant cell)

|  | Very difficult | Difficult | Average | Easy | Very easy |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

**5.6** When arranging shipments to the countries listed below, how often do the consignments reach within the scheduled or expected delivery time? (put a √ in the relevant cell)

|  | Hardly ever | Rarely | Sometime | Often | Nearly always |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| India |  |  |  |  |  |
| Pakistan |  |  |  |  |  |
| Bangladesh |  |  |  |  |  |

**5.7** Based on your experience describe the operational logistic costs in India, compared with other costs of your production (put a √ in the relevant cell)

|  | Very high | High | Average | Low | Very low |
|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 |
| Port charges |  |  |  |  |  |
| Airport charges |  |  |  |  |  |
| Road transport rates |  |  |  |  |  |
| Rail transport rates |  |  |  |  |  |

| | Very high | High | Average | Low | Very low |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Warehouses/translation service charges | | | | | |
| Agent fees | | | | | |
| Other (specify) | | | | | |

**5.8** **Evaluate the quality of trade and transport-related infrastructure (i.e., ports, railways, roads, information technologies etc.) in India (put a √ in the relevant cell)**

| | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Port | | | | | |
| Airport | | | | | |
| Road | | | | | |
| Rail | | | | | |
| Warehouses/trans-loading facilities | | | | | |
| Telecommunications infrastructure and IT services | | | | | |

**5.9** **Evaluate the competence and quality of services delivered by the following in India (put a √ in the relevant cell)**

| | Very low | Low | Average | High | Very high |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Road transport services provider | | | | | |
| Rail transport services provider | | | | | |
| Air transport services provider | | | | | |
| Maritime transport services provider | | | | | |
| Warehouses/trans-loading and distribution operators | | | | | |
| Freight forwarding | | | | | |
| Customs agents | | | | | |
| Quality/standards inspection agencies | | | | | |
| Health/SPS (Sanitary Phytosanitary) agencies | | | | | |
| Trade and transport related associations | | | | | |
| Consignees or shippers | | | | | |

**5.10** **How many documents do you submit to border-related government agencies involved in the clearance process for export and imports including customs?**

| | Number of documents |
|---|---|
| Pakistan (Attari) | |
| Bangladesh (Petrapole) | |

**5.11 The average time taken for imports and exports after declaration and notification of clearance**

(Unit: _____ )

|  | Pakistan | Bangladesh |
|---|---|---|
| Without physical inspection |  |  |
| With physical inspection |  |  |

**5.12 Evaluate the following statements regarding customs at check post (put a √ in the relevant cell)**

|  | Yes | No | N/A | Do not Know |
|---|---|---|---|---|
| Can the customs declaration be submitted online? |  |  |  |  |
| Does customs allow for pre-arrival clearance of merchandise/shipments for imports? |  |  |  |  |
| Does the customs code require importers to use a licensed custom broker to clear goods? |  |  |  |  |
| Does customs use post-clearance audit for imports? |  |  |  |  |
| Are you and your customers able to choose the location of the final clearance of the goods for imports? |  |  |  |  |
| Can goods be released pending final clearance against an accepted guarantee? |  |  |  |  |
| Are you and your peers invited for dialogue by customs through a formal process (periodic meetings, consultative forums, committees etc.)? |  |  |  |  |
| In the case of a dispute with customs or other border agencies, is a review/appeal procedure available? |  |  |  |  |
| Do you receive advance notification of binding changes with regard to tariff classification, valuation or rules of origin? |  |  |  |  |

## 6. Perception of poverty

**6.1 Do you think poverty has gone down during the past five years for you? Yes/No**

If yes, do you think cross-border trade with Pakistan/Bangladesh is one of the major factors responsible for this? Yes/No

### Perception of local people/exporters/importers about poverty-alleviating role of international trade

**Sr. No.**

1. Name of the respondent: _____

2. Address

_____

_____

_____

Telephone: ———————————  Fax: ———————————

Mobile: ———————————  E-mail: ———————————

Website (if any):

3.  Date of survey:

4.  Type of ownership:

Codes: 1 = Exporter

2 = Importer

3 = Individual

4 = Other (specify): ———————————

5.  How are you related to this trade?

■ Transporter

■ Foreign exchange dealer

■ Helper in loading/unloading of cargo

■ Local trade agent

■ Repair mechanic

■ Dhaba worker

■ Dhaba employer

■ Hotel operator

■ Any other (please mention)

6.  In which year did you join in this service?

7.  How much do you earn from this trade activity?

| | First year (2000-2001) | 2006-2007 | 2011-2012 |
|---|---|---|---|
| Daily (in Rs) | | | |
| Weekly (in Rs) | | | |
| Monthly (in Rs) | | | |

8.  Do you want trade to rise? Yes/No

If Yes, what are the impediments to an increase in trade activity?

(a)  Lack of infrastructure (on a scale of 1 to 5)

| | Very bad | bad | Average | Good | Very good |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Customs | | | | | |
| Transport infrastructure | | | | | |
| Banks | | | | | |
| Hotels and restaurants | | | | | |
| Servicing facilities | | | | | |
| Communications facilities | | | | | |

(b) Poor governance (on a scale of 1 to 5)

| | Very bad | bad | Average | Good | Very good |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| High security | | | | | |
| Local mafia | | | | | |
| Lack of transparency in information | | | | | |
| Minority/religious tensions | | | | | |
| Cheating | | | | | |
| Strikes and closedown of operation | | | | | |

If no, specify the reasons:

9.   Exporters/importers

(i)   Do you think better trade will reduce poverty locally? Yes or No. If Yes, rank the following on a scale of 1 to 5, where 5 is agree and 1 is disagree.

- More jobs
- Higher income
- Better skills
- Better knowledge about income opportunities
- Expansion of local production

(ii)   Do you think improvement of trade facilitation at borders will reduce poverty locally? Yes or No. If Yes, rank the following on a scale 1 to 5 where 5 is agree and 1 is disagree.

- More jobs
- Higher income
- Better skills
- Better knowledge about income opportunities
- Expansion of local production

(iii)   Do you think upgrading skills has created improvements? Yes or No. If Yes, rank the following on a scale of 1 to 5 where 5 is agree and 1 is disagree.

- Faster cargo handling
- Well informed/quality decision at work
- More professionalism at work
- Honesty and integrity at work
- Better communications

10.   Do you think poverty has gone down during the past five years for you? Yes/No.

If Yes, do you think cross-border trade is one of the major responsible factors for this? Yes/No

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# Chapter VII

# Ongoing trade facilitation improvement: Its impact on export-oriented small and medium-sized enterprises in Indonesia

*Tulus T.H. Tambunan*

## A. Introduction

The study described in this chapter examines the effect of trade facilitation measures on export-oriented micro, small and medium-sized enterprises (MSMEs) in Indonesia.[77] While trade facilitation frequently refers to all measures that can be taken to facilitate cross-border trade flows, there is no standard formal definition of trade facilitation. In a broader sense of the term, as stated in Damuri (2006), trade facilitation can be defined as any action that is intended to reduce transaction costs that affect the international movement of goods, services, investments and people. Trade facilitation also refers to policies and measures aimed at easing trade costs by improving efficiency at each stage of the international trade chain (e.g., Moïsé and others, 2011). The coverage of trade facilitation may include aspects such as trade procedures, trade finance, market information, customs, regulatory bodies, provisions for official control procedures applicable to import, export and transit provisions related to transport and transport equipment, provisions related to the use of information and communication technologies, logistics and infrastructure, among others. The study poses two main research questions:

(a)    Do export-oriented MSMEs have access to trade facilitation?

(b)    How helpful is trade facilitation in supporting exports by MSMEs?

Availability of good trade facilitation and full access to the benefits of trade facilitation measures are considered very important for MSMEs, which, in turn, generate employment, produce basic goods for middle- and low-income households and contribute significantly to the country's gross domestic product (GDP). Data from the Indonesian National Statistics Agency (BPS) on MSMEs indicate that almost all of them (about 51 million units in total) are micro enterprises (MIEs) (mainly self-employment) and small enterprises (SEs), and that the owners and workers engaged in these largely family owned-enterprises are from the low-income group (BPS, 2010). Due to their lack of capital, technology, access to wider markets and skilled manpower, on average these labour-intensive enterprises have low levels of productivity and income.

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[77]    It uses the National Statistics Agency definition of MSMEs: (a) micro enterprises as production units/firms – 0 to 4 workers; small enterprises – 5 to 20 workers; medium enterprises – 21-99 workers; and large enterprises – 100 or more workers.

Improvement in MSME performance (e.g., productivity and export growth), especially MIEs and SEs, may strongly contribute to poverty alleviation, as they often involve poor farming communities or landless farm households. Empowerment of MIEs has indeed been generally accepted as an important strategy for poverty alleviation (Harvie, 2003; Suryahadi and others, 2010). One way to empower these enterprises is to support them through exporting, as many MIEs are also involved directly or indirectly in export activities, mainly in the handicrafts industry (BPS, 2010).

The study is based on:

(a)  Desk research – academic literature on MSMEs, especially with regard to their export performance and access to trade facilitation in Indonesia and other Asian developing countries,[78] reports from the Government and various non-governmental organizations (NGOs), and other publications on trade facilitation and MSMEs' access to trade facilitation in Indonesia;

(b)  Secondary data analysis on MSMEs in Indonesia focusing on export-oriented enterprises;

(c)  Key informant/in-depth interviews (e.g., related local government officials, NGOs assisting MSMEs in exporting);

(d)  Field surveys in two clusters of export-oriented MSMEs with 30 producers in Solo and 52 producers D.I. Yogyakarta as respondents. Both regions are located in central Java. The respondents were selected randomly, based on the lists of members provided by the local Chamber of Commerce (Kadinda). They were interviewed face-to-face, using a semi-structured questionnaire comprising a list of questions covering broad areas related to trade facilitation (see annex). MSMEs as well as large enterprises (LEs) are considered in order to gain a comparative picture regarding the research questions stated above.

## B. Development of Indonesian MSMEs

Historically, Indonesian MSMEs have always been the main players in domestic economic activities, accounting for more than 99 per cent of all existing firms across sectors (table 1) and providing employment for more than 90 per cent of the country's total workforce (table 2), comprising mostly women and youths. The majority of MSMEs are micro- and small-sized enterprises (MSEs), and within the MSEs the dominant enterprises in terms of number are MIEs, or about 99 per cent of total MSEs. Many MIEs are established by poor households or individuals who could not find better job opportunities elsewhere, as either their primary or secondary (supplementary) source of income. If not all, at least the majority of MIEs are operating in the informal sector (which means that the majority of MSMEs in Indonesia are operating in the informal sector). Their presence in

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[78]  Mainly through the World Bank and Asian Development Bank databases, and studies carried out, for example, in India and Sri Lanka for ARTNeT.

rural as well as urban areas in Indonesia is often considered to be a result of current unemployment or poverty problems, and not a reflection of entrepreneurship spirit (Tambunan, 2006, 2008, 2009(a) and 2009(b).[79]

**Table 1. Total enterprises by size category in all economic sectors in Indonesia, 2000-2009**

(Unit: '000 enterprises)

| Size category | 2000 | 2001 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| MSEs | 39 705 | 39 883.1 | 43 372.9 | 44 684.4 | 47 006.9 | 48 822.9 | 47 720.3 | 52 327.9 | 52 723.5 |
| MEs | 78.8 | 80.97 | 87.4 | 93.04 | 95.9 | 106.7 | 120.3 | 39.7 | 41.1 |
| LEs | 5.7 | 5.9 | 6.5 | 6.7 | 6.8 | 7.2 | 4.5 | 4.4 | 4.7 |
| Total | 39 789.7 | 39 969.9 | 43 466.8 | 44 784.1 | 47 109.6 | 48 936.8 | 49 845.0 | 52 262.0 | 52.769.3 |

*Sources:* State Ministry for Cooperatives and SMEs (available at www.depkop.go.id) and the Indonesian National Statistics Agency (BPS) (available at www.bps.go.id).

**Table 2. Total employment by size, category and sector in Indonesia, 2008***

(Unit: No. of workers)

| Sector | MIEs | SEs | MEs | LEs | Total |
|---|---|---|---|---|---|
| Agriculture | 41 749 303 | 66 780 | 643 981 | 229 571 | 42 689 635 |
| Mining | 591 120 | 28 762 | 21 581 | 78 847 | 720 310 |
| Manufactures | 7 853 435 | 1 145 066 | 1 464 915 | 1 898 674 | 12 362 090 |
| Electricity, gas and water supplies | 51 583 | 19 917 | 31 036 | 54 233 | 156 769 |
| Construction | 576 783 | 137 555 | 51 757 | 31 016 | 797 111 |
| Trade, hotels and restaurants | 22 168 835 | 1 672 351 | 472 876 | 179 895 | 24 493 957 |
| Transport and communications | 3 496 493 | 145 336 | 111 854 | 98 191 | 3 851 874 |
| Finance, rent and service | 2 063 747 | 313 921 | 279 877 | 156 064 | 2 813 609 |
| Services | 5 096 412 | 462 683 | 178 311 | 49 723 | 5 787 129 |
| Total | 83 647 711 | 3 992 371 | 3 256 188 | 2 776 214 | 93 672 484 |

*Source:* State Ministry for Cooperative and SMEs (available at www.depkop.go.id) and BPS (available at www.bps.go.id).

* Data at the sectoral level are not yet available for 2009.

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[79] As stated by (a) Anantha and others, 2010: "Micro-enterprises are the keys to generating employment opportunities as well as income earning avenues for…landless, women and landholding people"; and (b) Gennrich, 2004: "Due to the fact that MEs may be a suitable additional source of income generation, it would be of particular interest if such economic activities could also imply a reduction in rural poverty."

During 2000-2009, the total number of MSEs increased by some 32.7 per cent, while MEs and LEs both dropped by 47.8 per cent and 17.5 per cent, respectively. While most MEs and especially LEs are more integrated with the regional or global economies, MSEs are more local-market oriented (particularly MIEs), so they are more isolated or naturally protected from global market factors (e.g., the global financial crisis in 2008-2009) and heavy competition from imported goods. That is why no matter whether Indonesian economy is hit by regional or global economic recessions, MSEs have kept on increasing in number.

The majority of MSMEs in Indonesia are involved in agricultural activities (table 3). In 2008, there were about 42.7 million labourers in that sector, of which almost 99.5 per cent worked in MSMEs. Within the MSMEs, MIEs are mostly agricultural-oriented. About 52 per cent of total MIEs were found in the sector, compared with only 0.2 per cent and 4.2 per cent, respectively, in SEs and MEs. In the manufacturing sector, MSMEs are traditionally not so strong compared to LEs.[80]

**Table 3. Structure of enterprises by size, category and sector in Indonesia, 2008**

(Unit: No. of enterprises)

| | MIEs | SEs | MEs | LEs | Total |
|---|---|---|---|---|---|
| Agriculture | 26 398 113 | 1 079 | 1 677 | 242 | 26 401 111 |
| | (52.07) | (0.21) | (4.23) | (5.54) | (51.50) |
| Mining | 258 974 | 2 107 | 260 | 80 | 261 421 |
| | (0.5) | (0.41) | (0.66) | (1.83) | (0.51) |
| Manufactures | 3 176 471 | 53 458 | 8 182 | 1 309 | 3 239 420 |
| | (6.27) | (10.28) | (20.63) | (29.94) | (6.32) |
| Electricity, gas and water supplies | 10 756 | 551 | 315 | 125 | 11 747 |
| | (0.02) | (0.11) | (0.79) | (2.86) | (0.02) |
| Construction | 159 883 | 12 622 | 1 854 | 245 | 174 604 |
| | (0.32) | (2.43) | (4.68) | (5.60) | (0.34) |
| Trade, hotels and restaurants | 14 387 690 | 382 084 | 20 176 | 1 256 | 14 791 206 |
| | (28.38) | (73.45) | (50.88) | (28.73) | (28.85) |
| Transport and communications | 3 186 181 | 17 420 | 1 424 | 319 | 3 205 344 |
| | (6.29) | (3.35) | (3.59) | (7.30) | (6.25) |
| Finance, rent and service | 970 163 | 23 375 | 3 973 | 599 | 998 110 |
| | (1.91) | (4.49) | (10.02) | (13.70) | (1.95) |
| Services | 2 149 428 | 27 525 | 1 796 | 197 | 2 178 946 |
| | (4.24) | (5.29) | (4.53) | (4.51) | (4.25) |
| Total (percentage) | 50 697 659 | 520 221 | 39 657 | 4 372 | 51 261 909 |
| | (100.00) | (100.00) | (100.00) | (100.00) | – |

*Source:* State Ministry for Cooperative and SMEs (available at www.depkop.go.id) and BPS (available at www.bps.go.id).

*Note:* Data at the sectoral level are not yet available for 2009.

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[80] This structure of MSMEs by sector is, however, not unique to Indonesia. It is a key feature of this category of enterprises in developing countries, especially in those countries where the level of industrialization is relatively low.

# C. Link between MSMEs and poverty reduction

Indonesia was among only a few countries in South-East Asia that experienced high rates of annual economic growth during the "New Order" era (1966-1998) led by former President Soeharto. In addition, it was probably among very few countries with the best performance in terms of industrialization, agricultural development (especially with regard to the implementation of the "green revolution"), GDP growth, income per capita growth and poverty reduction within the group of developing countries in Asia, Africa and Latin America. Because of its spectacular performance in that time, the World Bank's regional report identified Indonesia, together with Malaysia and Thailand, as the "new Asian tigers" in addition to the existing ones (besides Japan), i.e., Hong Kong, China (before it was returned to China), the Republic of Korea, Singapore and Taiwan Province of China.

Guided by a five-year economic plan (*Repelita*), the process of economic development in Indonesia during that period placed emphasis on two sectors, industry and agriculture. Beginning with an import-substitution strategy in the early 1970s, followed by a gradual shift to an export promotion strategy in the mid-1980s – financed by donor countries and the World Bank and stimulated by huge inflows of foreign direct investment (FDI), especially in the manufacturing industry – Indonesia has experienced a rapid process of structural change from an agricultural-based economy to one that is industrial-based. However, the degree of industrial development in Indonesia in terms of diversification, structural strengthening and technology useage was still much lower compared to the Republic of Korea and Taiwan Province of China. By the end of the 1990s, Indonesia's GDP share of industry had already reached around 43 per cent, ranking it second after Malaysia within ASEAN.

As the output of these two sectors experienced remarkable growth, followed by output growth in some other non-mining sectors such as trade, construction and finance, overall, Indonesia's GDP grew significantly at an annual average of 8 per cent during the 1980s and up to 1997 with a peak of 9.9 per cent in 1990. Per capita income also increased steadily from less than US$ 500 in 1970 (which placed Indonesia among the poorest countries in the world at that time together with, for example, Bangladesh, Nepal and Sri Lanka) up to slightly more than US$ 1,000 in 1996. After declining during the Asian financial crisis in 1997-1998, it started to rise again in 1999. Since then, it has continued to increase and was expected to reach more than US$ 2,500 in 2011.

Another important indicator that also clearly shows the positive results of economic development during the Soeharto era is the continued decline in the poverty rate, measured by percentage of the country's total population living under the current national poverty line. In 1976, the poverty rate was about 40 per cent; by 1990 it had fallen to about 15 per cent. As a result of the 1997-1998 financial crisis, which led to many companies closing down and a subsequent significant increase in unemployment, the poverty rate jumped again to 24 per cent in 1998, the year that the crisis reached its worst point. However, from 1999, the poverty rate dropped again and reached 13.3 per cent in 2010. The World Bank forecast that in 2011 the poverty rate in Indonesia would be down further at around 12.5 per cent (figure 1).

**Figure 1. Poverty rate in Indonesia, 1976-2012**

(Unit: Per cent)
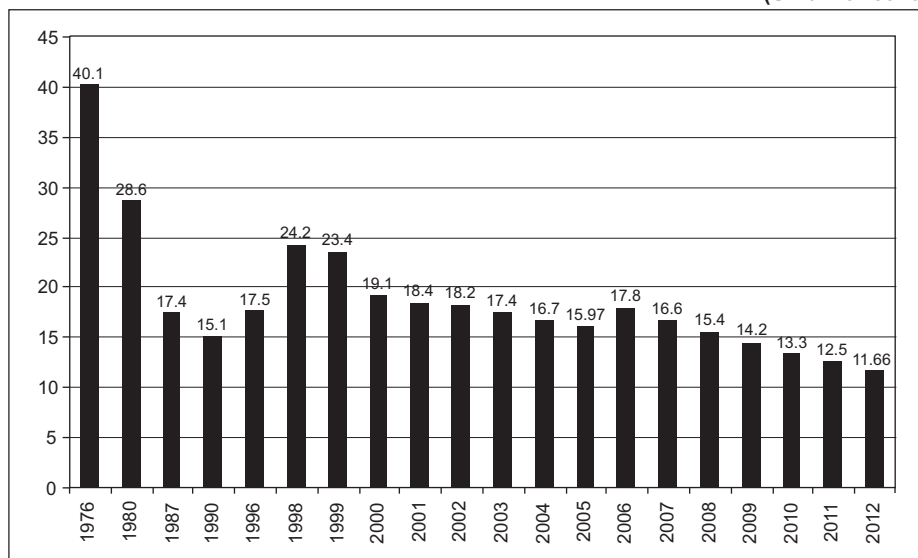


*Source:* *Statistical Yearbook of Indonesia* (various years), Indonesian National Statistics Agency (BPS) (available online at www.bps.go.id).

The continuing decline in the poverty rate is undoubtedly linked to the Indonesia's sustained economic growth and increase in employment. In addition, as shown by BPS data, the facts that the number of MSMEs has increased annually and continue to be the main generator of employment, these enterprises have been the most important contributor to the continuing decline in poverty in the country.

## D. Export performance

Most of the MSMEs in Indonesia (as in developing economies in general) are domestic market-oriented. In general, they lack: (a) technology and skilled workers, which prevents them from producing highly competitive products that meet world standards; (b) information, especially on market potential (including current changes in market demand/taste); (c) global business strategies; and (d) capital for financing export activities. In Indonesia, as in other developing countries, it is not uncommon (especially for MIEs and SEs) for direct international trade to be too costly due to various aspects such as promotion, distribution, communications, export licences, transportation and logistics. However, even if they are not directly involved in international trade, MSMEs can be integrated into export supply chains through the supply of components or semi-finished goods to export-oriented LEs.[81] Unfortunately, no national data are available on the

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[81] This was stated in a report by ADB (2002) on the development of MSMEs in Indonesia, which suggested that the low representation of Indonesian MSMEs in the export sector was due mainly to the indirect nature of exporting through intermediaries.

involvement of Indonesian MSMEs in export supply chains. However, many Indonesian MSMEs are believed to have forward production linkages with exporting companies.

Nevertheless, based on government data, in some groups of industries many Indonesian MSMEs do export. Government data show that total exports (non-oil and gas) by MSMEs are continuing to grow from year to year (table 4), despite a slight decline in 2009, (figure 2), probably in relation to the global economic crisis.

### Table 4. Export values of Indonesian MSMEs, 2006-2009

(Unit: Rp billion/US$ million)

| Year | Non-oil and gas exports | | | | |
| | MIEs | SEs | MEs | LEs | Total |
|------|------|-----|-----|-----|-------|
| 2006 | Rp 13 477.2 | Rp 29 365.4 | Rp 79 108.2 | Rp 656 231.8 | Rp 778 182.6 |
|      | US$ 1 347.7 | US$ 2 936.5 | US$ 7 910.8 | US$ 65 623.2 | US$ 77 818.3 |
| 2007 | Rp 15 024.9 | Rp 34 661.8 | Rp 93 325.7 | Rp 749 999.9 | Rp 893 012.3 |
|      | US$ 1 502.5 | US$ 3 466.2 | US$ 9 332.6 | US$ 7 500.0 | US$ 89 201.2 |
| 2008 | Rp 20 247.2 | Rp 44 148.3 | Rp 119 363.6 | Rp 915 091.2 | Rp 1 098 850.2 |
|      | US$ 2 024.7 | US$ 4 414.8 | US$ 11 936.4 | US$ 91 509.1 | US$ 109 885.0 |
| 2009 | Rp 14 375.3 | Rp 36 839.7 | Rp 111 039.6 | Rp 790 835.3 | Rp 953 089.9 |
|      | US$ 1 597.2 | US$ 4 093.3 | US$ 12 337.7 | US$ 87 870.6 | S$ 105 898.9 |

*Source:* State Ministry for Cooperatives and SMEs (available at www.depkop.go.id).

### Figure 2. Development of Indonesian MSME exports (non-oil and gas), 2000-2009

(Unit: Rp trillion)
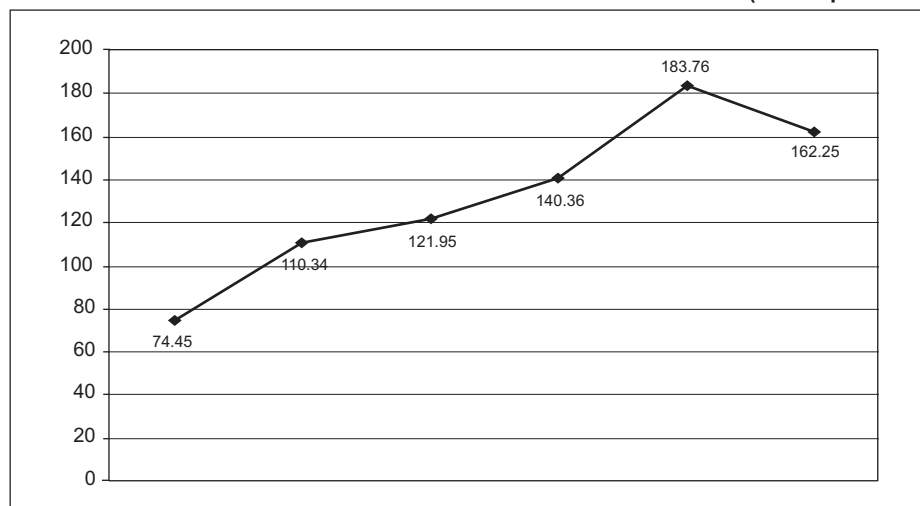


*Source:* State Ministry for Cooperatives and SMEs (available online at www.depkop.go.id).

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## E. Access by MSMEs to trade facilitation and its impact on their trade activities

In the current study, trade facilitation is defined as measures or actions taken by the Government as well as the private sector that make it easy for MSMEs to export directly with low transaction costs. Many MSMEs have great export potential, but they lack the necessary resources to export directly, e.g., working capital, knowledge/information about international market conditions or potential, and skills in exporting. Theoretically, with full access to trade facilitation, the export volume by MSMEs will increase and, subsequently, generate greater multiplier effects on employment creation and poverty reduction.

In the case of Indonesia, not many studies on trade facilitation and its impact have been conducted. Damuri (2006) carried out a survey of private sector actors in various types of businesses, including exporters and importers. He concluded that although Indonesia had already implemented various trade facilitation measures discussed in the WTO negotiations, the degree of implementation of those measures still needed significant improvement in order to provide simplified and harmonized procedures related to trade. In response to increasing demand for better public services related to trading activities, the Government of Indonesia has launched several programmes for improving trade procedures, including a customs-related administration programme.

The programmes are also in line with several international agreements on trade facilitation, in which Indonesia has actively participated.[82] However, the findings of the Damuri (2006) survey revealed that the implementation of several trade facilitation measures needed significant improvement. While the availability of information related to trading activities has shown significant progress, this remains the most problematic issue. Damuri also found that many traders faced difficulties in meeting certain regulations and procedures based on new regulations, as they were issued and implemented simultaneously, without any notification. The lack of formal consultative mechanisms exacerbated the situation. Rampant illegal conduct of officials was found to be eroding the competitiveness of Indonesian products. Traders surveyed complained that improper conduct of trade-related officials had not only increased costs, but also slowed down their activities, which could lead to the loss of business opportunities and substantial market share.

Rahardhan and others (2008) studied the impact of trade facilitation on export activities in Indonesia. They examined the impact of ASEAN trade facilitation on trade volumes of the main important commodities from East Java. They conducted in-depth interviews with exporting firms of all sizes as well as some key officials. The findings from the interviews showed that from the perspective of the respondents, the most important trade facilities were:

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[82]    These agreements include the APEC Trade Facilitation Action Plan and ASEAN Customs Agreement.

(a) Tariff barriers – the respondents said that that removing all problems related to customs procedures, tariff differences in line with declining MFN tariffs, administration procedures in completing all the required forms, and information on the Common Effective Preferential Tariff (CEPT) scheme had the most important effects;

(b) Non-tariff barriers – the issues related to import licences, technical regulations, various extra taxes (including tax of foreign exchange transactions) and the customs clearance procedure were highlighted as important impediments.

The most recent study, although not focusing on Indonesia, was made by Otsuki (2011) who attempted to quantify the benefits of trade facilitation in ASEAN. He assessed the performance and progress of the ASEAN economies in trade facilitation, and the effect of improved trade facilitation on the region's manufacturing trade. In a scenario of raising the below-average countries halfway to the global average, he estimated ASEAN's trade would increase by US$ 99 billion, three-quarters of which would come from the region's own improvements. He also found that regulatory reforms (e.g., the enhancement of transparency of trade-related regulations as well as ensuring law-abiding operations of the regulatory authorities) to be the most effective ones.

Other important studies were carried out by Shepherd and Wilson (2009) in ASEAN, and by ADB and ESCAP (2009). Trade flows in ASEAN were found to be particularly sensitive to trade facilitation, especially with regard to transport infrastructure as well as information and communications technology. The findings suggested that the region could make significant economic gains from trade facilitation reform. Shepherd (2010) revealed two important facts. First, trade costs in many APEC economies have declined significantly since the 2001 Shanghai Declaration, in which APEC economies committed to reduce trade costs by 5 per cent over the following five years through tariff reductions and trade facilitation. The performance of individual economies, however, has varied substantially, and some economies are far below the Shanghai target. ASEAN member countries have also experienced some declines in trade costs, but generally to a lesser extent than in APEC.

However, in both groups, tariff reductions have played an important role in reducing overall trade costs. Progress on non-tariff trade costs has been much less impressive. This finding raises serious questions as to the effectiveness of trade facilitation efforts in the APEC region, which should be clearly focused on non-tariff trade costs or improvement of trade facilitation (Shepherd, 2010).

Trade facilitation performance in Asia and the Pacific has improved with a reduction of (a) the number of days involved needed to import and export and (b) other trade costs including international transportation costs. However, the trade facilitation performance gap between the APEC region and the world's most developed economies remains wide. In addition, national trade facilitation measures in many developing countries in Asia have often inherently focused on facilitating imports and exports from and to developed

countries, partly because of the increasingly sophisticated requirements imposed by developed countries on their trading partners as part of trade security initiatives. As such, trade facilitation concerns at many land borders have remained unanswered.

Unfortunately, until now not many studies have been conducted specifically on access by export-oriented MSMEs to trade facilitation and the resultant impact on their export volume and costs in Indonesia. However, some official statements made by government agencies may indirectly suggest that access to trade facilitation measures is still a serious constraint for MSMEs. Trade finance is among the important trade facilitation measures, and recently Bank Indonesia (BI) stated that 50 per cent of all MSMEs in Indonesia were still not served by banks.[83]

Existing limited studies include Alavi (2009), who discussed the development of MSMEs in Indonesia during the 2008-2009 global economic crisis and the importance of trade facilitation, especially trade finance. However, the study was limited by the lack of strong evidence as to whether these enterprises had easy access to trade facilitation and what had been the impact on their performance or their survival ability in times of economic crisis.

A prior study by Tambunan (2009c) is probably the only serious attempt so far to examine the impact of trade facilitation on export activities of MSMEs in Indonesia. He conducted a survey of 39 export-oriented MSMEs in the wood furniture industry in Central Java in August 2009. His main argument regarding the basis for conducting his study was the fact that many export-oriented MSMEs or those that had strong potential to become exporters could not directly export by themselves, but had to go through a third party such as large-sized exporting or trading companies. He highlighted two main reasons. First, a financial problem – most MSMEs, especially MSEs, lack sufficient capital needed to pay all costs involved in export activities. On the other hand, it is not easy for them to get sufficient support from banks or other formal financing institutions. Second, the existence of institutional and business constraints that MSMEs are unable solve because:

(a) They do not have direct access to export markets or no access to information on export market opportunities and requirements;

(b) They are unable to adjust to rapid changes in export markets;

(c) High risks exist in payment and shipment;

(d) Delayed payments by importers. Small-sized exporters/producers cannot shoulder such a burden as a daily cash flow is vital to their business;

(e) There is higher cost involved in direct export activities by MSMEs;

(f) They have no access to trade facilitation benefits.

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[83] For additional details see http://ditjenpdn.kemendag.go.id/index.php/public/information/articles-detail/berita/30).

During the survey, the respondents were requested to indicate which form of trade facilitation they considered to be the main obstacle to exporting. Table 5 lists the six areas in which the respondents felt trade facilitation measures were needed the most. However, it should be noted that some individuals (or groups of individuals) had different perceptions regarding the degree of the problem with regard to each of the areas shown in table 5.

**Table 5. Trade facilitation areas in which respondents faced greater constraints**

| Area | Number of respondents |
|------|:---:|
| Custom regulations and costs involved | 7 |
| Shipment | 2 |
| Documents required for export | 4 |
| Environment, health and safety regulations | 3 |
| Harbour facilities and costs involved | 2 |
| Trade financing (letters of credit and/or trade credit) | 21 |
| **Total** | **39** |

*Source:*    Tambunan, 2009(c).

The findings of the survey indicate that a lack of access to trade financing was seen as a major problem by the majority of the respondents. This finding is interesting due to the fact that many banks in Indonesia have been making efforts to facilitate SMEs in trade. Apart from private commercial banks, such as Bank International Indonesia and Standard Chartered Bank, several state-owned banks such as Bank Mandiri, BRI, BNI and Bank Ekspor-Impor Indonesia also provide trade facilities to MSMEs. The trade facilities include loans for working capital, investment credit, letters of credit (L/C), foreign exchange lines, bank guarantees, shipping guarantees, business management accounts for international trade (current accounts with interest and integrated trade facility), loans against trust receipt (LATR), inward bills collection (IBC), invoice financing for suppliers (purchases), credit bills negotiation (CBN) – clean and discrepant, pre-export financing, export bill collection (EBC).

Trade facilitation can benefit MSMEs directly as well as indirectly. Direct benefit refers to those MSMEs that have access to trade facilitation; this not only lowers the cost of inputs procurement (resulting in lower production costs and subsequently increased production by MSMEs), but also leads to export growth among MSMEs as exporting is made easier and cheaper. Indirect benefit refers to those MSMEs having no access to trade facilitation but which are still able to benefit from existing trade facilitation through subcontracts and piecemeal production with LEs. With access to trade facilitation, LE trading costs decline, which is reflected in increased production. This may lead to higher demand for intermediate goods or components produced by MSMEs, which means increased production by MSMEs. The increase in exports by MSMEs as a result of their access to trade facilitation may also provide benefits indirectly to other local MSMEs through greater demand for intermediate goods or components by the former.

Although information on MSMEs having business/production linkages with LEs in Indonesia is scarce, the automotive industry has enjoyed success in subcontracting activities between large-scale automotive companies and MSMEs as subcontractors in the supply of components and spare parts. In the export sector, only in a few industrial groups are the business linkages between MSMEs and LEs relatively strong. This includes the furniture industry, where MSMEs supply semi-finished goods to exporting LEs.

The above results of the analysis of expected benefits of trade facilitation for MSMEs can also be applied both to MSMEs in the formal sector (MEs and, to a lesser extent, SEs) and to those in the informal sector (mainly MIEs). Trade facilitation can be expected to have different effects in these two categories – enterprises in the formal sector may have greater access to trade facilitation than their counterparts operating in the informal sector. However, trade facilitation may still provide indirect benefits to enterprises in the informal sector that have business linkages with those in the formal sector with access to trade facilitation.

## F. Surveys: Findings and discussion

This study, with its large sample from two regions of Indonesia, should be considered as an attempt to increase the information available on the impact of trade facilitation improvement in Indonesia. The study addresses the gaps by focusing more on access by MSMEs to trade facilitation, their way of exporting (directly or indirectly) and the main constraints they face, their perception of competition as a direct result of free trade agreements and the impact on their exports.

### 1. Sample profile

Two field surveys on export-oriented MSMEs in two different locations/cities in Central Java (Solo and D.I. Yogyakarta) were conducted for this study. The sample included LEs as a comparison.[84] The respondents surveyed totalled 82 producers comprising:

(a)    Solo – 20 LEs and 10 MSMEs;

(b)    D.I. Yogyakarta – 3 LEs and 49 MSMEs.[85]

The respondents were selected randomly, based on the lists of export-oriented MSMEs and LEs as members of the regional chamber of commerce and industry (CCI) in each of the two regions. The total number of respondents differed between the regions

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[84]    The initial plan was to have more MSMEs than LEs as respondents in Solo. During the observations and the survey, it was found that some MSMEs were no longer exporting – in some cases, since many years previously – for various reasons, including difficulties in competing, a lack of capital to finance export activities (since getting financial support from the Government or credit from banks was difficult), high transportation/ distribution costs and a lack of information.

[85]    The survey, which took place during May 2012, was conducted in collaboration with local chambers of commerce and industry (CCI). During the survey, focus group discussions with local government officials, some of the respondents and CCI officials were also conducted at the CCI offices during the same month.

because (a) the total number of CCI members in Solo is not the same as in the CCI in D.I. Yogyakarta, and (b) the number of members who were still exporting also varied between the two regions. As a result, the samples of the two regions do not appear to be representative. However, the survey results may clarify this issue.

The commodities produced and exported by the respondents range from wood/bamboo and rattan furniture to clothing and handicrafts. Thus, they are all producers or firms in the manufacturing industry. Among the surveyed LEs, the largest-sized respondent employs more than 1,000 workers, and some LEs have more than one factory located in or around Solo city. The smallest-sized respondent employs 100 wage-earning workers in Solo. Among the surveyed MSMEs, the largest-sized respondent employs 86 workers; one respondent was operating without wage-earning workers (a "self-employment unit") while many others have only two workers. The majority of the sampled MSMEs are from the MSE category. The sample also includes a large number of women entrepreneurs.

With regard to the degree of involvement in export activities, among the sampled firms the survey found LEs to be more export-oriented, in the sense that there are more LEs than MSMEs in the sample that export 100 per cent of their production output. As figure 3 shows, about 21.7 per cent of the sampled LEs serve only foreign markets, while in the case of MSMEs it is only 11.9 per cent. This finding is not surprising, however, as MSMEs in general (especially MSEs) face greater difficulties than their larger counterparts in exporting due to their lack of skills, information and capital. These are crucial inputs that

**Figure 3. Market orientation of sample respondents**

(Unit: Per cent)
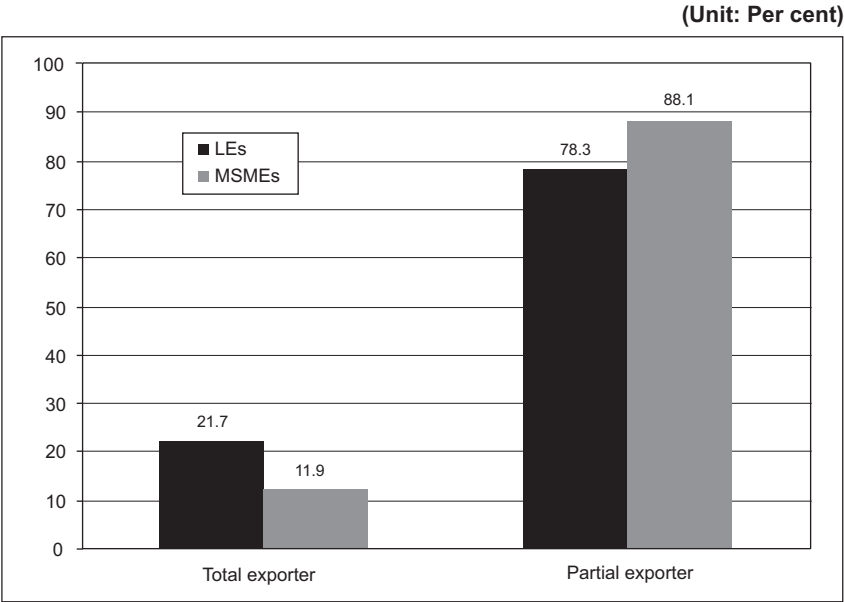


*Source:*   Field surveys in Solo and D.I. Yogyakarta in 2012.

all firms/producers need, not only for actual exporting, but also to: (a) identify market opportunities; (b) understand current market changes; (c) attain full knowledge of existing rules and regulations related to export activities as well as regulations related to import activities in countries of destination; and (d) undertake promotion and regional/global marketing activities.

The field surveys also revealed that more sample LEs than MSMEs exported directly without the help of intermediate agents such as traders or trading companies, or collectors. As figure 4 shows, 56.5 per cent of the surveyed LEs export by themselves, compared with only 23.7 per cent of the sampled MSMEs. The reason is the same as that mentioned above as MSMEs in general are not able to export by themselves due to their lack of knowledge about regional/international marketing, bargaining skills and other aspects directly related to export activities as well as the necessary capital to carry out the whole exporting process, from identifying potential buyers abroad and promotion, to export administration procedures and shipping. MIEs in particular, which are mainly run by individuals who are less-skilled with regard to international business aspects and which lack adequate capital, find it very difficult to export by themselves; even when selling their products domestically most MIEs have to place considerable dependence on traders or collectors.

**Figure 4. Ways of exporting by respondents**

**(Unit: Per cent)**
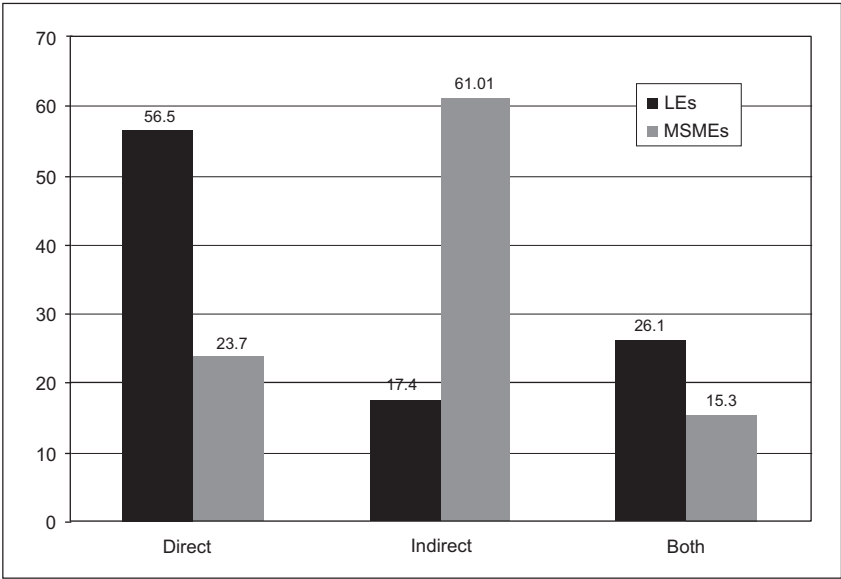


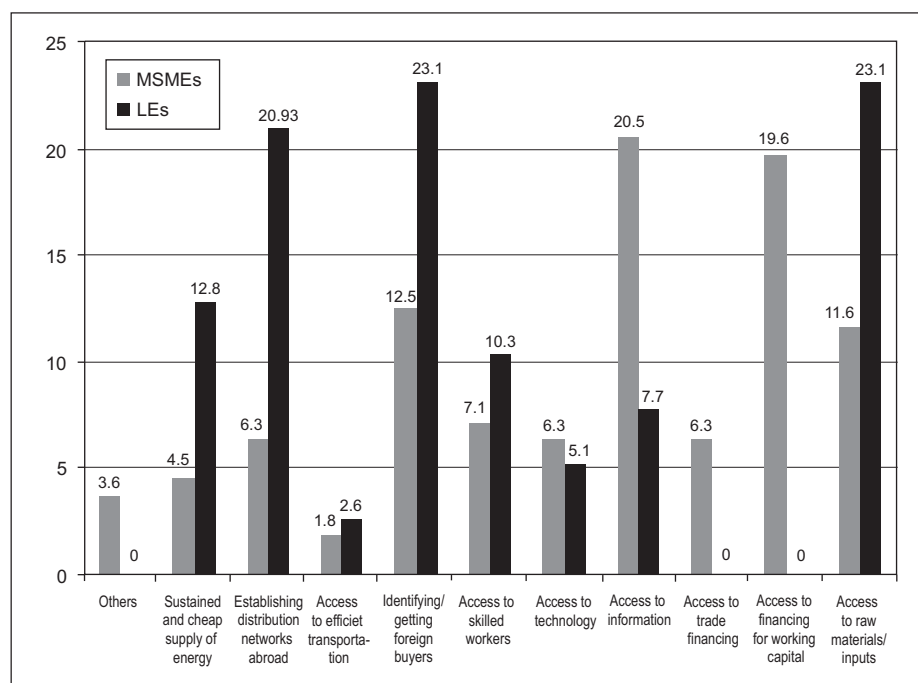*Source:*    Field surveys, 2012.

## 2. Findings and discussion

*(a)    Main constraints to exporting*

National data on MSEs show that the lack of raw materials (shortage in domestic supply, caused mainly by unlimited exports of raw materials, or stocks that are available but too expensive), marketing difficulties and lack of capital are the three main constraints (BPS, 2010). During the survey, the respondents were asked to select two items from a list of problems related to crucial inputs/sources of growth, i.e., raw materials, funds, trade financing, information, technology, skilled workers, transport facilities, energy, markets (identifying/getting buyers), distribution networks and others (if any).

The main constraints identified by the respondents differ between MSMEs and Les (figure 5). With regard to LEs, identifying/attracting buyers abroad appears to be the most problematic for the largest percentage of the respondents. Lack of access to funds/credit, transport facilities, energy and skilled workers appear to be less serious problems for the majority, and none of the respondents said that access to trade finance was a serious problem. This is not surprising in view of the fact that, in general, it is MSMEs and not LEs that have difficulties in getting credit, including trade finance, from banks or financial institutions.

**Figure 5. Percentage of total respondents by size and category of main constraint**



*Source:*    Field surveys, 2012.

For MSMEs, a lack of access to information either on market conditions and changes or potential and current trade policies and regulations/deregulations was identified by many respondents as the most serious constraint. More interestingly, access to financing was not identified by many of the MSME respondents as the top-most constraint. This finding is in line with the figure at the national level as shown by national data (BPS) regarding the main constraints faced by MSEs in the manufacturing industry in Indonesia (table 6).

The BPS data show that many of the surveyed MSMEs identified difficulties in doing marketing as their most serious problem; such difficulties could, among other factors, be caused by a lack of access to information about outside markets. Many respondents either did not know how to explore new markets abroad or they had never heard about many new regulations on trade issued by the Ministry of Trade. Their lack of information was caused by a variety of factors, ranging from having insufficient money to use/purchase information and communications technology to having no knowledge about how to get the right information or how to communicate with government officials or related departments. The main reason for this is their low level of formal education. In of the case of MIEs in particular, which is the dominant category within MSMEs in Indonesia, the owners/producers only had a primary education, and many of them never finished their schooling. As a result, it is difficult (if not impossible) for someone with only a primary education to read very well and understand the meaning of information that he/she can get, or even communicate, especially in English.

One interesting finding during the field survey was that the majority of the respondents said that they were not aware of the current government regulations that affected their export activities or the current programmes initiated or designed by the Government specifically to support exporters.
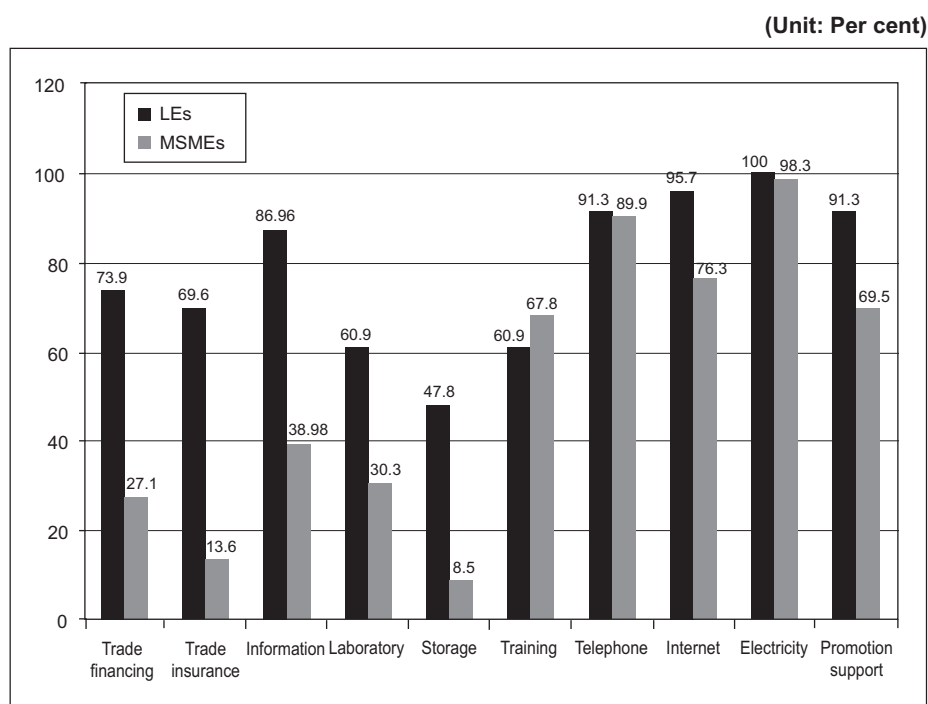
*(b)    Access to trade facilitation*

Undoubtedly, in this era of trade liberalization, the importance of trade facilitation is increasing, especially in the areas of trade finance, trade insurance, information and testing laboratories, which have become more crucial than ever before.

During the field surveys, the respondents were given a list of facilities/measures for making international trading easier. The measures, which can be considered as trade facilitation, included export and/or import financing, trade insurance, information, laboratories for quality testing, storage before shipping, training on exporting, communications (e.g., telephone and Internet), electricity supply and support for promotional activities. The respondents were asked to answer "yes" or "no" to each of those facilities (see annex). If an answer was no, the respondents were asked to give the main reason, e.g., because the procedure was too complex or too expensive, because they did not know that a particular facility existed or other reasons. The findings appear to suggest that LEs have better access to all trade facilitation support that they need for their export activities compared to their smaller counterparts.

As indicated in figure 6, 73.9 per cent of the 23 LEs but only 7.1 per cent of the 59 MSMEs surveyed said that they had access to export financing. Almost 70 per cent of the sampled LEs had access to trade insurance compared with only around 3.6 per cent of the sampled MSMEs. In the case of information, almost 87 per cent of LEs versus almost 39 per cent of MSMEs had access. With regard to the remaining categories, figure 6 reveals a similar scenario, in that LEs are much better prepared than MSMEs. If these findings represent the real situation of MSMEs in general and the export-oriented businesses in particular in Indonesia, it is not surprising that the national data show that the export share of MSMEs in the manufacturing industry is much smaller than that of LEs.

**Figure 6. Percentage of respondents with access to selected
trade facilitation measures**

**(Unit: Per cent)**



*Source:* Field surveys, 2012.

With regard to the main reason for not having access to some of the listed trade facilitation measures (figure 7), not knowing or not having been informed that the facilities/ services exist was the main reason indicated, both by LE and by MSME respondents. In percentage terms, more MSME than LE respondents (84 per cent versus 16 per cent) said that they had never heard or did not know about the facilities as the main reason for not making use of such services. In comparison, BPS data for 2010 on MSEs in the manufacturing industry support this finding. This suggests that many MSMEs, and

## Figure 7. Main reasons for not having access to some listed trade facilitation measures
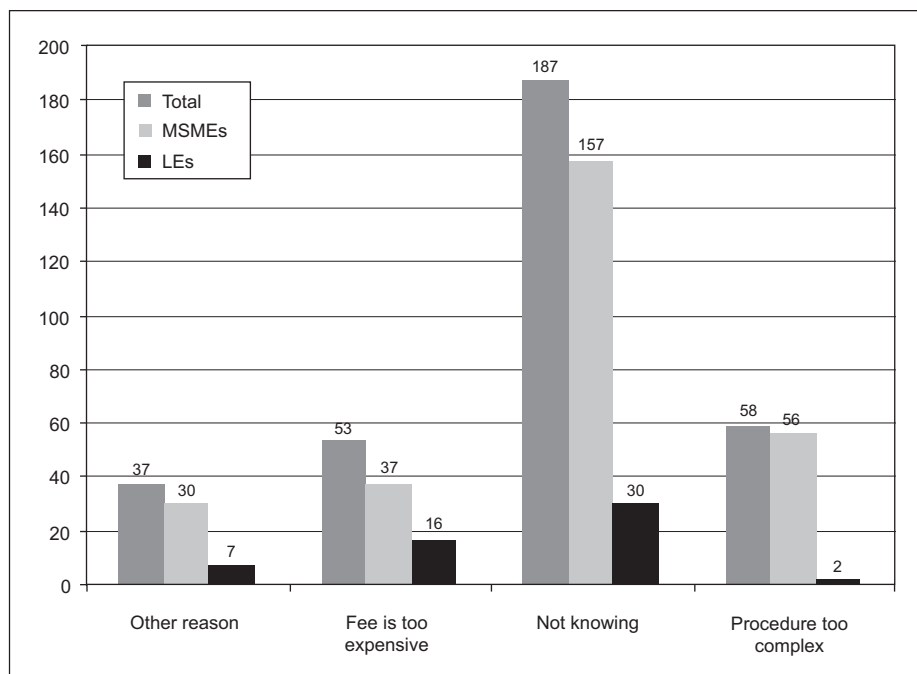
especially MSEs, in Indonesia do not make a good use of existing facilities simply because they are not aware that such facilities exist or do not know the access procedure.

First, the data show that 2,172,753 out of total 2,732,724 MSEs surveyed by BPS did not borrow money from banks or non-bank financial institutions, and around 17.5 per cent of them said that not knowing the procedure was their main reason. Second, the data also show that only 208,305 of the surveyed MSEs received business support. Of the remaining 1,964,448 MSEs that did not receive such support, 386,605 respondents said that although they were aware that such services existed they did not know the procedure for obtaining it. Having no knowledge at all about such services was the main reason for the other 1,489,106 respondents. Thus, for around 95.5 per cent of MSEs, the lack of information/knowledge was the main reason for not receiving business support.

There are two possible reasons for this result – a lack of information from the government side about the existence of particularly facilities and/or a lack of activeness on the part of the producers in looking for information about facilities provided by the Government. In many cases, owners of MSEs do not even know what type of support or facilities they really need and which are good for their business performance. On the other hand, supporting facilities for MSMEs introduced/provided by ministries often lack wide promotion/socialization. As a result, only a small number of MSMEs – not just those located

in Jakarta and other big cities but also those whose owners have good connections or have built strong networks with ministries – know about such facilities and have better opportunities to access them.

So far, the above findings and discussion suggest that not having access to information or not being informed about existing trade facilitation appears to be a very serious problem for many MSMEs. However, national data do not indicate that access to information is more important than access to capital for those enterprises. Table 6 lists constraints facing manufacturing MSEs in Indonesia. It shows no indication of a lack of information being a serious problem, although marketing difficulties may be caused by the lack of information, among other factors.

**Table 6. Constraints on Indonesian micro and small manufacturers, 2005 and 2010**

(Unit: No. of respondents)

| Constraint | 2005 | 2010 |
|---|---|---|
| No serious obstacles | 674 135 | 599 591 |
| Serious obstacles | 2 054 565 | 2 133 133 |
|     Lack or high prices of raw materials | 421 277 | 483 468 |
|     Marketing | 629 406 | 495 123 |
|     Lack of capital | 714 629 | 806 578 |
|     Transportation/distribution | 54 945 | 39 571 |
|     Energy, high prices or short supply | 55 420 | 34 759 |
|     Labour – high cost or lack of skills | 16 650 | 89 046 |
|     Other | 162 238 | 184 408 |
| Total | 2 728 700 | 2 732 724 |

*Source:*     BPS, 2010.

Within the group of MSMEs, the next most important reason for not making use of existing facilities is difficulty with procedure (I) at 96.6 per cent of the total sampled respondents saying this as their most important reason compared with only 3.4 per cent among LE respondents. The difficulty in procedure is also an important reason for many MSMEs not making good use of existing facilities, including credit schemes from banks. This finding is supported by the national data for 2010 from BPS, which show that approximately 9.8 per cent of the sampled MSMEs that did not have loans from banks or non-banking financial institutions said that difficulty in following or understanding the application procedure for credits was the main reason.

This finding is understandable, given the fact that the majority of MSME owners, particularly MSEs, have only primary education that often makes it difficult for them to understand the application procedure or the system for using a facility. Too expensive (III) was the next main reason given for not having access to some of the listed trade facilitation measures while some other respondents said the main reason was that they had no need yet (IV).

Other facilities that are also important are services for getting an export licence, transportation (in quantity and quality) to a harbour, airport or hub, and shipping. With regard to services for export licence applications, the three main questions for the respondents were (a) how much did they have to pay, (b) how many documents were required and (c) how many days did they have to wait before receiving a licence? The findings show that the total number of days that LE respondents needed to deal with export licence applications varied from only one day to 30 days; interestingly, for MSME respondents it was between 1 and 10 days.

With regard to the cost, the amount varied, ranging from a minimum Rp 100,000 to more than Rp 10 million for both categories of respondents. The total number of documents required ranged from 1 to 8 for the LE respondents and from 1 to 12 documents for MSMEs.

For a broader picture of this issue, the World Bank report, *Doing Business, 2012* gives the total days for exporting, i.e., starting from the final contractual agreement between the exporter and the buyer (importer) in Indonesia, was 17 days, compared with APEC (average) – 14 days, OECD – 10 days and the European Union – 11 days. The number of documents required for exports from Indonesia was 4 days compared with APEC – 5, OECD – 4 and the European Union – 0.5 days. The cost of exporting per container in Indonesia was US$ 644 while for APEC it was US$ 836, OECD – US$ 1,032 and the European Union – US$ 1,024.

One important aspect of trade facilitation improvement in Indonesia is related to transportation and logistics. The key question for the respondents in that regard was whether they found that it was easy and cheap to transport (including shipping) their products.

As figure 8 shows, the finding was that more LEs than MSMEs said that transportation was easy. However, they had different opinions on costs. More MSMEs than LEs said that land transportation was cheap, while it was the opposite for shipping costs. However, this is not really a surprising finding. The reason could be that the average export volume per individual firm was relatively smaller than that of individual LEs, so they did not need large trucks, and they often used/hired non-modern trucks to transport their goods to ports. Also, many MSMEs export indirectly, so they are not directly involved in shipping.

Finally, those respondents with access to some or all of the listed trade facilitation measures were asked whether those measures were helpful to their export activities (e.g., enabled more exports, lowered export costs and/or made it easier to export). The results show that the almost 96 per cent of all LE respondents had access; in the case of MSMEs, 93 per cent had access.

*(c)    Government and private sector support*

Trade facilitation measures may also include special measures provided by government institutions and private organizations that support exporting by MSMEs (figure 9), i.e., departments/ministries of trade (I), industry (II), and cooperative and

**Figure 8. Percentage of respondents by ease and cost of land transportation and shipping**
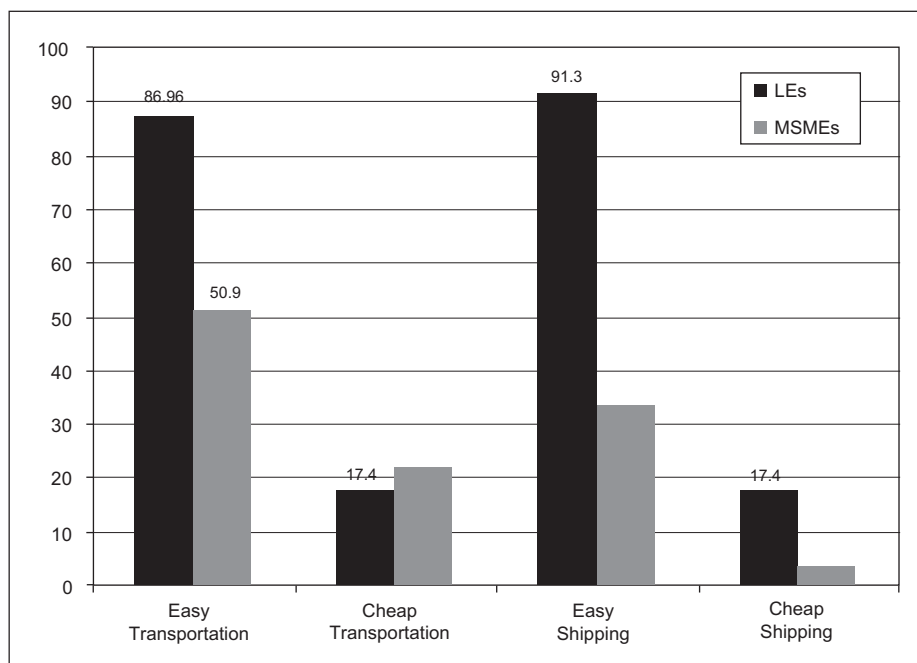
SMEs (III); R&D institutes (IV); universities (V); chamber of commerce and industry (*Kadin*) (VI); business associations (VII); banks and/or non-bank financial institutions (VIII); state-owned companies (BUMN) (IX); and local government (*Pemda*) (X). The respondents were asked the following question: Had they (ever) received support from these bodies and if so, in what form(s)?

At least three very interesting findings, as shown in figure 9, came out of the answers to that question. First, in percentage terms, more respondents from MSMEs than from LEs had received support or assistance from R&D institutes and universities. However, it is generally expected that R&D institutes and universities will be more willing to collaborate with LEs rather than with MSMEs (especially MSEs), for at least two main reasons: (a) it provides a more profitable market in the long term (i.e., more demand opportunities from other LEs to collaborate); and (b) LEs have sufficient capital to invest in such collaboration.

Second, Indonesian chambers of commerce and industry, and business associations, especially at the regional/local levels, are supposed to play a key role in supporting MSMEs; however, the survey indicated the opposite – there were more respondents from LEs who enjoyed services/supports from these two private organizations.

Third, there were more respondents from LEs than from MSMEs who had received financial support from banks or non-bank financial institutions. This may suggest that despite government efforts to increase the role of financial institutions in supporting enterprises, including the introduction some years ago of a special non-collateral-based credit scheme known in Indonesia as *kredit usaha rakyat* (KUR), many MSMEs in the country still have no access to financial institutions, especially commercial banks.

**Figure 9. Percentage of respondents receiving government and private sector support**
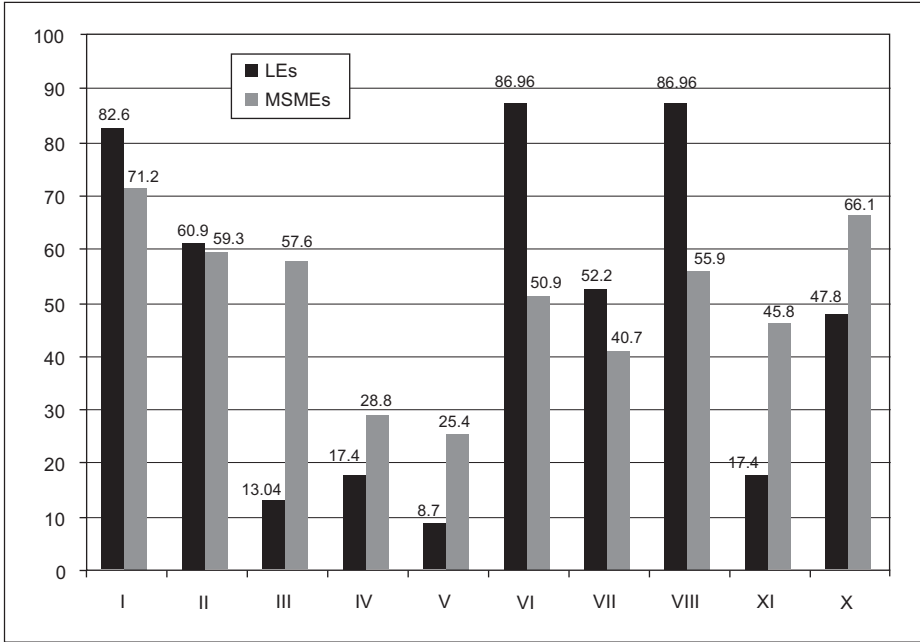


*Source:*    Field surveys, 2012.

With regard to the form of support received from all providers (if any), the respondents were given a list of the types of support in which they could indicate the type(s) of support they had received at any time (figure 10), i.e., training (I), financing (II), technical assistance (III), marketing/promotion (IV), procurement of raw materials/inputs (V), market information (VI), and others (if any) (VII). Based on the number of times individual types of support were listed by each respondent, training was revealed as the most popular form of support, with a total mention of 230 times. Indeed, the most popular form of support was training, provided by both the government and private sectors, especially for MSMEs (189 respondents) compared with LEs (41 respondents). The second-most important type of support, from the MSMEs' perspective, was in marketing/promotion, followed in the third place by marketing information. With regard to "other" types, help in applying for export licences was the most frequently listed.

**Figure 10. Frequency of types of support listed by respondents**
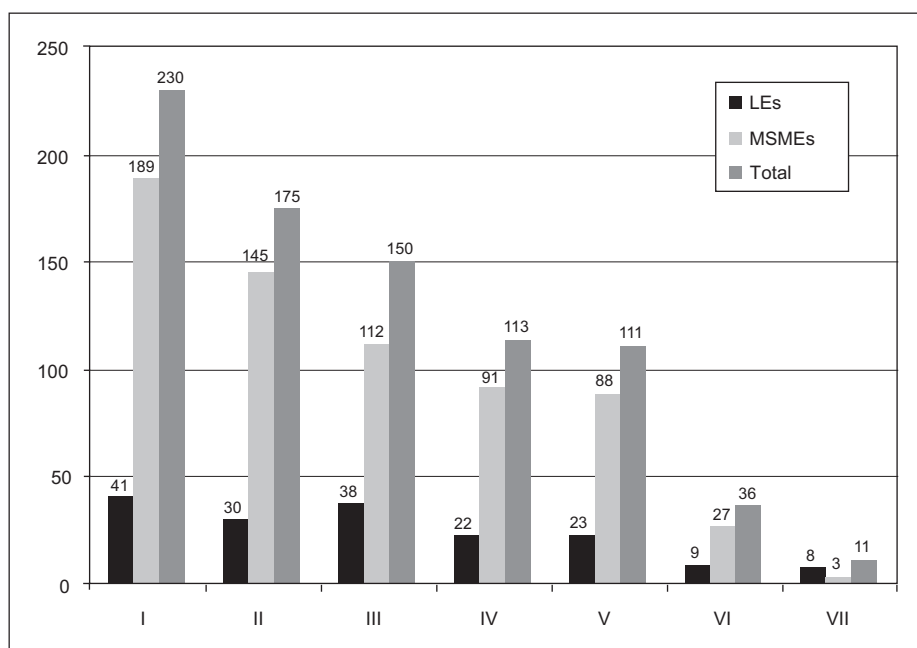


*Source:* Field surveys, 2012.

The results show that financing was not the most important type of support received by the sample MSMEs. This is in line with national data from BPS, which show that in 2010 of 559,971 MSEs in the manufacturing industry that used external sources of finance, only 112,627 (about 20 per cent) used credit from banks. The percentage, however, varies not only by industry group but also by province. By industry group, the highest percentage was in industries producing other chemical products, which indicates that in this group almost all existing MSEs made use of credit from banks, while in the basic chemical industry, no existing MSEs had used that bank facility.

Surprisingly, Papua province recorded the highest proportion of existing MSEs with credit from banks. The variation by province can be explained by various factors, including the scattered locations of MSEs and banks, types of constraints faced by the enterprises and products they produced (which determine their need for external capital), and the active roles of local government officials and staff of local banks in promoting existing credit schemes among local MSEs.

Finally, with regard to the role of other non-financial organizations (including government agencies), the BPS data for 2010 show that of the total 2,732,724 MSEs, only 83,196 enterprises (or about 3 per cent) ever received assistance or other types of support from the Government. Next were 30,697 enterprises (1.1 per cent) with support from the private sector (e.g., universities, chambers of commerce and industry as well as business

associations) and 8,207 enterprises (0.3 per cent) with support from non-governmental organizations. Of course, the importance of these organizations to MSEs varies not only by industry group but also by province.

*(d)    Policies with positive effects on exports by MSME*

With regard to government policies (e.g., regulations, laws, decisions and ministries/presidential decrees), the respondents were requested to identify policies that: (a) had a positive impact on their exports; (b) had a negative impact on their exports, and (c) the types of incentives that they needed most to increase their exports. Many respondents, especially from the MSE category, had difficulty in answering these three questions, as many of them were either not really aware of the existing government regulations that directly or indirectly affected their exports or had no any idea of what types of incentives or policies were good for their export activities. Consequently, many of the respondents in the MSME category did not give clear answers to these questions. Nevertheless, those who were able to give answers, provided a clear picture of the "positive" policies required (table 7).

**Table 7. "Positive" policies needed by respondents**

| Aspects | "Positive" policies |
|---|---|
| Raw materials | • Prohibiting export of raw materials (e.g., rattan)<br>• Facilities to import raw materials for exports, including the presence of safeguard;<br>• Low or no import tariffs<br>• No restriction to import used materials/components<br>• Stable and competitive exchange rate |
| Product quality | • Implementation of Indonesian National Standard (SNI) and supports for entrepreneurs to meet SNI |
| Export activity | • Supports in the forms of e.g., technical assistance, special credit scheme or easy access to bank credits, training, promotion, market information;<br>• Centralization of export services networks and working 24 hours, including online services to get all licences required.<br>• No export tax and other barriers<br>• Stable and competitive exchange rates<br>• Low costs of transportation to port/hub, containers, shipping |
| Energy | • Low cost<br>• Reliability of supply (e.g., electricity) |
| Infrastructure | • Development or improvement of existing infrastructure including road, port/harbor facilities (e.g., *Semarang*) |
| Manpower | • Conducive wage regulation |
| Business environment | • No sudden changes or inconsistency in regulation/policies<br>• New regulations must be clear and well thought off. |

*Source:*    Field surveys, 2012.

# G. Conclusion and policy recommendations

Based on the primary and secondary data from the field survey in two locations, this study reveals five interesting facts about export-oriented MSMEs in Indonesia. First, only a small percentage of the respondents export all their products. A major reason is the lack of information, capital and skills among MSMEs that are 100 per cent export-oriented. Another reason is the existence of a huge domestic market. The majority of the Indonesian population is in the middle- to low-income group, from which there is always large demand for their products; selling to the domestic market is much cheaper, less risky and easier than selling to foreign markets. Moreover, many owners of MSEs are not really "entrepreneurs" in the sense that they do not attempt to improve their businesses, introduce innovation and expand their markets, including foreign markets.

The second impediment that the MSMEs face relates to the lack of information about potential buyers abroad and the lack of availability of export finance, especially for working capital and marketing.[86] Many of the respondents, especially those in the MSE category, do not have enough capital to explore export markets. The lack of information can be caused by the poor skills of the owners or the lack of available information.

The third obstacle concerns their utilization of trade facilitation measures. As evident from the survey, the LEs are better equipped than MSMEs to use such facilities. MSMEs are not well-informed about the various existing trade facilitation measures and therefore are unable to reap the benefits. This fact is supported by national data, which suggests that many MSMEs, and especially MSEs, in Indonesia do not make good use of existing facilities simply because they are not aware that such facilities exist or do not know the procedure for accessing them.

The fourth interesting fact revealed by this study concerns the role of the Government, such as the Ministry of Trade, the Ministry of Industry and the Ministry for Cooperative and SMEs, as well as private organizations such as the Indonesian Chamber of Commerce and Industry, business associations and commercial banks, in supporting MSMEs. It has been found that not all of the MSMEs respondents had received government support (not even from the Ministry for Cooperatives and SMEs) or private organizations. It is evident that many government supported/initiated facilities, including trade facilitation, have yet to reach many MSMEs in Indonesia, especially those located in rural or rather isolated regions. On the contrary, more respondents from LEs than from MSMEs enjoyed support from these private organizations. In addition, more respondents from LEs than from MSMEs had received financial support from banks or non-bank financial institutions.

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[86] Since the focus of this study and the field survey was on MSMEs in the manufacturing industry, it remains questionable as to whether a lack of information is also a serious problem for enterprises in other sectors.

It is difficult to measure any correlation between access by MSMEs to trade facilitation measures and the impact on their exports. However, the finding regarding the question of whether or not the respondents were satisfied with the trade facilitation services they received may suggest that trade facilitation services have had some positive effects on exports of most of the respondents. The finding also suggests that although having access to improved trade facilitation is important to MSMEs, ultimately their capability to increase exports will also depend on whether they can meet other export requirements such as having sufficient production capacity and the ability to innovate.

Based on the above findings, this study suggests that the following three policy measures will be necessary for MSMEs to benefit from existing trade facilitation initiatives.

## 1. Increasing awareness among MSMEs

As the lack of awareness by MSMEs about trade facilitation measures is a major issue, the most important policy measure should involve "reaching out to MSMEs". As trade facilitation generally concerns dealing with international trade, the Ministry of Trade should be made responsible for the dissemination of information about existing trade facilitation measures and how the measures will help in promoting exports. The Ministry for Cooperatives and SMEs, as the leading department responsible for providing support to MSMEs or formulating MSME policies, should also increase awareness about existing trade facilitation as well as about other policies, regulations and international trade agreements.

Other facilities/programmes that would be important to MSMEs involved in international trade transactions could be a specially-designed single portal that enables full links to websites of all government departments and other stakeholders that are providing/initiating trade facilitation measures and provides access to regular publications (e.g., newsletters and bulletins). This single portal must be user-friendly and fully accessible, regularly updated, and with interaction limited to requests for information on certain trade facilitation measures. In doing so, the ministry should maintain close coordination with local government offices and the private sector, especially chambers of commerce and related business associations. With regard to trade facilitation initiatives in the context of ASEAN and APEC, the ministry should maintain close coordination with the ASEAN Secretariat in Jakarta and the APEC Secretariat in Singapore.

## 2. Training on accessing trade facilitation information

Each government department related to those sectors in which many MSMEs are carrying out international trade transactions, and especially the Ministry of Industry, should provide training for MSMEs, with or without cooperation from the private sector, on how to access information about trade facilitation. The training should be coordinated by the Ministry for Cooperatives and SME.

# 3. Promotion of ICT

Since MSMEs, especially MIEs, in Indonesia still have difficulties in accessing ICT or adjusting their "traditional business approach" to "ICT-based modern business", the Government of Indonesia (in this case, the Ministry for Cooperatives and SMEs) should take affirmative action, or introduce "positive discrimination" policies that tackle factors related to the limitations resulting from their small size and other "inadequate" characteristics such as low-educated owners and employees. They should also promote awareness of the importance of using ICT to make it easy for them to integrate into ICT-based trade facilitation. Affirmative action for MIEs should include (a) free, or at least low-cost, ICT workshops and training, (b) technical assistance/consultation services during the adoption process, (c) a special credit scheme with a low interest rate and simple administration requirements for financing development of the ICT system in MIEs, and (d) low fees for e-mail and Internet connection for a limited period for beginners.

# Annex

**Survey questionnaire for export-oriented MSMEs in Solo and D.I. Yogyakarta**

**I. Profile**

1.  Name of company (if any):
2.  Name of respondent:                                                                                (Owner/manager)
3.  Address of company:                                City:                                Province:
4.  No. Tel/HP:
5.  Year of establishment:
6.  Number of fixed workers:                                persons

**II. Marketing (place "X" in only one box per question)**

1.  Market area:
    100 per cent domestic market
    100 per cent foreign market
    Partly domestic market
2.  Way of exporting:
    Direct abroad
    Indirect via trader, trading company, others
    Both direct and indirect ways

**III. Main constraints (place "X" in only one box)**

1.  Having serious problems:
    Yes
    No
2.  Indicate only two serious constraints on exports (place "X" in only two boxes)
    Easy access to raw materials/other inputs
    Easy access to fund/credit to financing working capital
    Easy access to trade financing
    Easy access to information on market, trade policy/regulation and others
    Easy access to technology
    Easy access to workers with high skills
    Identifying/getting potential buyers in abroad
    Easy access to efficient transportation facilities
    Establishing distribution networks abroad
    Sustained and cheap supply of energy
    Others, if any (please specify):

## IV. Trade facilitation services

1.  Having access to:
    (a)  Export financing from banks/other sources
         Yes
         No
         If no, the main reasons (select only one box):
             Procedure is too complex
             Do not know/never heard
             Expensive
             Other reasons
    (b)  Trade insurance
         Yes
         No
         If no, the main reasons (select only one box):
             Procedure is too complex
             Do not know/never heard
             Expensive
             Other reasons
    (c)  Information (e.g., via website) on market, regulation etc.
         Yes
         No
         If no, the main reasons (select only one box):
             Procedure is too complex
             Do not know/never heard
             Expensive
             Other reasons
    (d)  Laboratories/quality test facilities
         Yes
         No
         If no, the main reasons (select only one box)
             Procedure is too complex
             Do not know/never heard
             Expensive
             Other reasons
    (e)  Storage facilities (e.g., in harbour)
         Yes
         No
         If no, the main reasons (select only one box):
             Procedure is too complex
             Do not know/never heard
             Expensive
             Other reasons

(f)  Efficient transport facilities to harbour/airport

Easy:

   Yes

   No

Cheap:

   Yes

   No

(g)  Shipping facilities to abroad

Easy

   Yes

   No

   Total days to wait:     days

Cheap

   Yes                                                                    US$/ton

   No                                                                     US$/ton

(h)  Services for getting export licence

Total days:

Cost:                                                                     Rp

Total documents:                                                          items

(i)  Services for getting import license for raw materials/inputs

Total days:

Cost:                                                                     Rp

Total documents:                                                          items

(j)  Training facilities

Yes

No

If no, the main reasons (select only one box):

   Procedure is too complex

   Do not know/never heard

   Expensive

   Other reasons

(k)  Telephone facilities

Yes

No

If no, the main reasons (select only one box):

   Procedure is too complex

   Do not know/never heard

   Expensive

   Other reasons

    (l)  Internet facilities

       Yes

       No

       If no, the main reasons (select only one box):

           Procedure is too complex

           Do not know/never heard

           Expensive

           Other reasons

   (m) Electricity facilities

       Yes

       No

       If no, the main reasons (select only one box):

           Procedure is too complex

           Do not know/never heard

           Expensive

           Other reasons

   (n)  Promotion facilities

       Yes

       No

       If no, the main reasons (select only one box):

           Procedure is too complex

           Do not know/never heard

           Expensive

           Other reasons

2.  Are the TRADE FACILITATION services to which you have access helpful to your export activities?

    Yes

    No

## V. Impact of Free Trade Agreements

1.  Do you feel competition with imported products in the past one decade has become heavier?

    Yes

    No

2.  With the increasingly imported products, your production/revenue in domestic market has

    Declined

    Not changed

    Increased

3.  Do you feel competition with your products abroad in the past one decade has become heavier?

    Yes

    No

4.  In the past 10 years have your exports:
    Declined
    Increased
    Remained unchanged

## VI. Role of institutions

Are the following institutions very active/helpful in supporting your export activities?

**TRADE DEPARTMENT**
    Yes
    Not at all
    If yes, in what forms? (Can be more than one):
        Training
        Financing
        Technical assistance
        Marketing/promotion
        Procurement of raw materials/inputs
        Market information
        Other

**DEPARTMENT OF INDUSTRY**
    Yes
    Not at all
    If yes, in what forms? (Can be more than one):
        Training
        Financing
        Technical assistance
        Marketing/promotion
        Procurement of raw materials/inputs
        Market information
        Other

**DEPARTMENT OF COOPERATIVES AND SMEs**
    Yes
    Not at all
    If yes, in what forms? (Can be more than one):
        Training
        Financing
        Technical assistance
        Marketing/promotion
        Procurement of raw materials/inputs
        Market information
        Other

**R&D INSTITUTES**

    Yes

    Not at all

    If yes, in what forms? (Can be more than one):

        Training

        Financing

        Technical assistance

        Marketing/promotion

        Procurement of raw materials/inputs

        Market information

        Other

**UNIVERSITIES**

    Yes

    Not at all

    If yes, in what forms? (Can be more than one):

        Training

        Financing

        Technical assistance

        Marketing/promotion

        Procurement of raw materials/inputs

        Market information

        Other

**CHAMBER OF COMMERCE AND INDUSTRY (*KADIN*)**

    Yes

    Not at all

    If yes, in what forms? (Can be more than one):

        Training

        Financing

        Technical assistance

        Marketing/promotion

        Procurement of raw materials/inputs

        Market information

        Other

**RELATED BUSINESS ASSOCIATIONS**

    Yes

    Not at all

    If yes, in what forms? (Can be more than one):

        Training

        Financing

        Technical assistance

        Marketing/promotion

        Procurement of raw materials/inputs

Market information

Other

**BANK/NON-BANK FINANCIAL INSTITUTIONS**

Yes

Not at all

If yes, in what forms? (Can be more than one):

Training

Financing

Technical assistance

Marketing/promotion

Procurement of raw materials/inputs

Market information

Other

**STATE-OWNED COMPANIES**

Yes

Not at all

If yes, in what forms? (Can be more than one):

Training

Financing

Technical assistance

Marketing/promotion

Procurement of raw materials/inputs

Market information

Other

**LOCAL GOVERNMENT (*PEMDA*)**

Yes

Not at all

If yes, in what forms? (Can be more than one):

Training

Financing

Technical assistance

Marketing/promotion

Procurement of raw materials/inputs

Market information

Other

## VII. Policy impact

1. List several government policies (e.g., regulations, laws, decisions and ministries/presidential decrees) that have a positive impact on your export business:

2. List several policies (e.g., regulations, laws, decisions and ministries/presidential decrees) that have a negative impact on your export business:

3. What types of incentives do you need most to increase your exports?

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# Chapter VIII

# Barriers to international entrepreneurship in the agricultural sector of Bangladesh: Focus on vegetable production

*Abu Hena Reza Hasan*

## A. Introduction

Vegetables are cultivated for their edible parts that are typically the leaf, stem, or root, but usually excluding seeds and most sweet fruits. The consumption of vegetables is important for the nutritional and health benefits that they provide. The Global Burden for Disease Project 2000 reported that inadequate consumption of fruits and vegetables is the cause 2.7 million deaths worldwide and 1.8 per cent of the global disease burden (Lock and others, 2004). A joint study by the Food and Agriculture Organization of the United Nations (FAO) and World Health Organization (WHO) recommends consumption of a minimum of 400 g of fruit and vegetables per day (excluding potatoes and other starchy tubers) in order to prevent chronic illnesses such as heart disease, cancer, diabetes and obesity as well as for the prevention and alleviation of several micronutrient deficiencies (FAO/WHO, 2004).

A study reported higher income among farmers in Bikaner district of western Rajasthan who were engaged in vegetable farming in addition to other crops (Meena and others, 2009). Small-scale vegetable farming has the potential for reducing poverty. A study in Tanzania by Masashua and others (2009) established that urban vegetable production was making a significant contribution to poverty reduction, and concluded that there is huge potentials of using urban horticulture for poverty reduction. Weinberger and Lumpkin (2007) observed that horticulture offered good opportunities for poverty reduction because it increased income and generated employment; therefore, care needed to be taken to ensure that small-scale and poor farmers were not excluded from the opportunities in these market sectors. In addition, they argued for an extended role of development agencies in horticulture research and development of genetic improvements, safe production systems, commercial seed production and post-harvest facilities.

Vegetables provide both health and economic benefits; as such, they are potential items for trade across countries. Success in large-scale production and trading require effective entrepreneurship. Entrepreneurs create economic opportunities for themselves and others by exploiting market opportunities. However, entrepreneurial skills among people are scarce and often adversely affected by the surrounding environment. Hence, this study has attempted to identify the barriers to the development of international entrepreneurship in the vegetable trade in Bangladesh as well as the necessary trade facilitation measures to help support such development.

# 1. World exports of fresh vegetables

Trade in fresh vegetables is one of the most dynamic areas of global trade and is increasing with the advances in air and other cargo facilities for transporting vegetables as fresh. People around the world are consuming more vegetables for health benefits. Advances in production, post-harvest handling, processing, and logistical technologies, and increased capital investment have played a facilitating role in the rising international trade in vegetables (Diop and Jaffee, 2005).

In 2010, Mexico was the largest exporter of fresh vegetables, followed by China and the United States. Table 1 shows the top 20 exporters of fresh vegetables in 2010 and their export quantities in 2000 and 2010. Mexico achieved extraordinary success in fresh vegetable exports, which increased a 1,050 per cent increase between 2000 and 2010. Saudi Arabia became the sixth largest exporter of fresh vegetables in 2010, behind India and Malaysia. World exports of fresh vegetables grew 90.6 per cent in 2010 compared to 2000.

## Table 1. World top 20 exporters of fresh vegetables, 2010

| Rank | Country | Exports (tons) | | Percentage change in 2010 compared with 2000 |
|------|---------|---------------|---------------|---------------|
| | | 2000 | 2010 | |
| 1 | Mexico | 55 922 | 642 864 | 1 049.6 |
| 2 | China | 370 498 | 455 074 | 22.8 |
| 3 | United States of America | 223 565 | 239 615 | 7.2 |
| 4 | Italy | 151 718 | 228 591 | 50.7 |
| 5 | Netherlands | 103 432 | 204 480 | 97.7 |
| 6 | Saudi Arabia | 20 107 | 173 628 | 763.5 |
| 7 | India | 55 686 | 129 582 | 132.7 |
| 8 | Spain | 72 305 | 120 094 | 66.1 |
| 9 | France | 61 916 | 77 431 | 25.1 |
| 10 | Malaysia | 50 727 | 63 637 | 25.4 |
| 11 | Israel | 13 718 | 52 277 | 281.1 |
| 12 | Belgium | 38 149 | 51 917 | 36.1 |
| 13 | Ethiopia | 2 011 | 45 910 | 2 182.9 |
| 14 | Kenya | 25 238 | 42 435 | 68.1 |
| 15 | Syrian Arab Republic | 29 174 | 39 654 | 35.9 |
| 16 | Costa Rica | 28 865 | 37 084 | 28.5 |
| 17 | Iran (Islamic Republic of) | 8 135 | 37 035 | 355.3 |
| 18 | Thailand | 27 198 | 35 864 | 31.9 |
| 19 | Uzbekistan | 3 617 | 35 250 | 874.6 |
| 20 | Germany | 8 216 | 34 912 | 324.9 |
| | **World total** | 1 643 271 | 3 132 832 | 90.6 |

*Source:* FAOSTATE (Food and Agricultural Organization).

## 2. World imports of fresh vegetables

Hong Kong, China was the largest importer of vegetables in 2010 (table 2). However, its imports decreased by about 37 per cent in 2010 compared with 2000. Global imports increased 41.3 per cent in 2010, with significant increases in Thailand, the United Arab Emirates and Mauritania. Malaysia was the largest importer and exporter of fresh vegetables.

### Table 2. World top 20 importers of fresh vegetables in 2010

| Rank | Country/area | Imports in metric tons | | Percentage change compared in 2010 compared to 2000 |
|---|---|---|---|---|
| | | 2000 | 2010 | |
| 1 | Hong Kong, China | 298 820 | 189 757 | -36.5 |
| 2 | France | 127 658 | 189 650 | 48.6 |
| 3 | United Kingdom | 104 525 | 172 936 | 65.4 |
| 4 | United States | 93 344 | 171 828 | 84.1 |
| 5 | Germany | 111 864 | 153 814 | 37.5 |
| 6 | Canada | 129 003 | 146 159 | 13.3 |
| 7 | Russian Federation | 52 903 | 112 255 | 112.2 |
| 8 | Singapore | 93 291 | 105 312 | 12.9 |
| 9 | Netherlands | 27 176 | 89 716 | 230.1 |
| 10 | Belgium | 89 620 | 82 400 | -8.1 |
| 11 | Thailand | 753 | 70 082 | 9 207.0 |
| 12 | United Arab Emirates | 9 000 | 65 297 | 625.5 |
| 13 | Japan | 99 582 | 50 187 | -49.6 |
| 14 | Qatar | 7 481 | 44 700 | 497.5 |
| 15 | Italy | 26 886 | 41 702 | 55.1 |
| 16 | Malaysia | 23 506 | 32 120 | 36.6 |
| 17 | Republic of Korea | 33 719 | 31 685 | -6.0 |
| 18 | Austria | 11 740 | 31 619 | 169.3 |
| 19 | Czech Republic | 9 054 | 31 019 | 242.6 |
| 20 | Mauritania | 9 | 25 869 | – |
| | **World total** | **1 627 641** | **2 299 951** | **41.3** |

*Source:*   FAOSTATE (Food and Agricultural Organization).

## 3. Global production of fresh vegetables

China, India, and Viet Nam have been the three top producers of fresh vegetables since 2000. Vegetable production doubled in Nepal in 2010 compared with 2000. During that period, vegetable production increased about 1.5 times in Nigeria, the Russian Federation, Tanzania, and Bangladesh. Production of vegetables decreased in the Republic of Korea, Japan and Pakistan. Although Bangladesh became the seventeenth largest vegetable producing country in 2010, up from the twentieth largest in 2000, it is not a major exporter of vegetables. Thailand is a top producer, exporter and importer of fresh vegetables. Malaysia is also a top country in the international trading of fresh vegetables but is not among the top 20 producers. Production of fresh vegetables by the world's top 20 countries is shown in table 3.

**Table 3. World top 20 producers of fresh vegetables, 2010 and 2000**

| 2010 | | | 2000 | | | Production Ratio of 2010 to 2000 |
|---|---|---|---|---|---|---|
| Rank | Country | Production (Metric tons) | Rank | Country | Production (Metric tons) | |
| 1 | China | 152 987 093 | 1 | China | 121 478 798 | 1.3 |
| 2 | India | 31 724 000 | 2 | India | 28 630 000 | 1.1 |
| 3 | Viet Nam | 6 732 700 | 3 | Viet Nam | 5 632 100 | 1.2 |
| 4 | Nigeria | 5 945 600 | 4 | Philippines | 4 100 000 | 1.5 |
| 5 | Philippines | 4 842 200 | 5 | Nigeria | 3 945 000 | 1.2 |
| 6 | Myanmar | 3 719 300 | 6 | Republic of Korea | 3 679 000 | 1.3 |
| 7 | Republic of Korea | 3 015 000 | 7 | Japan | 2 900 000 | 0.8 |
| 8 | Nepal | 3 003 820 | 8 | Myanmar | 2 800 000 | 2.0 |
| 9 | Japan | 2 619 400 | 9 | Italy | 2 529 780 | 0.9 |
| 10 | Brazil | 2 445 100 | 10 | Brazil | 2 504 040 | 1.0 |
| 11 | Russian Federation | 2 079 850 | 11 | Democratic People's Republic of Korea | 2 400 000 | 1.5 |
| 12 | Democratic People's Republic of Korea | 2 038 700 | 12 | Iran (Islamic Republic of) | 1 739 000 | 0.8 |
| 13 | Iran (Islamic Republic of) | 1 856 600 | 13 | Nepal | 1 489 660 | 1.1 |
| 14 | Italy | 1 586 300 | 14 | Germany | 1 484 000 | – |
| 15 | Tanzania | 1 500 000 | 15 | Russian Federation | 1 401 000 | 1.6 |
| 16 | Ukraine | 1 315 900 | 16 | Poland | 1 123 800 | – |
| 17 | Bangladesh | 1 290 000 | 17 | Pakistan | 1 102 530 | 1.4 |
| 18 | Thailand | 1 097 450 | 18 | Cuba | 951 200 | – |
| 19 | Uzbekistan | 957 400 | 19 | Tanzania | 940 000 | – |
| 20 | Pakistan | 941 042 | 20 | Bangladesh | 911 000 | 0.9 |

*Source:* FAOSTATE (Food and Agricultural Organization).

## 4. Potential production and international trade of vegetables for Bangladesh

Bangladesh, which is a tropical agrarian underdeveloped economy, produces many vegetables comprising both local and exotic types. Farmers produce about 100 varieties of vegetables throughout the year to meet demand, both domestic and international. The Bangladesh Vegetable and Allied Fruits Exporters Association (BFVAPEA) reported that Bangladesh exported 68 different types of vegetables in 2012. However, vegetable production by the country is facing an unusual situation. Bangladesh exports vegetables even when production is less than internal demand, but the farmers are unable enjoy the benefit of the market deficit, and get low prices for their yields. The reason for this unusual situation is the middlemen/agents who enjoy the price difference between production and consumption.

The fact that Bangladesh produces fewer vegetables than needed to meet internal demand was observed in a study by the Swiss development agency Katalyst (2011). Against an estimated demand of 3.5 million metric tons (mt), vegetable production in Bangladesh amounts to less than 1.5 million mt. The demand-supply gap is expected to increase due to in the rising population and per capita income. Approximately 1.8 million small-scale and marginal farmers are involved in vegetable production in Bangladesh, attracted by the higher profitability in vegetable cultivation than that provided by many traditional cereal crops. A recent report by a local newspaper observed that farmers across the country were facing heavy losses due to lower prices of winter vegetables and some spices at the farm level in the absence of efficient market management and government policy support (Palma, 2012). The report added that low prices of vegetables pushed the small-scale and marginal farmers into crisis and frustration. Low prices are discouraging farmers from growing vegetables and motivating them to destroy their vegetable yields, such as cabbage and cauliflower, in their fields.

The Export Promotion Bureau of Bangladesh (EPB) has reported growth in exports of vegetables. Bangladesh exported 48,482 mt of fresh fruits and vegetables in 2011 compared with 29,100 mt in 2005. The country's major export markets are the United Kingdom (46 per cent), Italy (8 per cent), other European Union countries (3 per cent), and Middle Eastern countries (43 per cent). In reporting positive potential in 2009 for vegetable exports by Bangladesh, the leading local newspaper, *Ittefaq* (2009) reported that BFVAPEA officials had said that more fresh vegetables could be exported if a modern processing centre were established with testing, sorting and packaging facilities. They also recommended an obstacle-free airport service for vegetable exports as well as availability of low-cost air cargo facilities. According to the report, Bangladesh vegetable exports were considered to have strong potential, especially in Europe and in Middle Eastern countries, despite strong competition from India, Pakistan and Kenya, if trade facilitation and supporting processing centres were provided. The large Bangladeshi community abroad may be a pulling factor for vegetable items from Bangladesh.

The weather in Bangladesh could also be a positive factor in the country becoming a major exporter of vegetables. Bangladesh and Bhutan entered into a reciprocal

arrangement for exports and imports of winter season vegetables (Chowdhury, 2010). According to the arrangement, Bhutan can export winter vegetables to Bangladesh during the summer when high temperatures in the latter country prevent their production. Bangladesh exports winter vegetables to Bhutan when the temperature in the latter country is to low for farming activities. However, Bangladesh is gradually overcoming the seasonal barrier in vegetable production through the cultivation of hybrid seeds that offer farmers the opportunity to profit from off-season vegetables (Parvez, 2009). The cultivation of hybrid vegetables has two advantages. First, it can reduce the dependence of the country on the winter season for the production of most vegetables, when planting areas are scarce because of the cultivation of rice, pulses and oil seeds. Second, production throughout the year can enable import substitution and a possibility to increase vegetable exports.

## 5. Need for entrepreneurship in Bangladesh vegetable trading

Bangladesh has a comparative advantage in vegetable production as reported in the research paper by Karim and others (2011). The research paper evaluated the efficiency of vegetable production by applying the domestic resource cost (DRC) methodology. The DRC ratio, which refers to the ratio between opportunity costs of domestic production and value-added, is a comparison of the domestic costs of producing a specific good with its value-added at international prices. A ratio of less than 1 for an item means the country has a comparative advantage in production of that item. The study by Karim and others found DRC ratios of less than 1 for many vegetables produced by farmers in Bangladesh.

Bangladesh can increase its production of vegetables, both for local and international markets, if it can overcome three constraints: (a) limited access to skills and information, (b) lack of access to, and uses of quality inputs, and (c) restricted market access for farmers (Katalyst, 2011). These constraints create two major bottlenecks in vegetable production in Bangladesh – low productivity and a missing link between market and production. Productivity for vegetables is 2.85 mt/acre, which is significantly lower than in many other countries. Restricted market access for farmers is the reason behind the low prices of vegetables at the field level. Intermediaries often prevent vegetable producers from receiving the right price due to the absence of a direct link between vegetable producing farmers and markets. Farmers have to destroy their crops when yields are high although there may be demand for the vegetables both domestically and abroad.

Small-scale and marginal farmers who live in poverty undertake the majority of vegetable production in Bangladesh. Sustainable poverty reduction requires employment that generates economic growth; this is possible through growth of vegetable production in rural areas, as these are high-value crops (HVCs). In Bangladesh, such crops have higher value-added compared with the value-added of paddy production on one decimal area. A decimal or decimel is a unit of area in India and Bangladesh approximately equal to 1/100 acre (40.46 m$^2$). A recent review by Care Bangladesh under its Shouhardo II programme identified vegetables as HVC (Nabi, 2011). The report said that vegetable crops were profitable and suitable for small-scale farmers, and empowered women through income generation. Facilitation of cultivation and effective market linkages in HVCs may offer

tremendous opportunities for sustainable increases in incomes of marginalized people, especially those who are smallholders of land. Marginal and small-scale farmers are among the primary beneficiaries of growth in the country's agriculture sector; Bangladesh may achieve pro-poor economic growth by promoting and stabilizing agricultural growth, especially with development of HVCs such as vegetables (Ahmed and others, 2010).

Thus, Bangladesh has the potential to become an important exporter of vegetables if the country can increase efficiency of production and distribution of vegetables. In an open developing economy such as Bangladesh, the State is unable to take all the investment initiatives for the organization and management of vegetable production and export on a large scale. An alternative to a direct role of the State mechanism in the vegetable sector is to facilitate the development of entrepreneurship in vegetable farming and trading in order to initiate commercialization of vegetable production. Chris Oakley OBE, chairman of the web design company, Chapter Eight, defined entrepreneur has defined an entrepreneur as "someone who sees an opportunity, which others do not fully recognize, to meet an unsatisfied demand or to radically improve the performance of an existing business. They have unquenchable self-belief that this opportunity can be made real through hard work, commitment and the adaptability to learn the lessons of the market along the way." An entrepreneur invests capital and builds organizations through risk and initiative. Entrepreneurship consists of certain skills such as the capability for ensuring effective management, strong team-building abilities and the courage to overcome scepticism of experts about an economic initiative.

Entrepreneurs may organize small-scale landholder groups for scaling up production of HVCs such as vegetables with the objective of exporting as well as satisfying local demand. This entrepreneurship process has the potential to reduce poverty in rural areas similar to what the readymade garments industry did earlier in urban areas of Bangladesh. Hence, the purpose of this study is to analysis the barriers to international entrepreneurship in order to establish small and medium-sized enterprises (SMEs) for facilitating exports of vegetable products and helping farmers get fair prices, thereby achieving alleviation of poverty in rural Bangladesh.

## 6. Study assumption

The assumption of this study is that effective entrepreneurship is an alternative to government initiatives. Entrepreneurs arrange the necessary capital and knowledge to initiate commercial operations in any sector if a favourable social, political, legal and security environment exists. It is the responsibility of the State to ensure the availability of appropriate facilities for entrepreneurial development, economic growth and poverty alleviation in rural areas. Assisting and ensuring successful entrepreneurship development, especially international entrepreneurship, is a trade facilitation procedure.

## 7. Research objectives

The problem of this study is to identify the determinants of psychic distance in international entrepreneurship in vegetable trading and the required policy interventions for

trade facilitation to reduce psychic distance. Accordingly, the study has three objectives as detailed below.

*(a)    Identification of deterring factors to international entrepreneurship (psychic distance)*

It is necessary to identify the factors that may discourage entrepreneurial initiatives in the vegetable sector. The study evaluates the existing knowledge of those involved about international vegetable trading, their entrepreneurial aptitude and local barriers to forming business organizations. This objective will help to identify the gap between existing and required trade facilitation for international trading of vegetables by Bangladesh.

*(b)    Review of administrative and regulatory framework for international entrepreneurship*

International entrepreneurship in the vegetable trade has to perform two operations – sourcing of vegetables and exporting to international market. Sourcing means production and collection of vegetables from the producers. It may require: (a) organizing and motivating smallholders of land to produce HVCs; (b) making available the necessary technology and inputs to farmers for producing vegetables that meet international standards; (c) collecting and transporting vegetables from producers; and (d) following international procedures and regulations in processing vegetables. Exporting goods involves documentation, complying with customs and other government agency procedures, contacting importers in other countries and arranging the necessary modes of transportation. All these activities are subject to national administrative and regulatory procedures as well as international regulations such as Sanitary and Phytosanitary (SPS) measures, the General Agreement on Tariff and Trade (GATT) etc. Moreover, some local norms and stakeholders may influence international trading of vegetables. These administrative and regulatory procedures and framework are reviewed.

*(c)    Identification of, and suggestion for, the trade facilitation procedure*

The trade facilitation procedure on which this study focused is the institutional arrangements and rules of governmental, statutory and other business-related organizations aimed at simplifying the formalities and procedures related to production, transportation and export of vegetable from Bangladesh. The study has attempted to identify trade facilitating roles of, and arrangements by organizations that will reduce psychic distance of international entrepreneurs in global trade of vegetables. Some examples of the elements of trade facilitation may be training for farmers on hazard analysis and critical control points (HACCP) to ensure supply of hygienic vegetables for global markets, information about global vegetable market, easier customs procedures etc. This third objective will identify the required trade facilitation and will suggest on organizational and policy framework for trade facilitation.

## 8. Scope and limitations

This study covers international trade in fresh vegetables by Bangladesh, but excludes the fruit and processed vegetable trade. The study does not estimate the cost of vegetable production or profitability. Hence, the scope of study is limited to items related to Standard International Trade Classification (SITC) Rev. 3 code 054. Primary focus is on identifying areas of trade facilitation for international entrepreneurial development. Because of its limited coverage, the study covers only a limited sampling for data collection and analysis.

# B. Literature review and methodology

In his book, the *Theory of Economic Development*, Schumpeter (1934) defined entrepreneurship as the creation of "enterprise", which means the making of a new combination of resources with objectives of introducing new goods, new methods of production, operating in new markets, gaining new sources of supply and carrying out of the reorganization of any industry. The entrepreneurial process includes all functions, activities and actions associated with the perceived opportunities and the creation of organizations for pursuing them (Bygrave and Hofer, 1991). Entrepreneurs attempt to discover profit opportunities and restore equilibrium in the market by acting on them (Kirzner, 1973). Entrepreneurship has been considered as a driver of economic development (Bygrave and Hofer, 1991) and is often included as a fourth production factor in the macroeconomic production function (Audretsch and Keilbach, 2004).

The process of globalization has widened the economic opportunities for firms across national borders. The ability to find and utilize new opportunities across national boundaries is often termed "international entrepreneurship". It combines innovative, proactive and risk-seeking behaviour across national boundaries and creates value in organization (McDougall and Oviatt, 2000). A firm entering the international market at its early stage of inception is known as a "born global" firm. By becoming "born global", a firm can benefit from an accelerated process of accessing competitive advantages across national borders. International entrepreneurship encourages the formation of new ventures that from inception seek to derive significant competitive advantage through the use of resources and the sale of outputs in multiple countries (Oviatt and McDougall, 1994). Thus, the characteristics of entrepreneurship are positive forces for becoming successful in international trade, and higher level of entrepreneurship makes a nation more active in international business.

Comparative advantage in international trade depends on international differences in the psychological structure of managers or entrepreneurs (Blanchard and Peltrault, 2004). Entrepreneurship as a judgemental process of forming estimates of future events in situations in which there is no definite idea on the probabilities for success of a venture (Knight, 1921). Entrepreneurship performs judgemental decision-making that is ultimately decision-making about the employment of resources in new ventures (Foss and Klein, 2004). The entrepreneurial decision process to enter markets across national boundaries is

affected by a combination of factors and may discourage entrepreneurs from becoming international from very beginning of their operation. This behavioural framework of entrepreneurs is known as psychic distance.

McDougall defined international entrepreneurship as the development of international new ventures that from inception are engaged in international business and have operational domain across home country boundaries from the initial stages of their operation (McDougall, 1989). However, international entrepreneurship does not merely mean entry into international markets at a very early stage of operation, but encompasses entry to international markets at a later stage as well (Covin and Slevin, 1991; Lu and Beamish, 2001).

The process of entry into international markets is termed "internationalization". The famous Uppsala model suggested a gradual process through which a firm could undertake internationalization because managers need adequate knowledge about foreign markets, and prefer gradual acquisition and integration for international entry (Johanson and Vahlne, 2009). Beckerman (1956) in his early research identified the fear of business firms over entering international business as the outcome of psychic distance. Joliet and Hubner (1993) defined psychic distance as "the perceived distance between home country and a foreign country, resulting from the differences in terms of cultural, business and political differences, i.e., differences in language, political and legal systems, trade practices, industry structure etc." Psychic distance is a barrier to international business and encourages firms in markets across home country boundaries that are psychically close. O'Grady and Lane (1996) observed that outcome of the internationalization process by entering a country close to home could result in poor performance because of mistakes by managers in the decision-making process in not considering country differences. They termed it the "psychic distance paradox". Thus, psychic distance is a real obstacle for "born global" firms as well as for established firms.

It is essential to note that psychic distance and cultural distance are not same; the latter is an element of psychic distance. Sousa and Bradley (2006) described psychic distance of international entrepreneurs as a function of cultural distance, conservation values and experience of decision makers. Hofstede (1980) observed that cultural distance among countries emerges from six dimensions of values – power, collectivism, uncertainty avoidance, masculinity, temporal orientation and indulgence. Conservation comprises of three values – conformity, tradition and security (Schwartz, 1992). Conformity is restraint of actions, inclinations and impulses that are likely to upset or harm others and violate social expectations or norms. Tradition stresses the respect, commitment and acceptance of the customs and ideas that traditional culture or religion imposes on the individual. Security emphasises safety, harmony and stability of society, relationships and self. The experience of decision makers refers to the knowledge of entrepreneurs about the countries and cultures.

The psychic distance imposes barriers on the international entrepreneurs' intention to initiate international business. However, research has identified some enabling factors that may encourage the establishment of global businesses. Antecedents of international

entrepreneurship are intangible resources, networks, organizational culture and top management team characteristics (Georgiou and others, 2005). Intangible resources refer to organizational processes, information, knowledge etc. A network is a set of interconnected business relationships where each exchange relationship between business firms helps mutual trust-building and knowledge creation (Johanson and Vahlne, 2009). International orientation in the culture of a firm influences international entrepreneurship. Motivation and risk-taking attitude among top management teams accelerates the international entrepreneurship process. The psychic distance is the barrier to international entrepreneurship; however, enabling factors may help overcoming that distance. The magnitude of psychic distance depends on the enabling environment, which may differ from country to country. It may be in order to identify homogeneity and contradictions.

Environment and health-related trade barriers imposed by countries have an impact on the psychic distance of entrepreneurs engaged in food-related businesses. These barriers strengthen the psychic barrier. The World Commission on Environment and Development (WCED), under the Chairmanship of Harlam Brundtland, described sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" and asked for limiting environmental degradations (United Nations, 1987). The report advised that a mechanism should be established that would ensure both economic development and the preservation of natural resources and ecosystems. Principle 1 of the Rio Declaration of 1992 stated: "Human beings are the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature" (United Nations, 1993).

Following this Declaration, human health has become focal point of development and economic activities. The environment is often a major threat to human health. There are two types of environmental threats to health – traditional hazards and modern hazards (Smith, 1992). Traditional environmental hazards are associated with poverty and under-development, e.g., access to safe water supplies, food contamination and the absence of basic sanitation. Modern environmental hazards result from economic development and unsustainable use of natural resources. Common types of modern environmental hazards are water and air pollution, land degradation, deforestation and ecological changes, among others. Traditional health hazards cause rapid onset of diseases while modern health hazards may cause the occurrence of diseases after long periods and in distant places by passing through food chains and other channels of transmission (Corvalán and others, 1999). Thus, the environment and health have become important elements in international trade relations.

The Agreement on the Application of Sanitary and Phytosanitary (SPS) Measures has considered the concern over the need to reduce health and hygiene risks across the world. The primary objective of SPS is to protect the quality of human and animal health and life, and phytosanitary situations in all member countries of the World Trade Organisation (WTO). Its primary scope is international trade and its objective is to establish a general standard of hygiene for economic transactions. Articles 2(1) and 2(2) of the agreement have accepted the right of countries to establish SPS measures for human

health based on scientific evidence. Article 3(1) recommended an international standard for SPS measures and proposed that members adopt such standards. Article 4 gives the right to importing countries to decide whether the hygiene and sanitary measures of the exporting countries are acceptable or not. Article 9(2) gives the right to importing countries to extend technical assistance to exporting countries in the improvement of hygiene standards. Therefore, importing countries have the ultimate right to decide on the necessary health and hygiene standards in international trade.

In November 2001, the fourth Ministerial Meeting of WTO at Doha identified environmental goods and services as essential tools for ensuring sustainable development (Hamwey and others, 2003). The Doha Ministerial Declaration places emphasis on ensuring easy access to environmental goods and services (EGS). The Organisation for Economic Co-operation and Development (1999) defined environmental industry as "activities that produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil as well as problems related to waste, noise and ecosystems". Paragraph 31 of the Declaration recommended the reduction or elimination of tariff and non-tariff barriers to environmental goods and services. Paragraph 32 endorsed the Agreement on the Application of Sanitary and Phytosanitary Measures as a source of rights and obligations for the member States of WTO while formulating policies for market access by EGS. It is certainly an attempt to link health with the environment on issues related to international trade. Paragraph 33 of the Declaration has a direct influenceon the trading of EGS. This paragraph accepts the need for technical assistance and capacity-building in the field of trade and the environment for developing countries. It means there may be new plans to transfer environmental technology and management from developed countries to developing countries or, in simple words, more exports of EGS to developing countries by developed countries. Thus, recommendation for free access of EGS in the Doha Ministerial Declaration may help in expanding the market for environmental goods and services in the underdeveloped and developing countries. Therefore, countries have an opportunity to use or misuse the environment and health as non-tariff measures or barriers to international trade.

According to the World Bank, the objectives of trade facilitation are to address the bottlenecks and inefficiencies of countries' supply chains, and to formulate procedures to overcome those bottlenecks. Infrastructure, customs procedures, logistics and transport, ports, and trade-related documentation and information flow are subject matter of trade facilitation. Grainger (2011) observed that trade facilitation was associated with operational aspects of international trade, and he analysed how quality of the business environment could influence efficient trade operations. Integrating the view of the World Bank and Grainger, trade facilitation is an attempt to develop efficient and effective supply chains. Operational inefficiency causes psychic distance and trade facilitation has the potential for removing it. An Organisation for Economic Co-operation and Development (2003) study revealed higher trade transaction costs on agricultural and food products, as those are subject to additional border procedures due to SPS requirements. According to the Organisation for Economic Co-operation and Development (2002), SMEs in developing countries previously found that unavoidable transaction costs often required considerable

managerial time and attention, thus representing a deterrent to international trading. Trade facilitation may reduce psychic distance in international entrepreneurship and may lead to the formation of SMEs that will organize smallholders of land to produce HVCs, especially vegetables, and subsequently contribute to poverty reduction in a developing country such as Bangladesh.

# C. Methodology

Figure 1 explains the framework of analysis for this study. Individuals have their own characteristics that affect their motivation to become involved in international trading of vegetable products. People with positive characteristics may face difficulties because of an unfavourable local business environment and international regulatory framework. Therefore, the factors affecting the psychic distance of entrepreneurs interested in international trading are that trade facilitation measures (a) may reduce or eliminate the psychic distance of those entrepreneurs; and (b) may increase international trading of vegetable products and improve the economic status of vegetable farmers and other concerned persons.

Psychic distance ($D$) is the function of personal characteristics of individuals ($I$), the local business environment ($E$), and the international regulatory framework ($R$). Therefore:

$$D = f (I, E, R) \tag{1}$$

where $I$ = {i all elements that motivate a person in entrepreneurship}, $E$ = {e local business environment related to the vegetable trade in Bangladesh} and = {r international regulatory framework related to the vegetable trade}.

**Figure 1. Interactive framework of determinants of psychic distance and trade facilitation for international business in vegetables**



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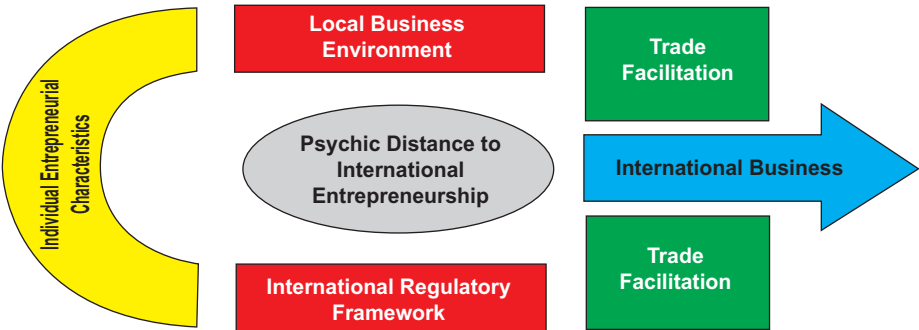
When T is the trade facilitation initiatives for international business in vegetables by Bangladesh, international trading of vegetables is possible if T ≥ D.

In the model, local business environment refers to a combination of factors that are internal in the business firm as well as external, which influence its operating situation and are limited to the home country of the firm. Major components of local business components are clients, suppliers, market structure, relevant laws, government rules and activities, ownership of the firm, technology, and social and economic trends. International regulatory framework refers to rules and regulations of the importing country and as well as those emerging from international and multilateral agreements. Individual characteristics are those of persons involved. The level of education, training, experience and risk-taking attitude may affect individual characteristics. In this model, trade facilitation refers to all activities that may help international entrepreneurs to overcome adverse effects of the local business environment and international regulatory framework. Basic characteristics of an entrepreneur are the need for achievement, independence, risk-taking, and control by individuals over their own activities (Hisrich and others, 2007). Trade facilitation measures may have an impact on these four variables and may either motivate or demotivate involvement in international trading of vegetables from Bangladesh.

## 1. Survey methods

This study comprises an exploratory analysis of the development of international entrepreneurship in the vegetable trade as well as a review of, and recommendations for trade facilitation measures that can encourage and promote international entrepreneurship. Due to the study's time limit, the main method of primary data collection was an experience survey. The interviewers used a semi-structured questionnaire to collect data from experienced people associated with the vegetable trade through personal interviews. In addition to the questionnaires, respondents were asked to discuss their opinion in free format. In the interviews, business people put forward their opinions and suggestions regarding the development of international entrepreneurship in the vegetables business. On-line databases of various international agencies as well as other published reports provided sources of secondary data used in this report.

*(a)    Survey description*

The respondents of the experience survey were drawn from four groups of businesses (table 4) doing business at different selected locations.

*(b)    Location of survey*

Information available from BFVAPEA helped in deciding on the survey locations. First, major market centres/vegetable market clusters were identified and listed with the help of BFVAPEA. Next, five specific survey locations were selected using a "lottery" system. Interviewers collected data from Groups 2, 3 and 4 at vegetable trade centres outside Dhaka (i.e., Narayangonj, Gazipur and Narsinghdhi), Cox's Bazar and Chittagong, Faridpur, Sirajgonj, Panchagarh and Rangpur. Interviewers selected respondents based on

Table 4. Description of respondent groups covered by the survey

| Group | Description of respondents |
|-------|----------------------------|
| Group 1 (G1) | Firms or organizations currently involved in exporting vegetables in other countries. |
| Group 2 (G2) | Firms engaged in trading or the production of vegetables for the domestic market and not involved in exporting vegetables. |
| Group 3 (G3) | Firms involved in trading or the production of agricultural items other than vegetables (e.g., rice and pulses) as well as agricultural inputs such as fertilizer, insecticides etc. |
| Group 4 (G4) | Firms involved in trading or the production of items that are not agricultural in nature, such as clothing and, shoes. |

information available at each specific location. As the Group 1 respondents, who are all exporters, have offices in the Dhaka Metropolitan area, that was the location selected to collect information from them.

*(c)    Survey method*

The cross-sectional and intra-country survey was conducted from 15 September to 12 October 2012 at five locations outside Dhaka city and the Dhaka Metropolitan area. The interviews were with the proprietors or top managers of 151 small-scale to middle-sized business firms belonging to Groups 2, 3 and 4. The selection of firms was judgemental, based on information and references available at the locations, as it was not possible to conduct a random survey.

In Group 1, 20 firms already involved in international trading of vegetables, were selected from a sample frame consisting of 104 firms. BFVAPEA provided the sample frame for the Group 1 respondents; however, seven of the selected firms did not respond to requests for interviews. As a result, the final sample size for Group 1 was 13.

The survey was conducted using four separate sets of instruments for the four groups. These were interviewer administered semi-structured questionnaires. A few of the questions were open-ended, but the majority had fixed options for answers.

## 2. Analytical methods

The data collected in the survey were processed and analysed using Microsoft Excel and SPSS statistical software. The major statistical tools used for the analysis were central tendency, dispersion, skewness, analysis of variation and regression as and when necessary. The analysis methods and tools are explained below.

*(a)     Impact of trade facilitation on international entrepreneurship*

An objective of the study was to evaluate the potential impact of trade facilitation on the motivation for international entrepreneurship in the vegetable sector. At the beginning of the survey questionnaire, Groups 3 and 4 respondents were asked whether they had any intention of becoming involved in vegetable trading. This question was not put to Groups 1 and 2 because they were already involved in vegetable trading. After sufficient discussions on advantage and disadvantage of vegetable trading and the facilities necessary to motivate entrepreneurs to enter the vegetable trade, Groups 2, 3 and 4 were asked whether they would consider becoming involved in international vegetable trading if a favourable environment existed.

There were four answers to the question of whether a person had any intention to enter the vegetable trade. Assuming that all respondents who are already engaged in vegetable trading in the local market (Group 2) will continue this business, the probability of a person becoming involved in the vegetable trade at some time during his/her working life is calculated as:

$$P\,(VT_i) = \frac{x_i}{n} \qquad\qquad (2)$$

where $i$ = {1(yes), 2 (maybe), 3 (do not know) and 4 (no)}

Here, $VT_i$ is the i intention about involvement in the vegetable trade; $X_i$ is the number of respondents expressing $i$ i intention; and n is total respondents, and n = 151.

There are three answers to the question of whether a person has intention to be involved in the international trading of vegetables. The probability of a person becoming involved some time during his/her working life is calculated as:

$$P\,(IVT_i) = \frac{x_i}{n} \qquad\qquad (3)$$

where $i$ = {1(yes), 2 (unsure) and 3 (no)}

Here, $IVT_i$ is the i intention about involvement in international trade of vegetables; $X_i$ number of respondents expressed i intention; and n is total respondents, and n = 151.

If there is no improvement in existing conditions, it is assumed that $IVT_1 \le VT_1$, because the psychic distance of international trade may discourage international entrepreneurship. However, with a favourable environment or trade facilitation, some entrepreneurs who are initially reluctant to enter the vegetable trade may become interested in international entrepreneurship of vegetables. In that case, the probability of positive intention to become involved is:

$$P\,(IVT_1) = \sum_{i=1}^{3} P\,(VT_i) \times P\,(IVT_1 | VT_i) \qquad\qquad (4)$$

The probabilistic impact of trade facilitation on international entrepreneurship is:

$$P\,(IVT_1) - P\,(VT_1) \times P\,(IVT_1 | VT_1) \qquad\qquad (5)$$

The level of motivation or increase in motivation to become involved in the vegetable trade when the State provides an appropriate level of trade facilitation is:

$$P(VT_1|IVT_i) = \frac{P(VT_i) \times P(IVT_1|VT_i)}{\sum_{i=1}^{3} P(VT_i) \times P(IVT_1|VT_i)}$$

(6)

*(b)    Analysis of strength and weakness of the vegetable trade*

Business organizations involved in trading of non-vegetable items were asked to explain their reasoning behind the intention to enter the trade in vegetables or not, and to provide some selected options on a scale between 0 and 100. The businesses involved in the vegetable trade were also asked to explain factors as favourable and unfavourable elements of vegetable trade. There are six favourable conditions or strengths and the same number of unfavourable conditions or weaknesses (table 5).

The mean score of all favourable and unfavourable factors belonging to Groups 1, 2, 3 and 4 are calculated as: $FV_i UFV_i$

$$\overline{FV}_i = \frac{\sum_{i=1}^{n} FV_i}{n}$$

(7)

$$\overline{UFV}_i = \frac{\sum_{i=1}^{n} UFV_i}{n}$$

(8)

Here, $FV_i$ is the score of $i^{th}$ conditions favourable to international entrepreneurship and $UFV_i$ is the score of $i^{th}$ unfavourable conditions to international entrepreneurship. Then the average scores for each respondent for either the favourable or unfavourable conditions are calculated as:

$$\overline{\overline{SF}}_i = \frac{\sum_{i=1}^{6} FV_i}{600}$$

(9)

$$\overline{\overline{SU}}_i = \frac{\sum_{i=1}^{6} UFV_i}{600}$$

(10)

When the average of the total score of favourable conditions is less than the favourable conditions for a group of respondents, it may be considered as a situation for psychic distance for international entrepreneurship in the vegetable trade.

Psychic Distance: $\overline{\overline{SF}}_k - \overline{\overline{SU}}_k < 0$    [*where k is group*]

(11)

**Table 5. List of favourable and unfavourable conditions for vegetable trading in Bangladesh**

| Condition of factors | Explanation of factors | Variables |
|---|---|---|
| Favourable or strengths (SF) | Profit from this business | $FV_1$ |
| | Ease of operation | $FV_2$ |
| | Stable demand | $FV_3$ |
| | High production in locality | $FV_4$ |
| | Opportunity to expand business in other areas | $FV_5$ |
| | Government and other institutional support for this trade | $FV_6$ |
| Unfavourable or weaknesses (SU) | Low profitability | $UFV_1$ |
| | Perishable items | $UFV_2$ |
| | Insufficient production | $UFV_3$ |
| | Weather-related uncertainty of production | $UFV_4$ |
| | Limited demand and no chance for expansion | $UFV_5$ |
| | Too many traders already involved in the trade | $UFV_6$ |

*(c)      Analysis of determinants of international trade in vegetables*

This study has identified five determinants of success for vegetable cropping, trade, and exports to the global market. Table 6 lists the determinants. The respondents in all the groups considered the determinants and evaluated their importance by assigning qualitative and quantitative weights. The average score of all determinants for all groups of respondents is calculated separately and in aggregate in order to understand their importance.

Weightings given by the groups for each determinant are compared, using One-way ANOVA to reveal whether there is sufficient evidence to conclude that the means of the corresponding sample distributions are different. The null and alternation hypothesis for One-way ANOVA is:

$$H_0 : \sigma\, DS_1^{G_1} = \sigma\, DS_2^{G_2} = \sigma\, DS_3^{G_3} = \sigma\, DS_4^{G_4} \tag{12}$$

$$H_1 : \sigma\, DS_i^{G_1} \neq \sigma\, DS_i^{G_2} \neq \sigma\, DS_i^{G_3} \neq \sigma\, DS_i^{G_4} \tag{13}$$

**Table 6. Five determinants of success for vegetable production
and international trade by Bangladesh**

| Determinants | Explanation | Variable |
|---|---|---|
| Taste and quality | Taste and quality of vegetables produced in Bangladesh. This determinant can differentiate vegetables of Bangladesh from other countries and may create comparative advantage. | $DS_1$ |
| Cost | Low production cost of vegetables. Cost is important to achieving comparative advantage. | $DS_2$ |
| Large-scale Production | Large-scale production is necessary to satisfy local demand and then exports to foreign markets. | $DS_3$ |
| Commercialization | Participation of large commercial organizations in the production and marketing of vegetables in Bangladesh can bring in necessary investment and knowledge for vegetable farming and trading. | $DS_4$ |
| Expatriate Bangladeshi | The existence of large numbers of expatriate Bangladeshi people in countries around the world may be an initial pulling force for exports of vegetables to those countries. They may also create sustainable demand for the country's vegetables abroad and may gradually make them popular among native citizens of those countries. | $DS_5$ |

*(d)    Trade facilitation measures*

The World Trade Organization (WTO) explains trade facilitation as the activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade. This survey identified ten areas where trade facilitation could encourage development of international entrepreneurship in vegetable sector. Respondents of all groups considered each area for trade facilitation and evaluated importance of each assigning qualitative and quantitative weights. Average score of all areas for all groups of respondents are calculated separately and in aggregate to understand their importance. Table 7 lists the areas for trade facilitation.

Weights given by respondents by groups for each area for trade facilitation is compared using One-way ANOVA to see if there is sufficient evidence to conclude that the means of the corresponding sample distributions are different. The null and alternation hypothesis for One-way ANOVA are:

$$H_0 : \sigma_{T_i}^{G_1} = \sigma_{T_i}^{G_2} = \sigma_{T_i}^{G_3} = \sigma_{T_i}^{G_4} \tag{14}$$

$$H_1 : \sigma_{T_i}^{G_1} \neq \sigma_{T_i}^{G_2} \neq \sigma_{T_i}^{G_3} \neq \sigma_{T_i}^{G_4} \tag{15}$$

**Table 7. Areas where trade facilitation measures are required for encouraging international entrepreneurship in vegetable sector**

| Areas for trade facilitation | Variables |
|---|---|
| Government initiatives on providing agricultural loans for vegetable farming and production | $T_1$ |
| Regular supplies of agricultural inputs for farming (fertilizers, irrigation, pesticides etc.) | $T_2$ |
| Ensuring supplies of high-yielding vegetable seeds | $T_3$ |
| Training for farmers on modern technologies for vegetable production and processing for international and local markets | $T_4$ |
| Improving effectiveness of transport facilities for perishable vegetable products | $T_5$ |
| Reducing transportation costs for vegetable items | $T_6$ |
| Making information available to farmers on the types of vegetables that are in demand in foreign countries and on prices in foreign markets | $T_7$ |
| Help in creating links with local and international markets for vegetable traders | $T_8$ |
| Training for vegetable traders on the international requirements and rules related to vegetable exports | $T_9$ |
| Governmental institutional support for commercial production of vegetables for export by Bangladesh | $T_{10}$ |

# C. International entrepreneurship in vegetable business: Psychic distance and determinants

Economic, legal, social and political factors affect entrepreneurship development. Some factors motivate entrepreneurship while others may discourage the entrepreneurship spirit in a country. When unfavourable factors dominate favourable factors in an entrepreneurial environment, it creates psychic distance among would-be entrepreneurs and discourages them from taking initiatives to form business organizations. This subsection analyses the different determinants of the international entrepreneurial environment for vegetable trade in Bangladesh. Information from the survey has revealed a pessimistic situation for international trading in vegetables by Bangladesh.

According to 13 out of 110 firms engaged in international vegetable trading, the existing business environment in the country does not encourage international entrepreneurship in this sector. Of the exporters on the list available from BFVAPEA none have corporate structures. They are either sole proprietorships or partnerships with annual vegetable export turnovers of between US\$ 723,000 to US\$ 17,268,000 in 2011. The mean export turnover of the firms surveyed was US\$ 6.07 million and skewness was +0.687. This indicates that the majority of the firms had a turnover below the mean. Only five (38.5 per

cent) respondents considered that their profit from vegetable exports was good while just seven (53.8 per cent) firms expected to record growth in business.

## 1. Favourable conditions for international entrepreneurship

The study surveyed the opinion of the respondents regarding six selected favourable conditions – profitability, export procedure, stable global demand, a sufficient indigenous supply of vegetables, future growth potential and government support (table 8). The opinions are classified in three groups – exporters of vegetables, business firms engaged in local vegetable business, and firms not related to the vegetable business. When a respondent found a positive relationship of a factor related to doing vegetable trading, it was considered as having an impact. If the respondent did not find a relationship of the factor to doing business in vegetables, it was considered as having no impact.

Higher profitability and stable demand for vegetables are two major favourable factors for all three groups of respondents. A large majority of the respondents said the Government and relevant authorities were not supportive of the vegetable business. Although vegetable exporters did not see potential for growth (84.6 per cent) the firms involved in local trading of vegetables considered it had potential for future growth (52 per cent). Respondents do not support that there is enough supply of vegetables from indigenous sources for export.

Table 8. Opinion of respondents on whether favourable conditions
for international entrepreneurship will have a positive impact
on international vegetable business

(Unit: Per cent)

| Conditions related to international in vegetable business in Bangladesh | Firms exporting vegetables (n = 13) | | Firms involved in vegetable trade in local market (n = 50) | | Other firms not related to vegetables (n = 101) | |
|---|---|---|---|---|---|---|
| | Impact | No impact | Impact | No impact | Impact | No impact |
| Higher profitability | 69.2 | 30.8 | 68.0 | 32.0 | 14.9 | 85.1 |
| Easy export procedure | 23.1 | 76.9 | 66.0 | 34.0 | 12.9 | 87.1 |
| Stable demand in global market | 38.5 | 61.5 | 84.0 | 16.0 | 15.8 | 84.2 |
| Huge supply of vegetables in local market at low cost | 23.1 | 76.9 | 82.0 | 18.0 | 15.8 | 84.2 |
| Business expansion and growth potential | 15.4 | 84.6 | 48.0 | 52.0 | 9.9 | 90.1 |
| Government and institutional support | 23.1 | 76.9 | 12.0 | 88.0 | 7.9 | 92.1 |

## 2. Unfavourable conditions for international entrepreneurship

Six unfavourable conditions for international entrepreneurship – low profitability, perishability of vegetables, insufficient production of vegetables, weather-induced production risks, limited potential for future business growth and competition from the large number of business firms – were analysed by this study. The study applied the same framework as that used to analyse the favourable conditions. Table 9 shows the results. The perishable nature of vegetables and weather-induced risks to production are two factors that have a negative impact on deciding whether to become international vegetable business entrepreneurs. Insufficient production is also an important adverse factor for international entrepreneurs.

### Table 9. Opinion of respondents on whether unfavourable conditions for international entrepreneurship have a negative impact on the international vegetable business

(Unit: Per cent)

| Conditions related to international business in vegetables in Bangladesh | Firms exporting vegetables (n = 13) | | Firms involved in vegetable trading in local market (n = 50) | | Other firms not related to vegetable business (n = 101) | |
|---|---|---|---|---|---|---|
| | Impact | No impact | Impact | No impact | Impact | No impact |
| Low profitability | 46.2 | 53.8 | 38.0 | 62.0 | 21.8 | 70.3 |
| Perishable item | 61.5 | 38.5 | 88.0 | 12.0 | 59.4 | 40.6 |
| Insufficient production | 23.1 | 76.9 | 36.0 | 64.0 | 25.7 | 74.3 |
| Weather-induced uncertainty of production | 53.8 | 46.2 | 82.0 | 18.0 | 52.5 | 47.5 |
| Limited demand and low growth potential | 7.7 | 92.3 | 24.0 | 76.0 | 25.7 | 74.3 |
| Too many traders already involved in the business | 38.5 | 61.5 | 68.0 | 32.0 | 58.4 | 41.6 |

### 3. Net score of favourable conditions and psychic distance

The difference between the total score for favourable conditions and unfavourable conditions was analysed for firms involved in exporting vegetables (Group 1), those involved in vegetable trading inside country (Group 2), firms involved in agriculture-related businesses other than vegetables (Group 3) and firms not in agriculture-related businesses (Group 4), and the level of psychic distance was evaluated (figure 2).

**Figure 2. Net score of favourable conditions after deducting score of unfavourable conditions for four groups of firms**
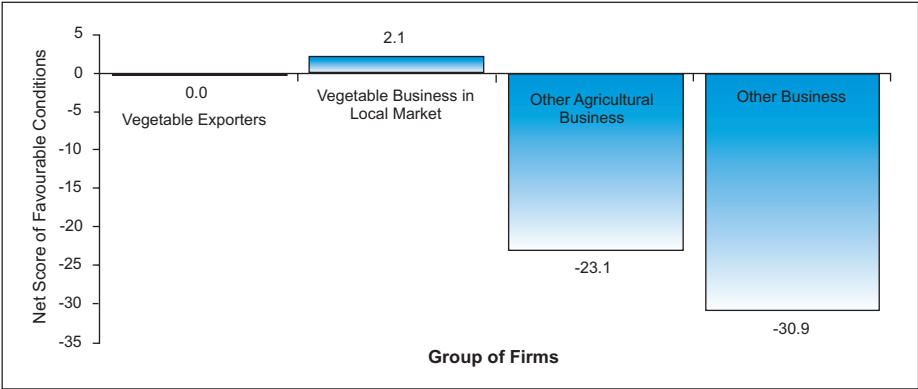


Exporters of vegetables had a net score near to zero. That means they are facing some problems in the business. Firms engaged in vegetable trading had positive favourable score. They saw an opportunity to become international entrepreneurs in vegetable trading. However, those firms involved in businesses other than vegetable-related products did not see entrepreneurial opportunities in the vegetable business. Firms involved in businesses not related to any agricultural products had the highest negative score of -30.9; that may be the reason why the vegetable trade was unattractive to them. Even firms involved in trading of other agricultural products had a high negative score of -23.1. Given the negative and low net score for favourable conditions, the conclusion is that psychic distance exists in international entrepreneurship in vegetable trading.

## 4. Determinants of international entrepreneurship

Several elements exist in the vegetable business process that may either reinforce or reduce the motivation, or psychic distance, for potential international entrepreneurship. These elements are frequently related to the service characteristics of agencies related to the business framework, internal and external barriers, and the availability of adequate information about markets across national boundaries. This study considers these factors in terms of determinants of international entrepreneurship.

*(a)     Level of satisfaction with service agencies*

Businesses involved in international trading of vegetables are subject to some services of the concerned authorities. An entrepreneur has to deal with customs, banks, police, and shipping and airlines authorities in order to export vegetables. In the survey, about 54 per cent and 46 per cent of the respondents said they were satisfied with the services of shipping agencies and banks, respectively. The satisfaction level with customs, airlines and police was as low as 38.5 per cent.

The respondents were relatively satisfied with the shipping agencies as these organizations help them to export vegetables from Bangladesh by providing necessary information and support. However, the performance of shipping agencies is subject to cooperation by customs and other state agencies. Respondents were dissatisfied with the services of the customs authorities; one respondent stated that "customs rules and procedures of the country are not a problem for exporting vegetables but the barrier is the behaviour of customs officials who complicate procedures for their personal monetary interest". The customs authorities are not business-friendly. The respondents said customs made the business process of exporting vegetables complex, resulting in degraded quality of perishable vegetables and exporters suffering losses in foreign markets. Bribes paid to customs officials increase the cost of exported products and reduces the competitiveness of vegetables in the world market.

Harassment by police during transportation has a negative impact on exporting vegetables. Firms have to use transport to move their products, and rapid, regular transportation is important to protecting perishable items such as vegetables. Police seem the perishability of vegetables as an opportunity to demand bribes to allow transportation on the roads. Bribes paid to police add to the procurement costs of vegetables and reduce the profits of exporters.

Bank authorities in general are cooperative in facilitating exports. However, banks are not interested in financing domestic businesses related to vegetables, which creates monetary bottlenecks for firms. In the absence of adequate credit, firms are unable to expand business into the global vegetable export markets. Airline agencies in the country do not have adequate services for facilitating vegetables exports. Exporters cannot send vegetables items far away from Bangladesh due to shortage of air transport capacity.

*(b)     Internal barriers to exports of vegetables*

Some domestic legal, infrastructural and monetary policies act as barriers to business in general and sometimes specifically to vegetable exporting. Table 10 lists the internal barriers and their relative importance to the vegetable business. The three major internal barriers are: (a) insufficient facilities at airports for exporting vegetables (80.97); (b) inadequate transport facilities (76.92); and (c) inadequate electricity supply (51.92). Other important barriers include the actions of police as well as customs and other officials, and banking procedures related to exports. However, exporters are less bothered by the country's export-import rules, internal tax and duties, Ministry of Industries and Ministry of Commerce rules and procedures, and customs and central bank procedures.

The transport infrastructure of Bangladesh is not suitable for faster transportation of vegetables. Road delays are common due to congestion or poor conditions of highways. Police create obstacles to the movement of vegetables. Airports do not have adequate facilities for storing and handling vegetable products for export. Chronic shortages of electricity make the storage and preservation of vegetables difficult as well as costlier if storage centres have to use self-produced electricity.

**Table 10. Internal barriers and their related importance to exporting vegetables (maximum score 100)**

| Internal barriers to exports | Mean | Standard deviation | Skewness |
|---|---|---|---|
| Insufficient facilities at airports for exporters of vegetables | 80.77 | 14.979 | -0.065 |
| Inadequate transport infrastructure of the country | 76.92 | 31.394 | -1.660 |
| Inadequate electricity supply | 51.92 | 40.132 | -0.289 |
| Behaviour of customs officials | 38.46 | 29.957 | 0.408 |
| Banking procedures related to exports from Bangladesh | 36.54 | 37.660 | 0.087 |
| Unacceptable behaviour of police and other officials | 34.62 | 46.254 | 0.822 |
| Criminal activities (mastans, * political activists etc.) | 32.69 | 47.197 | 0.880 |
| Insufficient facilities at seaport for exporters of vegetables | 25.00 | 38.188 | 1.326 |
| Foreign exchange control rules of the Central Bank | 19.23 | 34.086 | 1.655 |
| Customs rule and procedures of Bangladesh | 17.31 | 25.789 | 1.271 |
| Various rules and procedures of Bangladesh Ministry of Commerce | 15.38 | 29.823 | 2.288 |
| Various rules and procedures of Bangladesh Ministry of Industries | 13.46 | 28.165 | 2.780 |
| Tax and duties imposed by the Government of Bangladesh | 11.54 | 24.185 | 2.085 |
| Export-import control rules | 5.77 | 10.963 | 1.451 |

* Mastans are local gangsters

*(c)      External barriers to vegetable exports*

Exporters of vegetables as well as other firms detailed their difficulties with the varying rules and regulations of other countries, the uncertain nature of the global market for vegetables, and some non-tariff barriers. Table 11 lists the external barriers to exports. Vegetable exporters face competition in international markets and 71.15 per cent of the respondents considered that to be a barrier to international entrepreneurship. Vegetable exporters in Bangladesh have suffered from the cost disadvantage in international markets resulting from "informal payments" to customs, police and other parties.

Europe is a major export market for vegetables from Bangladesh. However, the health and hygiene rules and standards in Europe and other countries are strict and higher compared to Bangladesh. Hence, health and hygiene-related requirements of importing countries are a barrier to 59.62 respondents.

**Table 11. External barriers and their related importance to exporting vegetables (maximum score 100)**

| External barriers to exports | Mean | Standard deviation | Skewness |
|---|---|---|---|
| Competition from other vegetable exporting countries | 71.15 | 26.705 | -0.617 |
| Health and hygiene-related requirements in other countries | 59.62 | 29.823 | -0.548 |
| Strict environmental- and pollution-related rules in other countries | 28.85 | 33.613 | 0.403 |
| Different types and uncertain administrative rules in importing countries | 28.85 | 32.026 | 0.509 |
| High duties/tariffs in importing countries | 11.54 | 24.185 | 2.085 |
| Quota restrictions in importing countries | 1.92 | 6.934 | 3.606 |

Exporters do not face high barriers related to quota restrictions and tariffs. A total of 28.9 per cent respondents considered the different types and uncertain administrative rules of importing countries as a barrier. Environment and pollution-related restrictions are also barriers to 28.9 per cent of the respondents. Therefore, the barriers in the global market are mostly non-tariff-related and competitive for Bangladesh vegetable exports.

*(d)    Awareness to global requirements for vegetable exports*

The respondents reported that the major external barriers to vegetable exports included competition, health and hygiene requirements, environment and administrative rules. Figure 3 shows the awareness among respondents of the requirements for vegetable exports in percentage terms. It is encouraging to note that exporters have good knowledge about the procedures when faced by those external barriers, with 100 per cent knowing how to grade vegetables as well as some idea about pollution control and standardization of vegetable items. Unfortunately, only a few respondents had good knowledge about hazard analysis and critical control points (HACCP), which is an essential prerequisite for meeting the health and hygiene requirements of importing countries.

*(e)    Determinants of transaction costs*

In addition to the cost of vegetables, there are some transaction costs related to general business and exporting vegetables. Vegetable exporters identified the country's ineffective transport system as a major contributor to transaction costs. About 92 per cent of the respondents said that unreliable local transport systems and insufficient cargo facilities provided by the airlines operating from Bangladesh created additional costs for their businesses. The second most important determinant of transaction costs is the lack of facilities for preserving vegetables (76.9 per cent). The need to establish modern processing and preservation facilities near airports in order to boost vegetable exports was

**Figure 3. Level of knowledge about procedures related to export of vegetables and other food items**
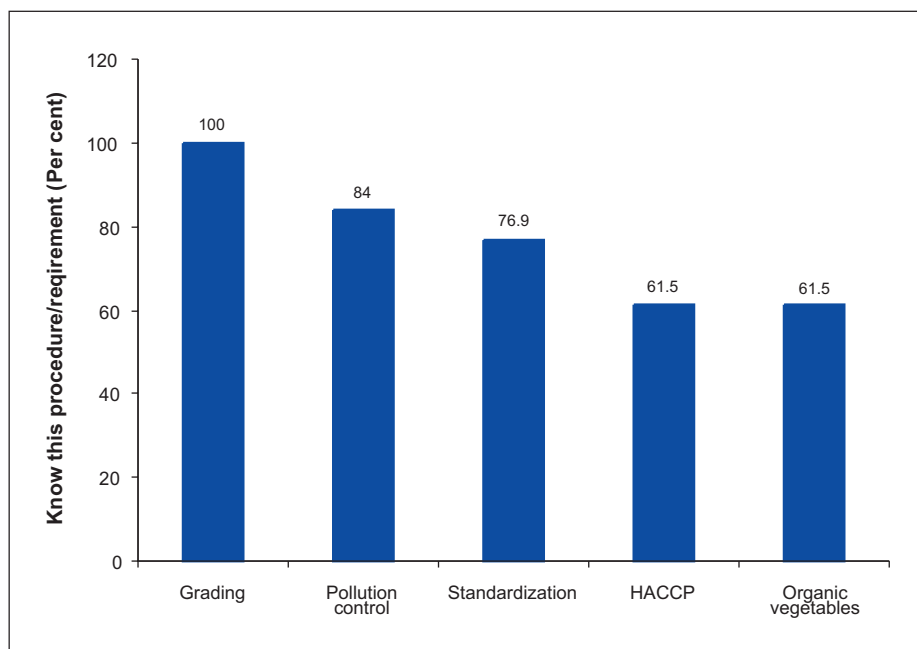


emphasized by about 84.6 per cent of the respondents. Payments to law enforcement agencies (46.2 per cent) and other government officials (38.5 per cent) also increase costs. Some respondents also included the role of middlemen (16.7 per cent), unavailability of information about export markets (23.4 per cent), an unregulated market system (16.7 per cent) and higher prices of electricity (9.7 per cent) in the list of determinants of transaction costs for vegetable exports from Bangladesh.

## D. Trade facilitation for international entrepreneurship

International entrepreneurship may develop and grow within a favourable environment and through institutional support. Trade facilitation is the process of organizing institutional support for creating a favourable environment to reduce psychic distance in the entrepreneurial process. This section discusses whether trade facilitation can affect international entrepreneurship development in vegetable exports, with the main focus on the reasons for trade facilitation as well as on the areas where trade facilitation may be necessary.

# 1. Necessity of trade facilitation for international entrepreneurship development

Natural factor endowments are essential for achieving successful vegetable production. Ample fertile land, a favourable climate and large pool of inexpensive labour are preconditions for horticulture. In the current survey, 81.7 per cent of respondents said that fertile land was an important factor endowment in Bangladesh, while 79.3 per cent said the country had a wide variety of vegetables that could be farmed. Realizing Bangladesh's potential for vegetable production and exports is being held back by inadequate investment (74.4 per cent), the absence of appropriate technology (70.7 per cent), the lack of an effective transport system (57.3 per cent) and the lack of a connection between producers and markets (58.5 per cent). In the absence of organized markets, prices of vegetables fluctuate and farmers often face financial losses (74.4 per cent). This situation often discourages farmers from undertaking large-scale farming of vegetables.

Translating the potential for vegetable production into a competitive sustainable industry requires considerable investment, supportive institutional structures, a range of facilitative government policies and entrepreneurs with commercial experience (Diop and Jaffee, 2005; Gabre-Madhin and Minot, 2003). In a favourable environment, entrepreneurs organize capital, labour and technology to enable them to take advantage of domestic and cross-border economic opportunities. Trade facilitation is the process of creating a favourable environment for international business by reducing transaction costs as well as a business environment that ensures transparency in the regulatory environment, harmonization of standards and conformance with international regulations (Wilson and others, 2003). International entrepreneurship can develop within such an effective trade facilitation framework. Encouraging international entrepreneurs means ensuring growth in international trade.

Among the firms interviewed, 61 per cent were aware that Bangladesh exports vegetables; about 69.5 per cent of the respondents were optimistic about future vegetable exports by Bangladesh. In contrast, only 26.3 per cent had any knowledge about vegetable export procedures while 40.9 per cent had information about export markets for vegetables. Those figures show that while sufficient knowledge exists among Bangladeshi entrepreneurs about the potential for vegetable exports, the problem is the limited knowledge about export procedures.

The lack of both an effective transport system and co-operation by government agencies, the very limited availability of capital, the absence of processing facilities for vegetables at airports and inadequate information about global markets are acting as the psychic distance among entrepreneurs who are interested in becoming involved in international trading of vegetables. To overcome this obstacle, trade facilitation could play a role in the areas where entrepreneurs suffer from psychic distance.

## 2. Determinants of competitiveness for international entrepreneurship in the vegetable trade of Bangladesh

The respondents in all the groups evaluated five determinants of competitiveness for international vegetable trading (table 12). They identified taste and quality, and the existence of a large number of Bangladesh expatriate communities as key determinants for international trading of vegetables. However, while exporters of vegetables did not consider the cost and level of vegetable production as important determinants for international markets, respondents in the other groups considered lower production costs and large-scale production of vegetables to be important determinants. Respondents also pointed to the absence of large commercial organizations involved in international trading of vegetables in Bangladesh. In designing trade facilitation for international entrepreneurship, these factors should be taken into consideration.

Table 13 shows the results of the One-way ANOVA analysis, which is a statistical technique for evaluating differences in opinions of groups of respondents about determinants of competitiveness. One-way ANOVA for all determinants is not statistically significant in the strict sense. According to the statistical principle, $\alpha$ = 0.05, there is no difference among the responses of the four groups of respondents about any of determinants. However, some difference in opinion may exist among the four groups about the taste and quality of vegetable production as well as the level of production because for these two cases the significance level is less than 0.10 ($p < 0.10$ tends to be significant), ($p < 0.10$, *tends to be significant*).

### Table 12. Assessment score for determinants of vegetable exports from Bangladesh

| Determinant | Vegetable exporters | Involved in domestic vegetable trade | Involved in trade in agro-related products other than vegetables | Involved in business of non-agriculturel products | Total |
|---|---|---|---|---|---|
| Taste and quality of vegetables produced in Bangladesh | 67.69 | 73.40 | 61.00 | 56.67 | 63.96 |
| Low production cost of vegetables | 28.46 | 50.00 | 50.00 | 44.71 | 46.65 |
| Large-scale production of vegetables | 36.15 | 58.40 | 46.40 | 52.16 | 51.04 |
| Participation of large commercial organizations in the production and marketing of vegetables | 18.46 | 23.00 | 28.80 | 31.37 | 27.01 |
| Existence of large expatriate Bangladeshi communities abroad | 60.00 | 44.20 | 48.60 | 56.86 | 50.73 |

**Table 13. One-way ANOVA analysis of determinants for international trading of vegetables**

| Determinants | | Sum of squares | Df | Mean square | F | Significance |
|---|---|---|---|---|---|---|
| Low production cost of vegetables | Between groups | 5 615.669 | 3 | 1 871.890 | 1.707 | .168 |
| | Within groups | 175 439.819 | 160 | 1 096.499 | | |
| | Total | 181 055.488 | 163 | | | |
| Large-scale production of vegetables in the country | Between groups | 6 729.343 | 3 | 2 243.114 | 2.499 | .062 |
| | Within groups | 143 594.437 | 160 | 897.465 | | |
| | Total | 150 323.780 | 163 | | | |
| Taste and quality of vegetables produced in Bangladesh | Between groups | 7 787.678 | 3 | 2 595.893 | 2.308 | .079 |
| | Within groups | 179 936.103 | 160 | 1 124.601 | | |
| | Total | 187 723.780 | 163 | | | |
| Participation of large commercial organizations in the production and marketing of vegetables in country | Between groups | 2 884.823 | 3 | 961.608 | 1.327 | .268 |
| | Within groups | 115 951.152 | 160 | 724.695 | | |
| | Total | 118 835.976 | 163 | | | |
| Existence of large expatriate Bangladesh communities abroad | Between groups | 5 394.156 | 3 | 1 798.052 | 1.626 | .185 |
| | Within groups | 176 918.039 | 160 | 1 105.738 | | |
| | Total | 182 312.195 | 163 | | | |

Respondents involved in trading other than agricultural products considered taste and quality as a less important determinant for international business competitiveness of vegetables in the global market. Of the existing exporters of vegetables, only 36.15 per cent said Bangladesh did not produce enough vegetables for export. Low support for the existence of large commercial organizations in international vegetable trading indicates that the vegetable business has failed to attract sufficient commercial investments in Bangladesh. The respondents agreed, at least statistically, that the existence of large Bangladeshi communities abroad would have a positive influence on creating international entrepreneurship in the vegetable business. There is scope for encouraging entrepreneurship in this sector for commercialization and large-scale exports.

## 3. Scope of trade facilitation

Government-sponsored loans for vegetable production, improvement of transportation systems, training of farmers in modern vegetable farming techniques and the supply of inputs for farming are key areas for trade facilitation measures in Bangladesh. Table 14 shows evaluation scores by the four respondent groups. Mean scores for all potential areas for trade facilitation are above 50 and appear to be high. Establishing links between local and international markets as well as access to information about global vegetable markets are less important as trade facilitation measures to existing exporters. Evidence provided by the survey shows that existing exporters used to collect market-related information from their links with Bangladeshi communities abroad. However, these

two aspects are important to other firms not involved in vegetable exporting. It appears that they do not have any knowledge about export markets for vegetables. Firms involved in trading vegetable and agriculture-related products in the domestic market emphasised initiatives by the Government to commercialize vegetable farming. It is interesting to note that unlike other respondents, vegetable exporters did not consider training for farmers as important.

The ANOVA analysis, presented in table 15, identified significance differences in opinion among the four groups of respondents with regard to government initiatives for ensuring a regular supply of inputs for vegetable production as well as training for farmers in vegetable production. Some difference in opinion ($p<0.10$) ($p>0.10$) may exist over the need to help create a link to the domestic and international markets for vegetable traders. Existing exporters, mostly traders, did not emphasis training and the availability of inputs as important trade facilitation issues. Because they already have links with international markets for vegetable, exporters probably do not need trade facilitation on information for markets. Except in these three areas, there is scope for trade facilitation in all other areas listed in the table 14.

**Table 14. Areas for trade facilitation and their relative importance**

| Areas for trade facilitation | Vegetables exporters | Involved in domestic vegetable trade | Involved in trading of agro-related items other than vegetables | Involved in trading of non-agriculture items | Total |
|---|---|---|---|---|---|
| Government initiatives to provide agricultural loans for vegetable production | 66.15 | 68.18 | 67.76 | 71.76 | 69.01 |
| Regular supply of agricultural inputs for production (fertilizer, irrigation etc.) | 52.31 | 64.78 | 62.04 | 76.47 | 66.62 |
| Ensuring a supply of high-yielding vegetable seeds. | 52.31 | 65.18 | 68.16 | 65.88 | 65.27 |
| Training for farmers on modern technologies for vegetable production and processing for domestic and international markets | 55.38 | 74.38 | 61.43 | 73.33 | 68.64 |
| Improving effectiveness of transportation facilities for perishable vegetable products | 72.31 | 62.38 | 63.27 | 67.06 | 64.90 |
| Reducing transportation costs for vegetable items. | 55.38 | 61.58 | 64.08 | 54.90 | 59.75 |

**Table 14.** *(continued)*

| Areas for trade facilitation | Vegetables exporters | Involved in domestic vegetable trade | Involved in trading of agro-related items other than vegetables | Involved in trading of non-agriculture items | Total |
|---|---|---|---|---|---|
| Making information available to farmers on types and prices of vegetables in demand in foreign markets | 40.00 | 57.18 | 55.10 | 67.08 | 58.28 |
| Helping to create links between domestic and international markets for vegetable traders | 33.85 | 49.58 | 56.33 | 56.08 | 52.39 |
| Training for vegetable traders in international requirements and rules related to vegetable exports | 44.62 | 57.38 | 46.94 | 55.69 | 52.69 |
| Governmental institutional support for export and commercial production of vegetables in Bangladesh | 53.85 | 60.78 | 62.86 | 56.80 | 59.62 |

**Table 15. One-way ANOVA analysis of scores for areas of trade facilitation**

| Scope of trade facilitation | | Sum of squares | Df | Mean square | F | Signi-ficance |
|---|---|---|---|---|---|---|
| Government initiatives to provide agricultural loans for vegetable production | Between groups<br>Within groups<br>Total | 604.665<br>94 377.310<br>94 981.975 | 3<br>159<br>162 | 201.555<br>593.568 | .340 | .797 |
| Regular supply of agricultural inputs for production of crops (fertilizer, irrigation etc.) | Between groups<br>Within groups<br>Total | 8 808.444<br>88 169.973<br>96 978.417 | 3<br>159<br>162 | 2 936.148<br>554.528 | 5.295 | .002 |
| Ensuring a supply of high-yielding vegetable seeds. | Between groups<br>Within groups<br>Total | 2 613.985<br>118 180.137<br>120 794.123 | 3<br>159<br>162 | 871.328<br>743.271 | 1.172 | .322 |
| Training for farmers on modern technologies for vegetable production and processing for domestic and international markets | Between groups<br>Within groups<br>Total | 7 603.172<br>105 638.190<br>113 241.362 | 3<br>159<br>162 | 2 534.391<br>664.391 | 3.815 | .011 |
| Improving effectiveness of transportation facilities for perishable vegetable products | Between groups<br>Within groups<br>Total | 1 399.506<br>122 004.924<br>123 404.429 | 3<br>159<br>162 | 466.502<br>767.327 | .608 | .611 |

Table 15. *(continued)*

| Scope of trade facilitation | | Sum of squares | Df | Mean square | F | Signi-ficance |
|---|---|---|---|---|---|---|
| Reducing transportation costs for vegetable items | Between groups | 2 533.247 | 3 | 844.416 | 1.158 | .328 |
| | Within groups | 115 977.440 | 159 | 729.418 | | |
| | Total | 118 510.687 | 162 | | | |
| Making information available to farmers on types and prices of vegetables in demand in foreign markets | Between groups | 8 847.462 | 3 | 2 949.154 | .712 | .546 |
| | Within groups | 658 673.556 | 159 | 4 142.601 | | |
| | Total | 667 521.018 | 162 | | | |
| Helping to create links to domestic and international markets for vegetable traders | Between groups | 6 318.316 | 3 | 2 106.105 | 2.320 | .077 |
| | Within groups | 144 354.334 | 159 | 907.889 | | |
| | Total | 150 672.650 | 162 | | | |
| Training for vegetable traders in international requirements and rules related to vegetable exports | Between groups | 4 026.009 | 3 | 1 342.003 | 1.483 | .221 |
| | Within groups | 143 892.654 | 159 | 904.985 | | |
| | Total | 147 918.663 | 162 | | | |
| Governmental institutional support for export and commercial production of vegetables in Bangladesh | Between groups | 1 411.759 | 3 | 470.586 | .560 | .642 |
| | Within groups | 132 686.272 | 158 | 839.787 | | |
| | Total | 134 098.031 | 161 | | | |

## 4. Potential impact of trade facilitation on international entrepreneurship

The firms in Groups 3 and 4 were asked whether they had any interest in becoming involved in trading fresh vegetables. The final part of the survey also asked firms in Groups 2, 3 and 4 about their motivation for becoming international entrepreneurs in trading fresh vegetables if a favourable business environment could be created (table 16). A total of 14 per cent of the firms engaged in trading other agricultural products and 7.84 per cent of firms engaged in trading non-agricultural products indicated interest in becoming involved in vegetable trading. In aggregate, 40.4 per cent respondents indicated interest in the vegetable business while 52.32 per cent said they were not interested. The remaining 7.29 per cent were undecided about entering the vegetable business.

## 5. Intention of international entrepreneurship having trade facilitations measures

Table 17 shows the intention of firms to enter international entrepreneurship in the vegetable business when a favourable environment resulting from trade facilitation exists. Respondents were asked whether they would consider starting an international vegetable trading business if the Government took the initiative to remove unfavourable conditions that deter entrepreneurial initiatives. A total of 70 per cent stated that in such a situation they would be interested. The survey data also showed that such an intention changed

**Table 16. Responses of firms regarding intention to become involved in fresh vegetable trading in the existing situation**

| Groups | Do you have any intention to become involved in the vegetable trade in the future? | | | |
|---|---|---|---|---|
| | Yes | Maybe | Do not know | No |
| Group 2 – Involved in domestic vegetable trade | 100.00 | 0.00 | 0.00 | 0.00 |
| Group 3 – Involved in trading agro- related products other than vegetables | 14.00 | 6.00 | 2.00 | 78.00 |
| Group 4 – Involved in trading non-agricultural items | 7.84 | 7.84 | 5.88 | 78.43 |
| **All Groups** | **40.40** | **4.64** | **2.65** | **52.32** |

significantly in the case of firms involved in trading non-vegetable agricultural products and non-agricultural products in an organized, favourable environment (table 17). In aggregate, 40.4 per cent of all respondents indicated they would be interested. This is the same aggregate percentage as that for firms who would be interested within the existing situation, but it includes more firms that are not currently involved in the vegetable business. The number of firms not interested in entering the vegetable business in an environment favourable to international entrepreneurship declined from 52.32 per cent to 39.74 per cent. Therefore, trade facilitation has the potential to encourage international entrepreneurs in the vegetable business.

**Table 17. Responses of firms concerning intention to becoming international entrepreneurs of fresh vegetables in a favourable business environment**

| Groups | Do you have any intention to enter the vegetable trade in the future? | | |
|---|---|---|---|
| | Yes | Not sure | No |
| Group 2 – Involved in domestic vegetable trade | 70.00 | 20.00 | 10.00 |
| Group 3 – Involved in trading agro-related products other than vegetables | 36.00 | 22.00 | 42.00 |
| Group 4 – Involved in trading non-agricultural items | 15.69 | 17.65 | 66.67 |
| **All Groups** | **40.40** | **19.87** | **39.74** |

# 6. Impact of trade facilitation

Trade facilitation may affect motivation to enter international entrepreneurship. An additional impact can be estimated from the analysis of prior, joint and revised probabilities of intentions among the different groups regarding involvement in the vegetable business. Figure 4 illustrates the probability tree for creating an international entrepreneurship in the vegetable business, both before and after trade facilitation.

The marginal probability of all respondents becoming involved in the vegetable business is 0.405, while the marginal probability of those already in the vegetable business is 1. The conditional probability of entry into international trading of vegetables among those already involved in the domestic vegetable business is 0.70. The joint probability of existing vegetable business firms as well as firms becoming involved internationally after trade facilitation is 0.299. However, the marginal probability of potential international entrepreneurship in the vegetable business is 0.405. This additional entrepreneurship motive was from among those not currently involved in the vegetable business. Hence, the additional impact of trade facilitation on international entrepreneurship is 0.106, as explained in equation 5. Table 18 presents some probabilistic impacts of, and revised probabilities resulting from trade facilitation on international entrepreneurship in the vegetable business. The revised probabilities of those respondents not having any interest in the vegetable business and those who may be interested after trade facilitation are 0.338 and 0.020, respectively.

**Figure 4. Probability tree of doing vegetable business before and after trade facilitation measures**



| | Probability of doing vegetable business in existing situation $P\,(VT_i)$ | | Probability of doing vegetable business after trade facilitation measures $P\,(IVT_i \mid VT_i)$ | | $P\,(VT_i) \times P\,(IVT_i \mid VT_i)$ |
|---|---|---|---|---|---|
| | | | Yes | 0.738 | 0.299 |
| Yes | 0.405 | | Not Sure | 0.18 | 0.073 |
| | | | N | 0.082 | 0.033 |
| | | | Yes | 0.286 | 0.013 |
| May be | 0.046 | | Not Sure | 0.428 | 0.02 |
| | | | N | 0.286 | 0.013 |
| Do Know | 0.026 | | Yes | 0 | 0 |
| | | | Not Sure | 0.5 | 0.013 |
| | | | N | 0.5 | 0.013 |
| | | | Yes | 0.177 | 0.093 |
| N | 0.523 | | Not Sure | 0.177 | 0.093 |
| | | | N | 0.646 | 0.338 |
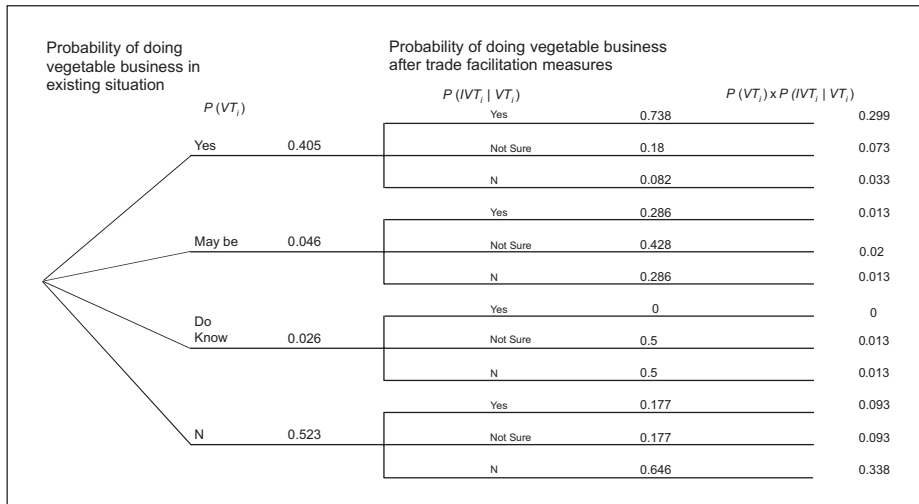
**Table 18. Estimate of probability impact of trade facilitation on international entrepreneurship in vegetable business**

| Description of probability | Probability |
|---|---|
| Probability to become international entrepreneur after trade facilitation | 0.405 |
| Probability impact on international entrepreneurship of trade facilitation | 0.106 |
| Motivation of existing entrepreneurs of fresh vegetable to become international entrepreneurs of fresh vegetable trading after trade facilitation | 0.739 |
| Motivation of probable ("maybe") entrepreneurs of fresh vegetables to become international entrepreneurs after trade facilitation | 0.033 |
| Motivation of undecided ("do not know") entrepreneurs of fresh vegetables to become international entrepreneurs after trade facilitation | 0.000 |
| Motivation of unwilling entrepreneurs of fresh vegetable to become international entrepreneurs after trade facilitation | 0.229 |

## G. Analysis of barriers to international entrepreneurship development and recommendations

The growing global market for vegetables provides excellent opportunities for Bangladesh to expand its agricultural exports. The country has ideal tropical weather, fertile land and an abundant supply of water necessary for production of vegetables. Farmers grow large quantities of different types of vegetables, but they are not yet successful in producing them on a scale that could transform Bangladesh into a major exporter of vegetables. Failure to attract commercial investment is a key reason for this problem. Commercialization of the country's vegetable production is possible through the encouragement of entrepreneurship, but the sector needs a favourable support environment. International entrepreneurship in the vegetable sector can be a highly rewarding activity in terms of poverty reduction, job creation and self-employment for unemployed educated young people.

Exports of vegetables may diversify Bangladesh's trade portfolio, which is currently highly dependent on readymade garments. That sector has a comparatively lower value in Bangladesh because its exports are dependent on imports from other countries. Vegetable production depends on the country's own resources and has the potential to add higher value. Commercial exports of vegetables on a large scale will motivate people to produce more vegetables. It is possible to cultivate vegetables on small areas of generally unused marginal land and in the precincts of homes. Increasing production of vegetables by utilizing unused land and through commercial farming could enable Bangladesh to export a substantial surplus to other countries and earn very high levels of foreign exchange.

Figure 5 describes the impact of the lack of entrepreneurship on vegetable production in Bangladesh, where vegetables are high-value crops, a stable local and international demand exists for vegetables. In spite of three very important positive

preconditions for vegetables to create profitable economic transactions, this sector lacks investment, innovation and productivity for large-scale organized production. This situation prevails because of absence of effective entrepreneurship in this sector. Thus, this study argues in favour of international entrepreneurship development in the vegetable business and the adoption of appropriate trade facilitation measures to reduce psychic distance among potential entrepreneurs. The following subsections describe the barriers to entrepreneurship and suggest recommendations for appropriate trade facilitation measures.

**Figure 5. Impact of entrepreneurship on the vegetable sector in Bangladesh**
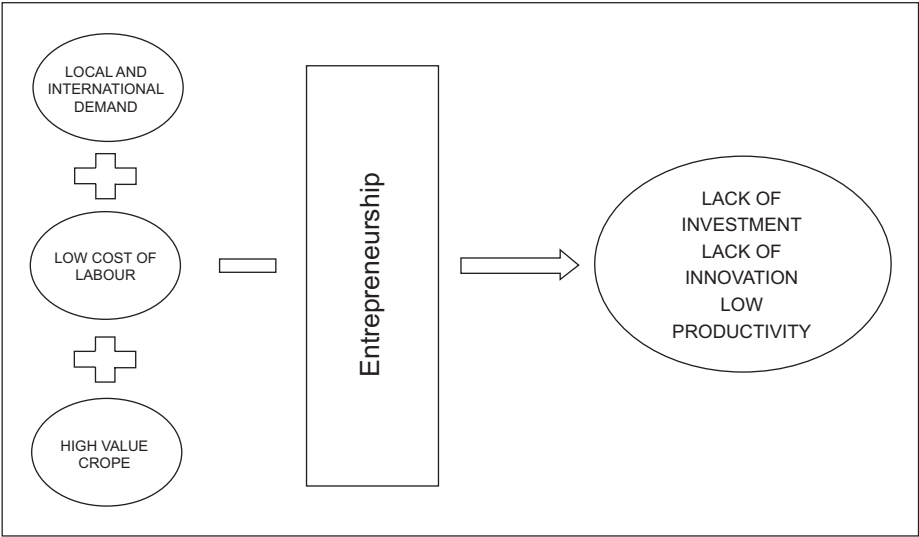


## 1. Barriers to international entrepreneurship in the vegetable business

Barriers to international entrepreneurship are those economic, social, infrastructural, legal, cultural, informational and institutional factors that discourage people from becoming involved in international business across country borders. Evaluation, through data collection, discussions and reviews of secondary sources, identifies the following as barriers to international entrepreneurship of vegetable business in Bangladesh.

## 2. Low productivity and quality of vegetables

Vegetables are marginal crops in Bangladesh and farmers often produce them for their own consumptions. Organizations responsible for agricultural development in the country do not spend much time and resources on improving the fresh vegetable sector. Farmers do not have high-yielding seeds and are unaware of advanced technologies for improving the productivity and quality of vegetables. Consequently, interested

entrepreneurs are unable to get sufficient quantities of high-quality vegetables for export and thus fail to compete with similar businesses in other countries in international markets.

The quality standard of perishable food item like vegetables is subject to some universally accepted rules and procedures related to hazard analysis and critical control points (HACCP). The production, collection and transportation of vegetables must follow standard HACCP procedures. The field survey in this study observed that most of the vegetable traders and producers in Bangladesh are not aware of the terms and concepts of HACCP, standardization, pollution control, organic vegetables and grading. Untrained in HACCP procedures, farmers and other workers involved in the production and trade of vegetables are not capable of maintaining international quality standards for their vegetables. As a result, vegetables produced in Bangladesh fail to compete in international markets due to substandard quality control procedures.

### 3. Complex health and hygiene standards applicable to vegetables

Articles 3 and 4 of the Agreement on the Application of Sanitary and Phytosanitary Measures require that, in the case of food items, WTO members must harmonize SPS measures with international standards and guidelines, and that they must accept the SPS measures of other members as being equivalent even if those measures differ from their own. The two Articles made it compulsory for vegetable exporters to adopt SPS measures of an importing country. Three international organizations are recognized sources of internationally agreed-upon standards for vegetables: (a) the Codex Alimentarius Commission; (b) the International Office of Epizootics; and (c) the International Plant Protection Convention. The existence of these three international agencies has complicated the procedure for regulating product standards for vegetables.

Importers of Bangladeshi vegetables mostly comprise developed countries with higher SPS standards. Uneducated farmers and small-scale traders of vegetables are ignorant of these complex standards. By using chemical fertilizers and chemical insecticides, farmers contaminate and lower the health standard of vegetables. It is almost impossible to export such vegetables to financially attractive developed country markets without adequate knowledge of the health and hygiene-related standards of the importing country. As a result, entrepreneurs often face setbacks in international vegetable trading. This also discourages the entry of new entrepreneurs.

### 4. Inadequate transportation and storage facilities

Fast, reliable and adequate transportation as well as adequate and affordable storage facilities form the backbone of supply chains in international trading of perishable items such as vegetables. It is unfortunate that the transportation facilities of Bangladesh are not supportive of vegetable exporting. Road congestion, unreliable railways and slow river transport do not allow fast movement of perishable vegetable products. The supply chain for vegetable exports by Bangladesh breaks down regularly. Exporters of vegetables often suffer financially because of the ineffective transportation system as well as a loss of reputation in international markets. Moreover, "unofficial payments" to law enforcement

officials and political organizations inflate the cost of transportation and reduce the cost competitiveness of vegetables.

Air transport is an effective mode of transportation for exporting fresh vegetables to the European Union and other destinations. However, exporters regularly complain about inadequate air cargo facilities for vegetable exports from Bangladesh. Most airlines operating out of Bangladesh do not provide adequate cargo space for vegetable exports. In addition, airlines charge higher rates for transporting vegetables from Bangladesh compared with other countries such as India and Kenya.

Storage and preservation facilities for vegetables are also inadequate in Bangladesh. Even major ports and the international airport at Dhaka do not have any storage facilities with a freezing plant to protect perishable vegetables in transit. The absence of effective storage facilities reduces the quality of perishable vegetables.

## 5. Harassment by government and other agencies

Customs is one of most important agencies from the perspective of international entrepreneurs, as it is responsible for providing the final permission for exports. Officials of this agency regularly harass exporters of vegetables. Concerned business people have reported corruption among customs officials during the export authorization process. These officials often create complicated situations for exporters and delay exports, causing firms to face economic losses.

The police are also not business-friendly. They create problems during transportation of vegetables by road. Firms have to "buy" the services of police through unofficial and illegal payments. Police personnel also support many political and other organizations that collect unofficial tolls from exporters of vegetables. In addition to customs officials and police, exporters face similar harassment from the Electricity Department, licensing authorities, export-import officials etc.

## 6. Inadequate banking and financing support

Monetary rules associated with vegetable exports are complex and time-consuming. They also create extra expense because of higher official service charges as well as unofficial payments. Banks are not sensitive to the perishable nature of vegetables and treat this business like other commercial entities. Firms involved in exporting vegetables face difficulties in getting financial assistance for working capital from banks. Commercial banks rarely support vegetable farming. None of the interviewed firms involved in international vegetable trading had received financing during the inception of their operations. The lack of investment by the banking sector discourages potential entrepreneurs from entering international trading of vegetables.

## 7. Lack of market information

Potential entrepreneurs do not have access to adequate information regarding the global market for vegetables due to the lack of institutional support. The Export Promotion Bureau of the Government of Bangladesh, which is the agency in charge of promoting exports, cannot provide potential entrepreneurs with adequate international market information on characteristics of the demand for vegetables. There is no formal set up for communication between potential exporters of vegetables from Bangladesh and international importers. Existing exporters communicate with importers through their own initiatives. As the business community is uninformed about the global market for vegetables, new entrepreneurs rarely establish vegetable exporting businesses.

# H. Recommendations for removing barriers or psychic distance

The objective of this study is to identify barriers to international entrepreneurship in vegetable trading in Bangladesh. It was not intended to explore solutions in detail for overcoming these barriers during research stage. However, some recommendations for removing barriers have emerged from the analysis of existing problems as well as other information provided by the respondents. The root cause of inadequate international entrepreneurship in the vegetable business of Bangladesh is associated with the procedures and controls for governing the movement of goods across national borders. Therefore, the primary suggestion for removing barriers is to design appropriate trade facilitation measures, as this study looks at ways to improve the movement of goods in cost-effective ways through appropriate institutional interventions. Improvement of the transportation infrastructure, elimination of government corruption, the modernization of the customs administration, the removal of other non-tariff trade barriers and improvement of financial sector effectiveness are common elements of trade facilitation measures. The following trade facilitation measures may therefore help the expansion of international entrepreneurship in the vegetable sector of Bangladesh:

(a) Reorientation of programmes of government organizations engaged in development and research of the agricultural sector in order to give priority to vegetable production. High-yielding vegetable seeds, new agro-technologies and new varieties of vegetables should be introduced among farmers to improve productivity, crop diversification and reduce production costs;

(b) The Government should encourage the country-wide establishment of appropriate storage facilities for the preservation of vegetables. Financing through commercial banks may encourage the private sector to build store facilities. The rental of storage facilities may subsequently increase and help the expansion of vegetable exports;

(c) Incentive policies should be formulated with the objective of enhancing air-cargo facilities at airports for exports of vegetables. Adequate storage facilities must be made available at airports;

(d)    Adequate information about vegetable markets, characteristics of cross-border demand for vegetables as well as health and hygiene standards of importing countries need to be made available to farmers and vegetable exporters through state agencies. If possible, training programmes should be arranged for farmers and workers involved in vegetable farming in order to teach them how to follow global SPS standards during the production process;

(e)    Financing programmes through the banking sector should be arranged to enable seed investments by established firms for exporting vegetables. If this proves successful, increased external demand for vegetables will ensure the right prices for vegetable farmers. Economic profits will motivate farms to produce quality vegetables for exporters.

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# Chapter IX

# Impact of Export Processing Zones on poverty reduction and trade facilitation in Sri Lanka

*Chandana Karunaratne and Ashani Abayasekara*

## A. Introduction

Export Processing Zones (EPZs) have been among the primary factors of export-oriented growth in recent decades. EPZs first came about in 1959 with the establishment of the Shannon Zone in Ireland. Following that, the first few zones were envisaged primarily as industrial zones that were to attract foreign investors to set up facilities to process imported materials and subsequently export their products. In the 1970s, EPZs were seen as playing one of the most important roles, with regard to employment strategies, that promoted export-oriented foreign investment. By 1997, 27 million workers were employed in more than 800 EPZs across the world.

The primary aims of an EPZ are manifold. They include generating employment, expanding the exports industry, attracting foreign exchange, encouraging technology transfer, improving human capital, developing backward and forward linkages, and promoting economic development in less-developed regions within a country (Thamarajakshi, 2001).

An EPZ is defined as a geographical area housing export-oriented manufacturing facilities or service enterprises. These zones may be located anywhere in a country and, in many cases, are situated in close proximity to ports and/or harbours to enable ease of access to shipping lines and freight forwarding services. Firms operating within EPZs usually benefit from special incentives aimed at promoting investment, with customs duty exemptions and tax incentives among the most common. They may be labelled under different names around the world, such as "enterprises" in Honduras, "special economic zones" in China and "special export processing zones" in the Philippines (Thamarajakshi, 2001).

The key objectives of EPZs – increasing exports and foreign exchange earnings, attracting foreign direct investment (FDI), diversifying exports and creating jobs – can, in turn, have a significant bearing on facilitating the trading process as well as alleviating poverty in an economy. For example, with the objective of boosting exports, EPZs could implement policies to simplify the export procedure. In addition, the need to attract FDI would necessitate improving the business (and trading) environment in the country; infrastructure development that accompanies many EPZ development schemes would, in turn, lead to a smoother and faster trading process. The establishment of zones in rural areas that promote infrastructure and industrial upgrading in such areas could enhance

economic opportunities for the poor while employment generation, especially for the population in rural areas with low skill levels, could also play a key role in alleviating poverty.

It is well established that international trade plays a key role in acting as an engine of growth and poverty reduction in developing countries. While Sri Lanka initiated the process of trade liberalization in South Asia, other barriers such as administrative and technical barriers have become an increasingly significant impediment to trade. In order to promote export competitiveness in Sri Lanka, it is essential to remove such barriers. One way of doing so, and thereby facilitate trade, is through EPZs that provide customs-free and tax-exempt, export-oriented manufacturing facilities, investment incentives and streamlined administration, cheap utilities and better infrastructure. Trade facilitation may be the quintessential purpose of these zones, but another important aspect of EPZs is their potential to alleviate poverty.

The existing literature on EPZs in Sri Lanka mainly discusses the impact of trade and investment incentives on export performance, and the relationship between EPZs and employment generation (Sivananthiran, 2008). However, there has been limited quantitative analysis comparing firms that operate within EPZs and those that are located outside these zones, particularly with regard to assessing the livelihoods of employees and evaluating the impacts of trade facilitation for firms within these zones.

In this context, the study detailed in this chapter was aimed at conducting a comprehensive evaluation of the effectiveness of EPZs on poverty reduction as well as provide an analysis of these zones as a mechanism of trade facilitation through such processes as simplification of customs procedures, streamlined administration and socio-economic welfare in the immediate surroundings of these zones. The study also took into account the effect of EPZs on employment generation, education and specialized training among the poor in these areas.

# B. Literature review

## 1. Overview

Tantri and Kumar (2011) identified some specific means through which EPZs could promote trade facilitation levels in a country, primarily by reducing the time required for doing business and a reduction in associated transactions costs within EPZs.

Sri Lanka's first EPZ was established in 1978 at Katunayake as a part of the economic liberalization policy that was introduced following decades of protectionism. The setting up of EPZs was seen as a means of attracting FDI into the country. Sri Lankan zones provided modern infrastructure, a wide range of services and generous economic concessions to foreign investors. The zones were expected to absorb labour from the urban and suburban districts around the capital and in areas with high levels of unemployment.

The Board of Investment (BOI) is the apex EPZ authority and has its origins in the Greater Colombo Economic Commission. Following the establishment of the Katunayake zone, BOI became involved in a massive expansion in EPZ schemes and has established 12 economic zones in the country since 1978, including nine EPZs, two industrial parks, and one export processing park (Board of Investment of Sri Lanka, March 2012) (table 1).

**Table 1. Export processing zones in Sri Lanka, 2012**

| Location | Number of enterprises | Year established |
|---|---|---|
| Mirijjawila Industrial Park[a, b] | 3 | – |
| Katunayake Export Processing Zone | 86 | 1978 |
| Biyagama Export Processing Zone | 58 | 1985 |
| Koggala Export Processing Zone | 20 | 1991 |
| Kandy Industrial Park[b] | 21 | 1994 |
| Wathupitiwala Export Processing Zone | 17 | 1998 |
| Mirigama Export Processing Zone | 6 | 1998 |
| Malwatta Export Processing Park[b] | 4 | 1998 |
| Seethawake Export Processing Zone | 30 | 1999 |
| Horana Export Processing Zone | 12 | 1999 |
| Mawathagama Export Processing Zone | 7 | 2000 |
| Polgahawela Export Processing Zone | 5 | 2000 |
| **Total** | **269** | |

*Source:* Board of Investment of Sri Lanka, March 2012.

*Notes:* (a) Certain information for the Mirijjawila Industrial Park was not available; and (b) Industrial Parks and Export Processing Parks are similar to EPZs, but have lesser status in terms of government support (Hancock and others, 2011a).

A study by Abeywardene and others (1994) showed that EPZs in Sri Lanka had made a significant contribution to the expansion of the production of manufactured goods. Whereas in 1980 the zones accounted for only 8.8 per cent of total industrial exporters, by 1991 their share had risen to 44 per cent. By 2007, EPZs were contributing 38 per cent of the country's total exports in terms of value (Boyenge, 2007). The study also showed that employment generation had been significant, particularly in the Katunayake EPZ where the number of workers employed soared from 5,876 in 1979 to 53,289 by 1992. However, the findings also revealed poor working conditions in the EPZs and minimum protection against arbitrary dismissal. For example, wage disparities on the basis of gender, exposure to occupational health hazards, inadequate accident prevention measures and a lack of compensation for injured workers were identified as key issues.

Aggarwal (2005) conducted a comparative analysis of EPZs in Bangladesh, India and Sri Lanka. In terms of employment generation, she showed that while employment

growth was significant in the immediate aftermath of zone development in Sri Lanka, in the 1990s it slowed down from 62 per cent in 1983 to a mere 2.8 per cent in 2003. Employment generation was higher among females as revealed in a study undertaken by Sivananthiran (2008), who found female employment was more than double that of male employment in the Katunayake EPZ and accounted for 66 per cent of total EPZ employment.

A more recent overview of EPZs in Sri Lanka (Japan Development Institute, 2011) showed that 1,726 projects were in operation in the 12 zones, generating 85,243 employment opportunities. However, when indirect employment opportunities are considered, that number rises to 346,516.

Another study on EPZs in Sri Lanka (de Alwis, 1994) showed that there had been significant infrastructure development following the establishment of the Katunayake EPZ, which would in turn have an impact on both poverty reduction and trade facilitation efforts.[87]

Hancock and others (2011a) examined the role of Sri Lankan EPZs in helping women to obtain employment and turn their employment experiences into economic and social empowerment. A random sample of women who had worked one year or more in an EPZ were interviewed, both through a questionnaire and focus group interviews. An evaluation of job types revealed that 79 per cent of women were employed in low-to-medium level jobs such as machine operator, packer and cutter, while only 5.3 per cent were employed in management positions. On average, women were found to be working 45.73 hours per week before overtime, ranging from a minimum of 30 hours to a maximum of 88 hours. Accounting for overtime, the study found that women worked 55.35 hours per week, earning an additional Rs 2,125.77 per month. The analysis revealed that women had gained personal empowerment, mainly from being able to use their income to assist their families, and/or improve their homes and living standards. Most women spent their salaries on items such as jewellery, furniture and household goods as well as in assisting siblings in their education.

The analysis by Aggarwal (2005) showed that the share of FDI attracted by Sri Lankan EPZs had been substantial, and had remained at more than 80 per cent of total FDI during recent years. The share of Sri Lankan zones in manufactured exports increased from 8 per cent in 1979 to 35 per cent by 1990. However, growth rates of exports in zones have shown a decline from 86.8 per cent during 1978-1982 to 5.5 per cent in 2000-2003. Aggarwal attributed this decline to a slowdown in export growth in the two main zones in the country, and the inability of exports in new zones to compensate for this low growth.

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[87] Infrastructure has been developed in several key areas: (a) water supply – water treatment and storage facilities; (b) environmental protection – sewage and effluent collection system, and a central sewage treatment plant; (c) electricity – a grid substation to supply electricity to the zone industries; (d) post and telecommunication – telex and facsimile facilities to the zone industries, which are linked by satellite communication facilities; (e) transport facilities – a modern bus terminal; (f) security – security lightning, chain link fencing and intrusion detection systems; and (g) services – the administrative complex has been constructed to accommodate service organizations such as banks, customs, port, postal and medical services, cargo handling etc.

Similar to African zones, Sri Lanka's EPZs have historically been highly concentrated in the food processing, textile and clothing sectors that accounted for more than 90 per cent of total EPZ exports in the 1980s. However, an analysis of Sri Lankan EPZs by Sivananthiran (2008) showed that there had been a gradual decline in this concentration with the textile sector accounting for around 50 per cent, while the importance of chemicals, manufactured products and services had increased.

A recent paper (de Mel and others, 2011) which analysed in detail the export and import procedures in Sri Lanka yields some interesting findings. Interviews with companies both within EPZs and those outside suggested that some key differences existed in export/ import procedures for the two groups of firms. The ability of companies operating under BOI to submit customs declaration forms (CUSDECs), make the payments and examine the cargo within the EPZ, places them at an advantage, mainly in terms of lower time expenditure and obstacles. In particular, they can avoid long queues and the need to transport imports (if selected for examination) to yards outside the ports. The only additional cost, according to the study, appeared to be the US$ 3.3 that those companies had to pay as the BOI service charge, whereas companies outside EPZs have to pay only US$ 2.5.

The main focus of the literature on EPZs has been on their general macroeconomic effects in terms of employment generation and contribution to infrastructure development, export and FDI growth. In Sri Lanka, there has been particular focus on the administrative setup and procedures, quality of governance, working conditions and labour regulations within EPZs. However, there has been limited analysis of how EPZs facilitate trade by providing better governance through more efficient procedures and minimizing bureaucratic interference in customs-related procedures. Furthermore, poverty reduction impacts of EPZs have not been explored in Sri Lanka.

## C. Methodology and data

The study carries out both quantitative and qualitative analyses of experiences in selected EPZs with regard to the impacts of export processing zones on poverty reduction among employees and an evaluation of these zones as a mechanism of trade facilitation.

A survey was conducted among employees working at five companies operating within the Katunayake and Biyagama EPZs (the two largest EPZs in Sri Lanka) to gauge the impact that these zones had on the livelihoods of their workers (annex 1). These two EPZs are located within 50 km of Colombo. A total of 42 survey interviews were conducted among randomly selected workers employed in those companies from November 2012 to May 2013.

A second survey was conducted among employees working at four manufacturing firms not located within EPZs. These four firms are also located within 50 km of Colombo. This second survey was used as a control group with which to compare the survey findings gathered from employees working at EPZs. In this second survey, a total of 41 survey

interviews were conducted among randomly selected workers employed in manufacturing firms operating outside EPZs from April to May 2013, bringing the total survey size to 83 interviews.

To supplement these survey findings, in-depth interviews were conducted among managers and directors of manufacturing firms operating within the Katunayake, Biyagama, Horana and Seethawake EPZs (annex 2). The semi-structured questionnaires take into account the respondents' views on the effect of EPZs on employment generation, education and specialized training among the poor in those areas as well as the impact that EPZs have had on facilitating trade for these firms. A total of seven in-depth interviews were carried out in November 2012.

When analysing the survey findings, the authors employed the z-test to evaluate whether there was a statistically significant difference between proportions in the two groups. For example, the proportion of underweight workers in firms operating within EPZs was compared to the proportion of underweight workers in firms operating outside EPZs. The level of significance employed in this test was a 5 per cent level of significance unless otherwise specified. The details of the methodology are presented in annex 3.

Secondary data were obtained from BOI with regard to employment in EPZs across Sri Lanka. The data were obtained in September 2012 and were current as of March 2012. Data on firms operating within these zones, and the respective products and services they offered, were also obtained from BOI during the same period.

In order to further analyse the impact of EPZs on trade facilitation, the study drew upon recent research comparing firms operating within EPZs with those operating outside EPZs. This comparison is carried out in terms of processes such as simplification of customs procedures, streamlined administration, and time taken to process import and export goods.

# D. Results and discussion

## 1. Impact of EPZs on poverty reduction

Among the positive impacts that EPZs have on poverty reduction, employment generation is perceived as the most significant.[88] However, there are other benefits from these zones, such as health-care benefits for workers, indirect employment generation and training programmes. Each is discussed in turn in the following sections.

*(a)    Direct employment generation*

Among the most noticeable benefits arising out of EPZs is the generation of employment. Across the world, EPZs have contributed significantly to creating jobs. In

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[88]   Information received from interviews conducted with manufacturers operating within the Katunayake, Biyagama, Horana and Seethawake EPZs.

Mauritius, for example, an unemployment rate of 20 per cent in 1970 transformed into almost full employment in the 1990s, following the implementation of the country's EPZ programme (Madhavi and Vijayalakshmi, 2001). Another case is China, where the considerable size and scope of these zones has led to substantial employment opportunities. In Sri Lanka, EPZs have offered an increasing number of jobs in several zones across the country, rising from 5,876 in 1979 to 127,123 in 2012 (figure 1).

**Figure 1. Change in total employment in economic zones in Sri Lanka, 1979-2012**
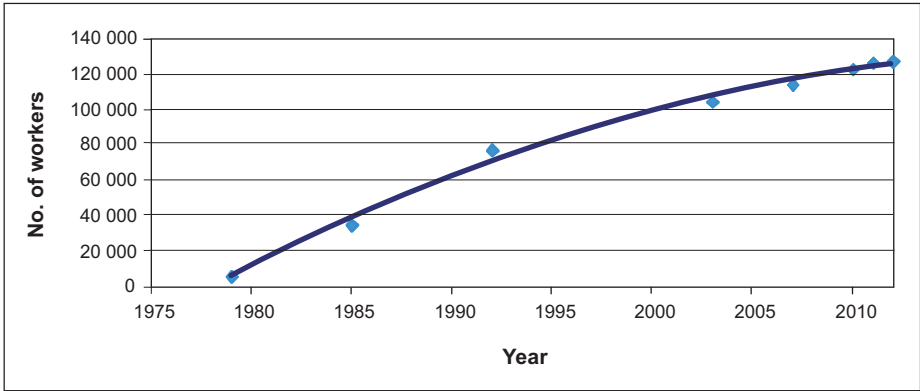


*Sources:* Data obtained from BOI in March 2012; Sivananthiran, 2008; Hancock and others, 2011a; and Abeywardene, 1994.

EPZs are particularly important for low-skilled workers in Sri Lanka. Approximately 83 per cent of all low-skilled workers in the manufacturing sector across the country are employed within EPZs (Department of Census and Statistics of Sri Lanka, 2012).[89] For this study, all workers surveyed from firms operating within EPZs were engaged in low-skilled occupations, such as machine operator cutters and storage handlers.[90]

As figure 2 shows, there is a high turnaround of employees working in these zones. Surveys conducted among employees working at the Katunayake and Biyagama EPZs revealed that 44 per cent of the workforce surveyed had been working at their respective firms for less than a year. When compared with employees working in manufacturing firms outside EPZs, the survey results revealed that only 15 per cent of the workforce had been working at their respective firms for less than one year. That difference is statistically significant,[91] with the proportion of workers that stayed for less than one year being significantly higher in EPZs compared with non-EPZs. Figure 2 gives an indication of the length of time for which the workers surveyed in both EPZs and non-EPZs had been working at their respective firms.

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[89] Data obtained from BOI, March 2012.

[90] Surveys conducted by the authors at the Katunayake and Biyagama EPZs, November 2012 – May 2013.

[91] Level of significance is 5 per cent.

**Figure 2. Duration of employment among workers (EPZs vs. non-EPZs)**
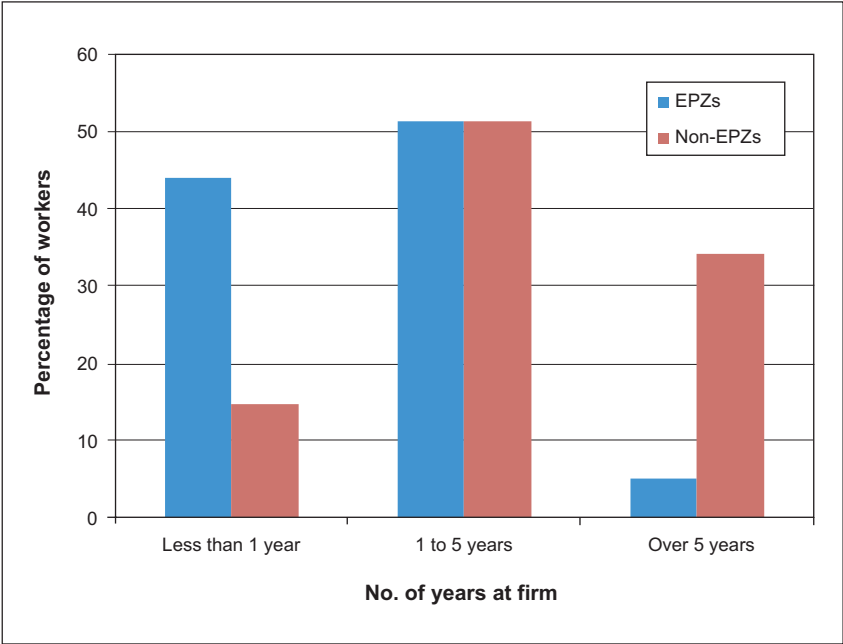
This high turnaround of workers in EPZs may be an indication of the state of working conditions within the firms. Discussions with employees during survey interviews indicated that many were not fully satisfied and did not intend to stay long. Some complaints included the high cost of living, particularly with regard to expenditure on food, transport and lodging. Many others stated that overtime was in many cases the norm and complained of hectic work-schedules with seldom breaks.

On the other hand, workers employed in firms outside EPZs appeared to be more satisfied with their work conditions. Many noted the free meals provided on a daily basis, together with free lodging and transport facilities offered by their respective companies. Other benefits included an annual bonus, free health facilities on-site and training programmes, including English classes and computer classes.

Interviews conducted among manufacturers that operate within several EPZs in the country confirmed that scarcity of labour is one of their biggest problems.[92] To help solve this problem, firms have been sourcing employees from beyond the immediate vicinity of the zones, particularly from rural areas. This may indicate that EPZs play an important role

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[92] Interviews conducted with manufacturers operating within the Katunayake, Biyagama, Horana and Seethawake EPZs.

in providing employment to the rural poor, many of whom do not have many employment opportunities in their respective hometowns.[93]

In fact, many of the surveyed employees in EPZs are not highly educated and are engaged in low-skilled occupations. The majority of workers (61 per cent) have completed only up to Grade 11 (inclusive) while only 5 per cent are GCE Advance Level qualified (figure 3). While these levels of education may seem quite commendable according to certain standards, this has to be viewed in the overall context of relatively high levels of education in the country.[94] When looking at workers employed at manufacturing firms operating outside EPZs, survey results showed that levels of education were very similar, with a majority of workers (60 per cent) having completed up to Grade 11 (inclusive) and 8 per cent being GCE Advance Level qualified.

**Figure 3. Levels of educational attainment among workers (EPZs vs. non-EPZs)**
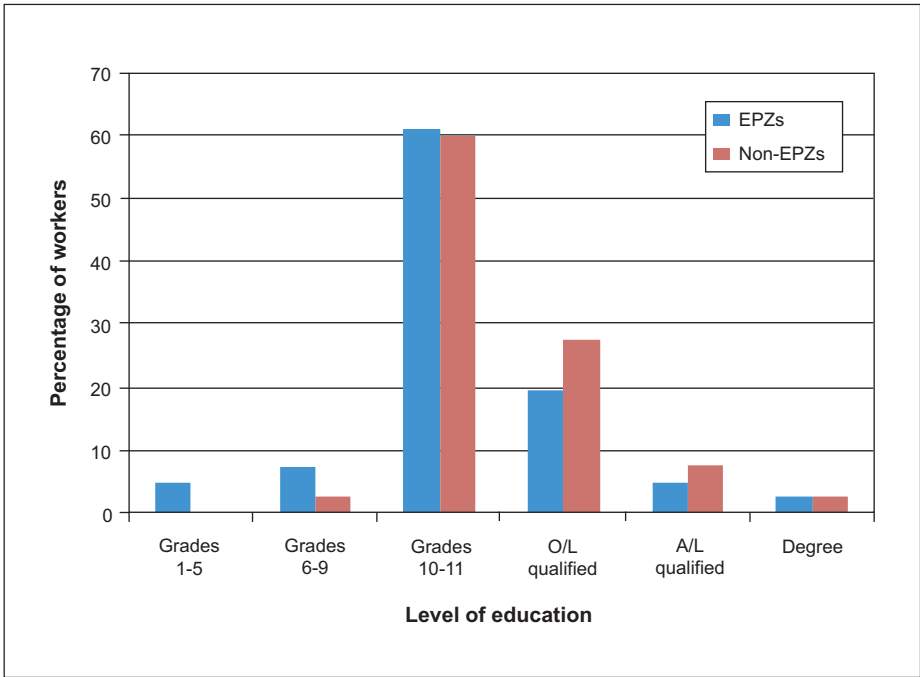


*Source:* Surveys conducted among employees at firms inside and outside EPZs during November 2012 – May 2013.

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[93]   Ibid.

[94]   Education in Sri Lanka has a long history which dates back two millennia and has always been a priority among the country's economic and social development efforts. Sri Lanka's population has a literacy rate of 92 per cent – higher than that expected for a developing country – and has the highest literacy rate in South Asia and, overall, one of the highest literacy rates in Asia.

Furthermore, many employees are low-skilled, with all of the surveyed employees in EPZs engaging in low-skilled occupations. More than half (58 per cent) of all employees surveyed were employed as machine operators, while the remaining workers were employed as labourers (26 per cent), storage handlers (10 per cent), sorters (3 per cent) and quality controllers (3 per cent) (figure 4). Given that unskilled workers with low levels of education are generally more likely to be poor, these findings reinforce the important role played by EPZs in providing employment opportunities for those engulfed in poverty.

**Figure 4. Occupation categories of EPZ workers**
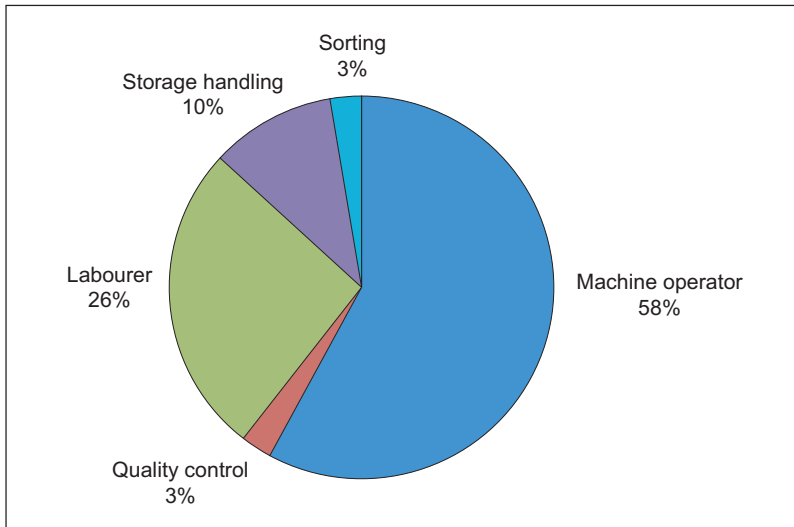


*Source:*    Surveys conducted among employees at firms inside EPZs during November 2012 – May 2013.

Similarly, surveys conducted among workers employed at manufacturing firms operating outside EPZs revealed that the majority of workers were engaged in low-skilled occupations. The most common occupation was machine operator, at 39 per cent, while 17 per cent were employed as warehouse operators (figure 5). However, there was a wider variety of occupations among those surveyed, including supervisors, managers, canteen staff and others.

Another advantage of EPZs is the employment opportunities available to women. One key feature of EPZs across Sri Lanka is the high proportion of female workers. Overall, across the economic zones in Sri Lanka, 60 per cent of all workers are female. This stands in stark contrast to Sri Lanka's entire workforce, of whom only 33 per cent are female (Department of Census and Statistics of Sri Lanka, 2012). Of the 12 economic zones in the country, 10 have a higher proportion of females than males. In many of these zones, there is a substantially higher share of women workers. For example, in the Koggala EPZ, which employs more than 11,500 workers, 74 per cent of the workforce comprises females, while

**Figure 5. Occupation categories of non-EPZ workers**



Canteen helper 8%
Chef 2%
Mechanic 2%
Manager 10%
Supervisor 12%
Machine operator 39%
Warehouse operator 17%
Receptionist 3%
Quality control 7%
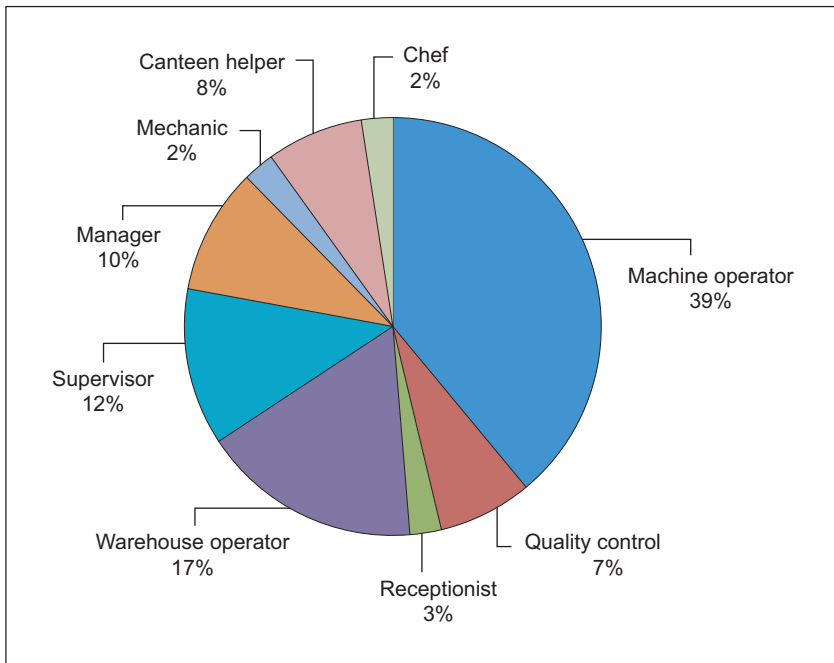
*Source:*    Surveys conducted among employees at firms outside EPZs during April-May 2013.

in the Wathupitiwala EPZ and Kandy IP, which employ roughly 8,200 and 6,900 workers, respectively, the proportion of female workers in both zones is 73 per cent. The Mirijjawila IP, which totals more than 1,400 workers, features a workforce that is 91 per cent female.

Unlike the Katunayake EPZ, which houses a substantial portion of companies that manufacture textiles and garments, the share of companies engaged in this industry in the Biyagama EPZ is only 20 per cent. This may explain the lower proportion of female workers in the Biyagama EPZ.

Some employers believe that female workers possess certain gender-specific traits that make them more suitable for the kind of work demanded in certain industries.[95] Dexterity and patience are two attributes that are needed for the delicate yet repetitive work that often takes place on the production line of certain firms, particularly those that manufacture clothing (Madhavi and Vijayalakshmi, 2001). One of Sri Lanka's key exports is garments, which may explain the high demand for female workers whose careful attention to detail is believed to enable steady production. Table 2 shows the proportions of male vs. female workers for all economic zones in Sri Lanka.

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[95]    Interviews conducted with manufacturers operating within the Katunayake, Biyagama, Horana and Seethawake EPZs.

**Table 2. Proportion of male vs. female workers in EPZs in Sri Lanka, 2012**

<div align="right">(Unit: Per cent)</div>

| Location | Male | Female | Total No. of employees |
|---|---|---|---|
| Katunayake EPZ | 41 | 59 | 42 329 |
| Biyagama EPZ | 55 | 45 | 21 092 |
| Seethawake EPZ | 46 | 54 | 20 050 |
| Koggala EPZ | 26 | 74 | 11 698 |
| Wathupitiwala EPZ | 27 | 73 | 8 232 |
| Kandy IP | 27 | 73 | 6 881 |
| Mawathagama EPZ | 24 | 76 | 4 985 |
| Polgahawela EPZ | 23 | 77 | 3 427 |
| Malwatta EPP | 30 | 70 | 2 887 |
| Mirigama EPZ | 34 | 66 | 2 528 |
| Horana EPZ | 94 | 6 | 1 602 |
| Mirijjawila IP | 9 | 91 | 1 412 |
| Total | 40 | 60 | 127 123 |

*Source:*   Board of Investment of Sri Lanka, 2012.

Many of the workers surveyed were quite young, with 40 per cent of respondents in EPZs  aged 18-20 years. Figure 6 shows the age distribution among the surveyed EPZ workers.

**Figure 6. Age distribution among workers in EPZs**
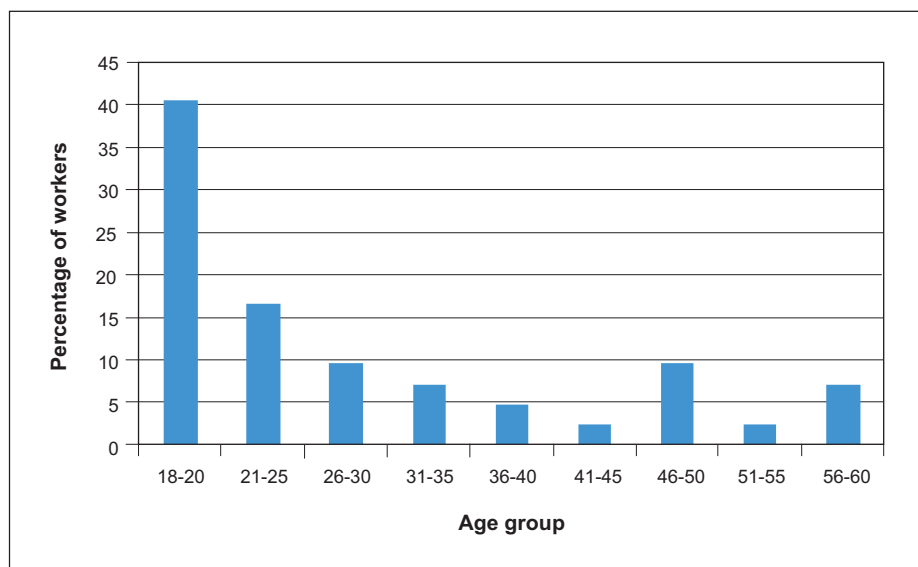


*Source:*   Surveys conducted among employees at firms inside EPZs during November 2012 – May 2013.

When workers employed in manufacturing firms operating outside EPZs were surveyed, results showed a rather different scenario (figure 7). Respondents tended to be slightly older, with only 15 per cent of employees aged 18-20 years. The difference in age between workers in the two samples is statistically significant, with the proportion of workers in the 18 to 20 year age group being significantly higher in EPZs compared to non-EPZs.[96] However, the mean (average) age of workers in EPZs is not statistically different from that of workers in non-EPZs. Figure 7 shows the age distribution among non-EPZ workers surveyed.

**Figure 7. Age distribution among workers in non-EPZs**
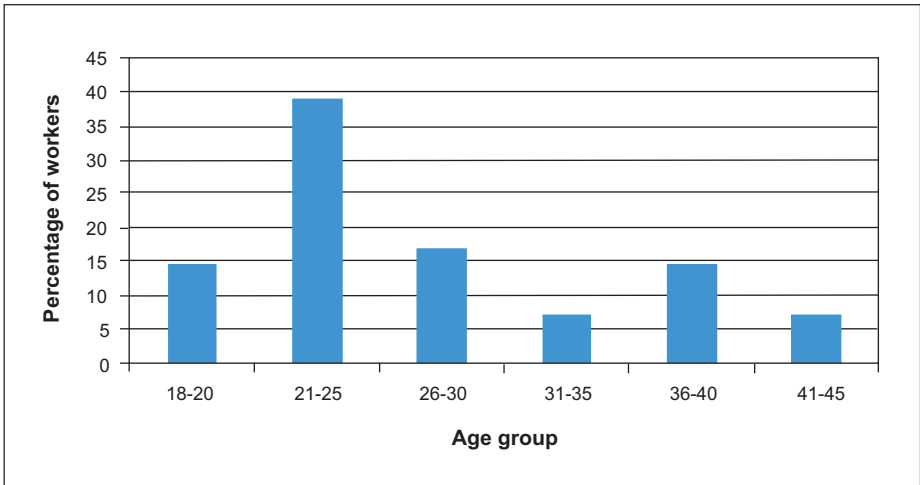


*Source:* Surveys conducted among employees at firms inside EPZs during November 2012 – May 2013.

*(b)* *Wages*

In 1988, the International Labour Organization conducted an EPZ study of South Asia that compared wage rates inside and outside EPZs (Madhavi and Vijayalakshmi, 2001). The study found that wage rates were higher among workers employed within EPZs compared with those that were employed in factories outside.

This finding corresponded with what was said by many manufacturers operating inside EPZs in Sri Lanka. In fact, the interviews with managers and directors of companies operating within the Katunayake, Biyagama, Horana and Seethawake EPZs revealed that the average wage paid to workers employed within their respective companies were higher than their counterparts outside the zones. The mean wage quoted by the managers and directors ranged between SL Rs 12,000 and SL Rs 14,000 per month.

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[96]    Level of significance is 5 per cent.

Surveys conducted among employees working in firms operating within the Katunayake and Biyagama EPZs confirmed these estimates. According to the employees, the mean wage among low-skilled workers across five different companies was calculated to be SL Rs 13,726 per month.

Nonetheless, this value is not substantially different from the mean monthly wage of employees working in factories across the entire manufacturing sector in Sri Lanka. According to the Department of Census and Statistics, the mean wage of workers in the manufacturing sector is SL Rs 13,099 per month, approximately a 5 per cent difference.

The survey findings painted a similar picture. The mean wage of low-skilled workers across four different companies operating outside EPZs was calculated to be SL Rs 15,006 per month. Furthermore, the difference between these two samples was found to be statistically insignificant.[97] Figure 8 shows the distribution of wages among workers in EPZs and non-EPZs.

**Figure 8. Monthly salary range among workers (EPZs vs. non-EPZs)**
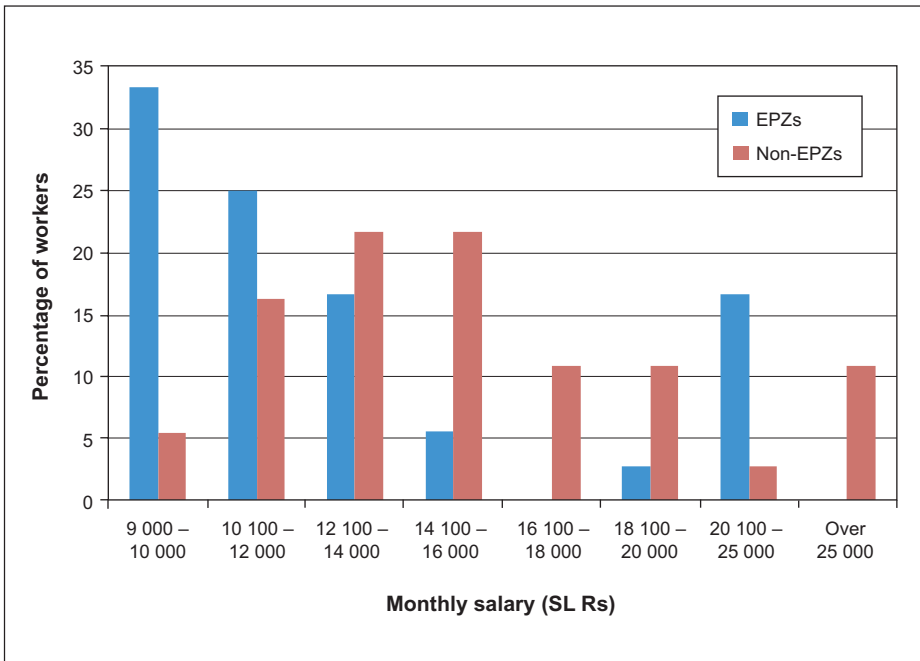


*Source:* Surveys conducted among employees during November 2012 – May 2013.

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[97] Level of significance is 5 per cent.

*(c)    Health-care benefits and other services*

Workers may also receive certain benefits. According to surveys conducted among manufacturers in several EPZs in Sri Lanka, some employees are eligible for health insurance and life insurance, but this is primarily for workers above a certain level of seniority.[98] Some companies offer their employees an annual bonus,[99] while some production facilities feature free on-site medical facilities.[100] For employees at the managerial level, health-care benefits may also be provided for their dependents and/or family members.[101] At those firms not offering health-care benefits to all employees, Workman's Compensation is provided, wherein payment is made to an employee as compensation for an injury sustained during their employment at their workplace.

The surveys that were conducted among low-level, unskilled employees revealed that only the bare minimum of benefits were provided to these workers. When asked whether they received any benefits apart from wages, they reported the provision only of Employees' Provident Fund (EPF) and Employees' Trust Fund (ETF) benefits. The former is a social security scheme and the latter is a trust fund (to which only the employer makes a contribution); both are required by the Government of Sri Lanka for all private sector employees. It should be noted that all employees surveyed reported receiving EPF and ETF benefits.

*(d)    Indirect employment generation*

Among the most common types of economic benefits derived from establishing an EPZ is the generation of indirect employment. This was noted by almost all the interviewed respondents, who reported that EPZs offer the advantage of creating economic opportunities in the areas surrounding the zone.[102]

Hostels, restaurants, and other business ventures have arisen around EPZs in order to cater to the employees that work in these zones. Many of these workers originally come from towns and villages that are located far away from the zone in which they work. These services are provided by entrepreneurs who start up businesses around the zones, contributing to what is termed tertiary employment.[103]

Secondary employment is generated through services that are offered directly to the companies operating within these zones. These services are provided by firms such as freight forwarders and logistics providers, which offer transportation, delivery and

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[98]    Interviews with MAS Intimates (Pvt.) Ltd. and Orit Apparels Lanka (Pvt.) Ltd.

[99]    Interview with GreenKeepers (Pte.) Ltd.

[100]   Interview with Tropical Findings (Pvt.) Ltd.

[101]   Interview with Merbok MDF Lanka (Pvt.) Ltd. and Interview with Ocean Lanka (Pvt.) Ltd.

[102]   Interviews with manufacturers operating within the Katunayake, Biyagama, Horana and Seethawaka EPZs.

[103]   Interview with Tropical Findings (Pvt.) Ltd.

shipping services to the manufacturers as well as recruitment agencies that supply the manufacturing firms with human capital.[104]

*(e)    Training programmes*

One perceived benefit of EPZs, apart from employment generation, is the use of training programmes to improve the skills of employees. Among the respondents interviewed during the survey conducted with manufacturers at EPZs,[105] most reported some type of training programme offered to their workers. However, this was mostly limited to on-the-job training to enable employees to operate the machinery used in production lines and on factory floors, conducted prior to beginning any work. In most cases, this training lasted 2-6 weeks, depending on the company and the type of work to be conducted. Most of these training programmes are directly related to their respective occupations and are thus essential for the employees. Specific programmes outside their direct working areas – such as English language classes or management training – were seldom reported by employees.

On the other hand, some firms operating outside EPZs offered their employees classes in English and computer training, particularly the larger firms that could afford to do so. Some employees working in firms outside EPZs also reported being sponsored by their respective companies to enlist in university courses and complete external degrees. Others mentioned skills development programmes being offered every three months.

*(f)    Labour standards*

Despite the high turnover within EPZs, BOI has set out strict labour standards for firms operating within EPZs. Workers are categorized into four groups:[106]

(a)    Trainees – those undergoing training for a period of not less than six months/ 156 working days are classified as trainees;

(b)    Unskilled – work that does not involve any training is classified as un-skilled;

(c)    Semi-skilled – on successful completion of a training period of six months, a worker is classified as semi-skilled;

(d)    Skilled – a worker with the requisite skills for the job is classified as a skilled worker.

The minimum age of employment is 18 years and the normal age of retirement is 55 years. However, both of these conditions have caveats. Individuals under the age of 18 but who are at least 16 years of age are permitted to be employed on condition that they do

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[104]   Interview with Tropical Findings (Pvt.) Ltd.

[105]   Interviews conducted with manufacturers operating within the Katunayake EPZ, Biyagama EPZ, Horana EPZ, and Seethawake EPZ.

[106]   *Labour Standards*, undated, Board of Investment of Sri Lanka, accessed 1 October 2012. Available at [http://www.investsrilanka.com/pdf/labour_sandards.pdf].

not work for more than 50 hours of overtime in any given month, and that they cannot be employed between 10 p.m. and 6 a.m. With regard to the age of retirement, an extension beyond 55 years of age may be granted at the discretion of the management of the firm. Table 3 gives a brief overview of other labour standards for BOI enterprises.

**Table 3. Legal provisions for workers in BOI enterprises**

**Working hours**
- Nine hours daily (Mon-Fri) inclusive of a one-hour break (one-shift operation) and eight hours daily (Mon-Fri) inclusive of a 30-minute break (multi-shift operation);
- Employees working on Sundays will be paid 1.5 times their daily wage rate;
- No restrictions on night-time work for men;
- Women are permitted to work in a night shift, given that certain conditions are met, including: written consent from the employee; 1.5 times the daily wage must be paid; a maximum of 10 days night-work in a given month; and the compulsory presence of female during the shift.

**Wages**
- Wages must be paid in accordance with rates determined by BOI;
- All wages must be paid on a monthly basis – wages cannot be paid on a daily rate, piece rate or on a contract basis;
- Wages must be paid within 10 days of expiration of the wage period;
- Upon termination of services, an employee's salary must be paid within two working days of termination.

**Overtime pay**
- Every hour of overtime work shall be remunerated with 1.5 times the normal hourly rate of that employee;
- Female workers shall not be employed on overtime work in excess of 60 hours per month;
- Employees below 18 years of age shall not be employed on overtime work in excess of 50 hours per month.

**Leave**
- Workers in their first year of employment will be granted leave on a pro-rata basis;
- Workers employed for more than a year will be granted 14 days of paid leave per year;
- Office employees will be granted one day of casual leave for every two months' of service during their first year and seven days of annual casual leave henceforth;
- Seven days of casual paid leave.

**Maternity leave**
- A female employee will be granted 6-12 weeks of paid leave after delivery (depending on the number of children she already has);
- This paid leave will be in addition to any other leave granted to her;

Table 3. *(continued)*

**Holidays**

- Employees working on public holidays will be paid two times their daily wage rate; those not working on those days will be paid regular wages;

- Full moon *Poya* days are considered as holidays; employees working on such days will receive an extra half day's wage.

*Source:* *Labour Standards*, undated, BOI. Available at www.investsrilanka.com/pdf/labour_ sandards.pdf (accessed 1 October 2012).

*(f)* *Measurements of health among workers*

Several questions were asked during the surveys regarding workers' levels of health. One set of questions was related to nutrition levels. Height and weight were used to calculate the Body Mass Index (BMI) of the workers, and this figure was subsequently used to determine whether an individual was underweight or not.[107] Figure 9 shows the distribution of BMI among workers in both samples. A total of 36 per cent of workers

**Figure 9. Distribution of BMI among workers (EPZs vs. non-EPZs)**
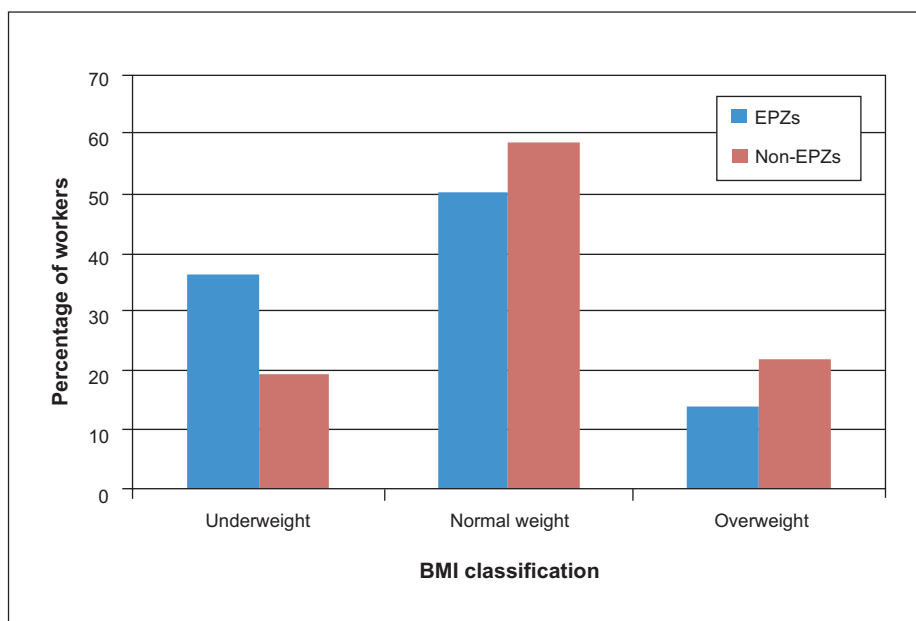


*Source:* Surveys conducted among employees at firms in EPZs during November 2012 – May 2013.

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[107] BMI categorization was conducted using the following website: National Heart, Lung, and Blood Institute, US Department of Health and Human Services, *Calculate Your Body Mass Index*, available at www.nhlbi. nih.gov/guidelines/obeity/BMI/bmicalc.htm.

surveyed in EPZs were underweight. This is higher than the figure for the overall situation in the country, in which 29.4 per cent of the population is considered underweight (World Bank, 2008).

A more substantial difference emerges when examining the survey results of workers employed in firms operating within EPZs and those in firms operating outside. It was found that the proportion of underweight workers in EPZs were significantly higher statistically (17 per cent difference) than those in non-EPZs.[108]

The Dabindu Collective, a non-governmental organization that documents work conditions among employees of the Katunayake and Biyagama EPZs, carried out similar research in 1997. In their survey, the authors found that 55 per cent of workers were underweight. In both research studies, a significant portion of workers were reported to be below the recommended weight.

The idea that some workers were undernourished was supported by research conducted by the Dabindu Collective research reported that 40 per cent of workers did not consume eggs, fish or meat because it may have been prohibitively expensive; most employees were vegetarians because they had no other choice (Devanarayana, 1997). The Dabindu Collective's findings are shown in figure 10.

**Figure 10. Protein intake among workers in EPZs, 1997**
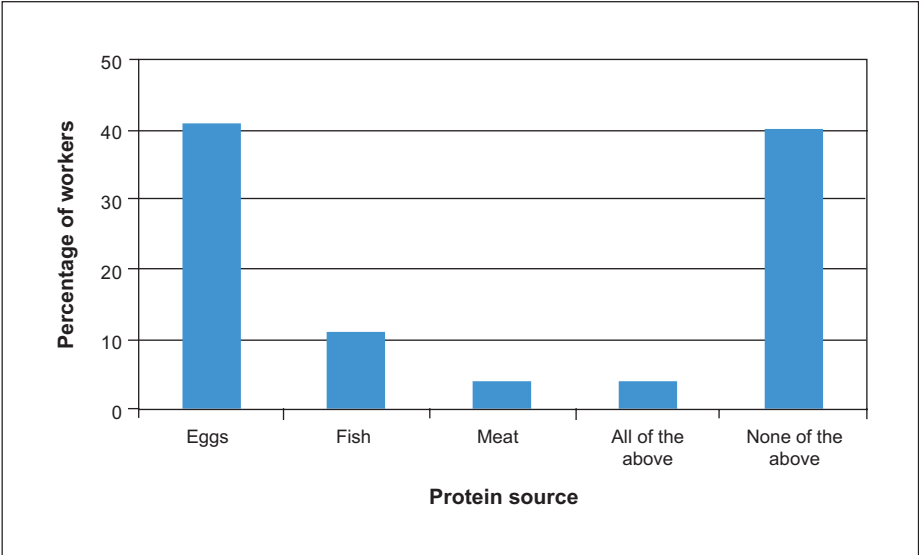


*Source:*    Devanarayana, 1997.
*Note:*    Sample size not reported.

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[108]    Level of significance is 5 per cent.

However, these findings are not supported by the primary research undertaken for the current study. In the surveys carried out for this study, a rather different scenario emerged with regard to the intake of protein. Fifty per cent of individuals surveyed in EPZs reported that they consumed all of the following: eggs, fish, meat, and soya meat.[109] Furthermore, all of the respondents reported they consumed at least one of the items. Keeping in mind that 16 years have elapsed since the Dabindu Collective report was published, it may be that animal-derived protein (such as eggs, fish, and meat) has become more affordable and more accessible over time. Reasons for greater affordability and accessibility would need to be examined in-depth through further research; however, this was not within the scope of this study. Figure 11 shows the more recent findings of protein intake among workers.

**Figure 11. Protein intake among workers (EPZs vs. non-EPZs), 2012**
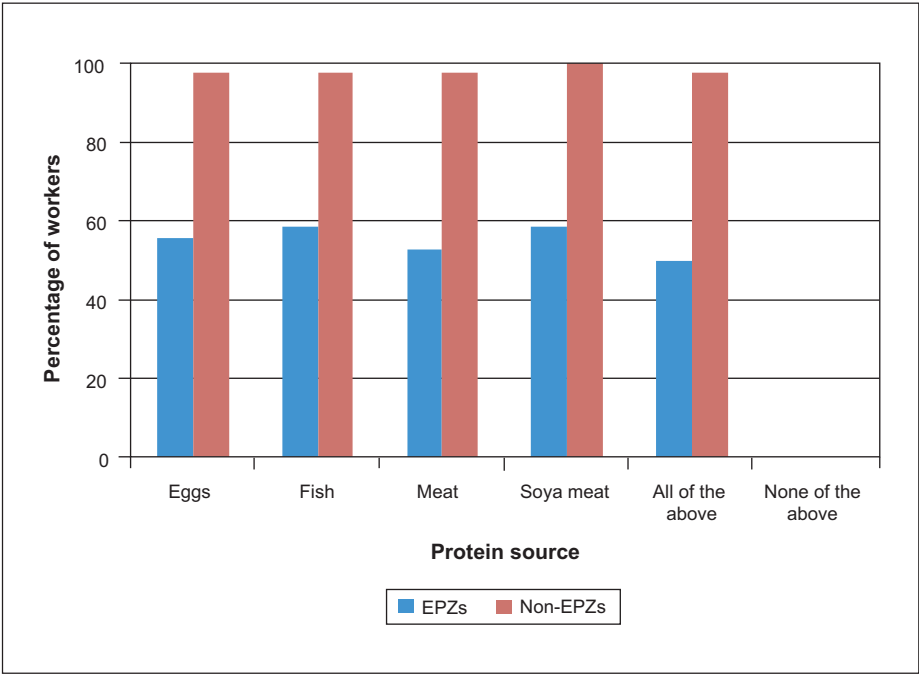
Nonetheless, when comparing the survey findings of employees working in EPZs to those working outside EPZs there is a stark contrast, as shown in figure 11. The incidence of protein intake for workers surveyed in firms operating outside EPZs was much higher than that for workers employed in EPZs. Between 98 per cent and 100 per cent of workers employed outside EPZs consumed eggs, fish, meat and soya meat, while less

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[109]   A form of textured soy protein common in Sri Lanka.

than 60 per cent of workers surveyed within EPZs consumed any of the aforementioned food items. The differences between the two samples are statistically significant for each of the food items[110] and may explain the dissimilarity with regard to the proportion of underweight workers within the two groups.

*(g)    Benefits and drawbacks of working in EPZs*

The current survey presents a mixture of apparent benefits and possible drawbacks of working in an EPZ as perceived by the employees. A common benefit reported by many employees was the availability of employment opportunities offered by firms in EPZs, which in turn leads to other positive outcomes such as the ability to increase spending on health and education for their entire family. The securing of a permanent job as well as receiving EPF and ETF were also identified as positive factors.

Some respondents mentioned certain disadvantages of being employed in an EPZ, including the high cost of living in areas surrounding Colombo, particularly with regard to food, transport, lodging, and high electricity and utility costs. The need to be away from home and family was identified as another drawback.

Overall, the impact of EPZs on poverty reduction remains somewhat unclear. On the one hand, it can be argued that significant employment generation, particularly for low-skilled workers and female workers, offered by EPZs has played a role in alleviating poverty for those employed in the zones. However, when comparing the duration of employment, health conditions and dietary patterns for workers employed in manufacturing firms outside EPZs, there were some significant findings indicating more favourable conditions existed outside these zones. It thus appears that despite the EPZs' impressive generation of employment opportunities, the impact has not been adequate in going beyond employment generation and addressing other issues related to poverty, including health and welfare.

## 2. Impact of EPZs on trade facilitation

Based on interviews conducted with export-oriented firms in EPZs and supplemented by previously conducted, but recent, research, the zones were found to have made an important contribution to trade facilitation. There are five key ways in which EPZs have made this impact: (a) through tax incentives and duty removals; (b) creating backward and forward linkages within the EPZs; (c) simplification of customs procedures, both for imports and for exports, by requiring fewer documents and fewer steps in the stages of processing; (d) shortening the time taken in activities related to importing and exporting by sea; and (e) shortening the time taken in activities related to importing and exporting by air.

Before moving on to the findings, however, it is important to provide some background on BOI, as it is the institution that most closely deals with the administration of EPZs in Sri Lanka.

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[110]    Level of significance is 1 per cent.

The most important and most relevant law applicable to foreign investment in the country is the Greater Colombo Economic Commission (GCEC) Law No. 4 of 1978 and Amendments introduced in 1980, 1983 and 1992 and Regulations made under the Act (Peiris and Ranaraja, 2001). The GCEC was established in 1978 in order to generate development in the outer edge of Colombo and to promote and regulate the country's first EPZ. In 1992, GCEC was transformed into BOI and given the authority to promote investment throughout the country. It offers a wide range of investment incentives and offers the same incentives to both local and foreign investors (Peiris and Ranaraja, 2001). BOI is tasked with acting as the central facilitation point for investors, both domestic and foreign. Table 4 shows the key functions of the organization.

**Table 4. Key functions of BOI**

| Department | Function |
|---|---|
| Promotion | • Is the point of first contact for investors<br>• Provides information and data to the potential investor<br>• Assists in preparation of application |
| Appraisal | • Evaluation and approval of projects with the concurrence of line Ministries, if necessary<br>• Issues Letter of Approval<br>• Attends to visas for expatriate personnel and other fiscal and financial matters that arise once the project is operational |
| Investor Services | • Assists the investor in handling all procedures involved in the import of construction material and equipment and in the installation of communication facilities<br>• Continued assistance is rendered in customs procedures for raw material imports and export of the final product |
| Engineering | • Grants site approvals<br>• Provides basic infrastructure requirements of EPZs under BOI<br>• Facilitates the provision of support services including water, power, telecommunication, waste water treatment, access roads, etc.<br>• Approves factory building plans<br>• Monitors progress during the construction phase<br>• Issues Certificate of Conformity (COC)<br>• Makes recommendations on equipment and building materials to be imported by BOI enterprises on duty-free basis<br>• Advises investors on industrial safety aspects during the operational phase |
| Environment | • Conducts environment assessment of projects<br>• Assessing suitability of sites jointly with the engineering department |

Table 4. *(continued)*

| Department | Function |
|---|---|
| | • Provides guidance and assistance in implementing environmental safeguards |
| | • Issues Environmental Protection Licence (EPL) |
| | • Liaises with Central Environment Agency where necessary |
| Project Implementation | • Responsible for coordinating infrastructure requirements of BOI |
| | • Approves projects outside zones |
| | • Acts as troubleshooting centre to companies receiving approval |
| | • Positions investors with other government departments when necessary |
| | • Maintains a land bank which investors can access |
| Monitoring | • Ensures implementation of projects is in conformity with terms and conditions stipulated in the Agreement |
| | • Issues reporting guidelines to enterprises, and requests them to submit quarterly and annual financial statements and employment statistics |
| Industrial Relations | • Advises and assists investors on matters relating to labour relations and assists in the recruitment of staff at all levels if requested |
| Legal | • Responsible for checking memorandum and articles of the company and joint venture |
| | • Drafts the agreements – main and supplementary |
| | • Advises investors on general legal issues |

*Source:*    Peiris and Ranaraja, 2001.

## (b)    Incentives for firms operating under BOI

The two provisions under which investors can obtain BOI-approved status, together with certain benefits, are (Peiris and Ranaraja, 2001):

### (i)    Investments approved under Section 17 of the BOI Act

BOI holds the power to grant special concessions to investors meeting specific requirements designed to meet strategic economic objectives. The agreement between BOI and the investor is the mechanism through which the laws associated with BOI regulations may be modified, exempted or waived, and include laws related to Inland Revenue, Customs, exchange control and import control. In addition, those firms that fulfill specific criteria are eligible for even more incentives that would help promote BOI strategy, with regard to a diversification of exports towards more advanced technology and greater value addition as well as more investments in large-scale projects including infrastructure.

*(ii)    Investments approved under Section 16 of the BOI Act*

Those companies that do not qualify for concessions under Section 17 of the BOI Act may seek general incentives under Section 16 of the Act, which applies to firms operating under the "normal laws" of the country. These laws include those that are related to the Inland Revenue Act, Turnover Tax Act, Excise (Special Provisions) Act and the Customs Ordinance.

A key incentive for foreign investors is that there are no restrictions on the repatriation of income. The Government of Sri Lanka has removed restrictions on foreign exchange to enable foreign investors to send dividends and royalty payments back to their home country. Foreign investors are also permitted to open both Sri Lankan rupee accounts and foreign currency accounts with commercial banks in the country.

Foreign investors are also permitted to fully own and operate firms in certain industries. These include exports, tourism, infrastructure, services, electronics, agriculture, dairy and livestock development. However, certain sectors remain restricted to only Sri Lankan nationals, including money lending, pawn-broking, and selected types of educational institutions. Nonetheless, for certain other industries, such as banking, insurance, energy, and power supply, foreign investors may engage in joint-venture partnerships with Sri Lankan firms.

The incentives that BOI offers investors can be classified into two key categories, namely, general incentives for specific categories of industry and services, and special incentives for firms which satisfy certain criteria. Incentives for both categories are listed below (Peiris and Ranaraja, 2001).

(a)    General incentives for specific categories of industry and services:

   (i)    Incentives for industries and services using advanced technology that include a five year tax holiday on profits; tax-free dividends if paid out of exempt profits; and no import duty or turnover tax on machinery and equipment;

   (ii)   Incentives for direct and indirect exporters, which essentially include tax exemption or payment of concessional tax at 15 per cent: companies that operate and maintain facilities for the storage of specified goods brought into the island for re-export; offshore companies that earn profits and income through the use of Sri Lankan registered ships in international operations; firms in agriculture and fisheries sectors are entitled to a five year tax holiday; and companies that export gems and jewellery

(b)    Special incentives for firms that satisfy certain eligibility criteria (aimed at diversifying exports by adopting modern technology and increasing value-addition as well as more investments in large-scale projects including infrastructure):

(i)      A 5-20 year full tax holiday;

(ii)     Concessionary tax (at 15 per cent);

(iii)    Import duty exemption on project-related goods;

(iv)    Exemption from turnover tax on sales;

(v)     Exchange control exemption;

(vi)    Concessionary tax on income for expatriates (at 15 per cent).

*(c)     Backward and forward linkages within EPZs*

A survey of export- and import-oriented firms confirmed that there were certain benefits offered by operating within EPZs.[111] However, these benefits are not uniform throughout all EPZs surveyed, and often depend on the size of the zone. The Biyagama EPZ, for example, reportedly offers significant backward and forward linkages, particularly in the garment manufacturing industry. The Biyagama EPZ is the second-largest EPZ in Sri Lanka and houses a firm that manufactures machinery for clothing, a firm that processes nylon and polyester thread and a plant that manufactures labels for garments. In terms of forward linkages, there is as a plant specializing in the processing of chemicals used for denim washing, a firm that provides packaging materials, and even a company that specializes in collecting and processing waste material to be recycled. Table 5 gives a more detailed list of the backward and forward linkages available to garment manufacturers in the Biyagama EPZ.

**Table 5. Backward and forward linkages in Biyagama EPZ**
**(garment manufacturing industry)**

| Company | Product/services offered |
| --- | --- |
| Ardmel Manufacturing Pvt. Ltd. | Machinery for garment manufacturing |
| Han Sung Koala Thread Pvt. Ltd. | Nylon and polyester thread |
| Stretchline Pvt. Ltd. | Knitted and woven elastic and covered yarn |
| Noyon Lanka Pvt. Ltd. | Lace fabric and covered yarn |
| Prym Intimates Lanka Pvt. Ltd. | Hooks and eyes, shoulder straps, underwires |
| Silueta Pvt. Ltd. | Molded bra cups and lace fabric |
| T&S Buttons Lanka Pvt. Ltd. | Polyester buttons |
| Ocean Lanka Pvt. Ltd. | Knitted fabrics |
| Avery Dennison Lanka Pvt. Ltd. | Labels for clothing |
| MAS Active Pvt. Ltd. | Knitted bodywear and sportswear |
| MAS Intimates Pvt. Ltd. | Intimate wear and lingerie |
| Rainwear Pvt. Ltd. | Outer garments and leisure wear |

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[111]   Interviews conducted with manufacturers operating within the Katunayake, Biyagama, Horana and Seethawake EPZs.

Table 5. *(continued)*

| Company | Product/services offered |
|---|---|
| Global Clothing Pvt. Ltd. | Garments |
| Saga Intimates Pvt. Ltd. | Ready-made garments |
| Multichemi Exports Pvt. Ltd. | Chemicals used for washing/dyeing denim |
| Dynawash Ltd. | Garment washing plant |
| Cosmos Packaging Pvt. Ltd. | Packaging materials |
| GreenKeepers Pte. Ltd. | Collecting and processing of waste material to be recycled |

*Sources:* Board of Investment of Sri Lanka, 2012; and interviews conducted among manufacturers in the Biyagama EPZ.

*(d)     Simplification of customs procedures*

Interview respondents also stated that operating within EPZs simplified customs procedures by requiring fewer steps and fewer documents when processing consignments. For example, one respondent representing a manufacturing firm in the Katunayake EPZ stated that customs inspection was simplified because delegated government officials visit the zone to conduct such inspections.

However, for smaller EPZs, it is not necessarily the case that customs procedures have been simplified. According to one respondent, the Horana EPZ does not have all the necessary facilities for processing customs documents and, therefore, it is necessary for company representatives to travel to Colombo to process these documents. The respondent added that the reason is that the zone is not as developed as larger zones, such as the Katunayake and Biyagama EPZs, and does not offer the same conveniences.

However, as tables 6 and 7 show, the number of processes required in BOI-supported firms (such as those in EPZs) versus those outside BOI supported zones differ. For example, for BOI enterprises, certain procedures are not required for importing goods, such as obtaining an import licence, and transporting cargo to the importer's location is possible before customs inspection; in contrast, transporting cargo outside to firms operating outside EPZs is only possible after inspection has been carried out.

Furthermore, the number of documents required for customs procedures within EPZs is less noticeable than outside EPZs. For example, firms outside EPZs require additional import declaration documents such as exchange documents, a value declaration form and licences, among others.

## Table 6. Customs for imports (BOI vs. non-BOI)

| Activity | Non-BOI | BOI |
| --- | --- | --- |
| Line Ministry approval | Required | Required |
| Import licence | Required | Not required |
| Payment terms | Limited to L/C, D/A, DP, or Advance (T/T, bank draft) | None-payment also by offshore third party |
| Advanced payment limits | US$ 10,000 | No limit |
| No-foreign-exchange-basis imports | Maximum of US$ 1,000 and no commercial quantities | No limit |
| Original documents | Received through bank | Received directly from shipper |
| Delivery order | Obtained from shipping agent | Obtained from shipping agent |
| Import declaration | Customs declaration submitted to Customs (Long Room) | Customs declaration submitted to BOI service centre in Colombo or EPZs |
| Payment of duties and taxes | Bank of Ceylon near Long Room | Bank of Ceylon counter at BOI location |
| Determination of examination level | By Customs | By customs |
| CBCU registration – sea cargo only | Not required | Required |
| Payment of SLPA charges | SLPA centre at port | SLPA counter at BOI office or at port |
| Collect gate pass from SLPA | Delivery documents to SLPA | Delivery documents taken to SLPA |
| Cargo pickup | From port | From port |
| Cargo examination | Examination by Customs | Examination by Customs at Verification Unit, EPZs or consignee location |
| Transport cargo to importer location | Only after examination – if required | Possible before examination |

*Source:* Taneja and others, 2011.

## Table 7. Customs documentation for imports (BOI vs. non-BOI)

| Activity | Non-BOI company | BOI company |
|---|---|---|
| Line ministry approval | Recommendation letter | Recommendation letter |
| Import licence | Import Permit | None |
| Payment | Limited to L/C, DA, or Advance (T/T, bank draft) | None |
| Import declaration documents | • Customs declaration – 6 copies<br>• Commercial Invoice – 2 copies<br>• Certified Bill of Lading<br>• Delivery order<br>• Exchange documents<br>• Value declaration form<br>• Packing list<br>• Supporting documents (licences, TRC approvals, literature)<br>• Panel examination form – if applicable | • Customs declaration – 6 copies<br>• Commercial Invoice – 4 copies<br>• Bill of Lading<br>• Delivery order<br><br><br>• Packing list |
| Payment of duties and taxes CBCU registration – sea cargo | Assessment Notice – three copies<br>Not required | Assessment Notice – three copies Photocopies of declaration and invoice |
| Payment of SLPA charges | • Customs declaration – 1 copy<br>• Commercial invoice<br>• Certified copy of BL<br>• Delivery order | • Customs declaration – 1 copy<br>• Commercial invoice<br>• Certified copy of BL<br>• Delivery order |
| Collect gate pass from SLPA | Deliver set of documents to SLPA canal row | Deliver set of documents to SLPA |
| Cargo pickup | Gate pass | Gate pass |
| Cargo examination | Declaration documents; Customs retains warrant and statistical copies | Examination by BOI/Customs at Customs Verification Unit, EPZs or consignee location |

*Source:* Taneja and others, 2011.

*(e)*     *Minimizing time taken for importing and exporting by sea*

Simplifying such procedures cuts down on processing times in many cases. Table 8 indicates the respective amount of time taken for certain activities involved in importing by sea. The processing period for several different stages is substantially less in BOI-supported firms (such as those operating within EPZs) compared with other firms. The stage beginning with the submission of the Customs Declaration Form (CUSDEC), for example, takes approximately four hours for firms operating within EPZs but can last up to 10 hours for other firms. This is most likely because there are more procedures involved for the latter when importing by sea, including the verification of certain documents by the Superintendent of Customs and the matching of CUSDEC with other documents.

**Table 8. Time taken for activities involved in importing by sea (BOI vs. non-BOI)**

| Non-BOI | | BOI | |
|---|---|---|---|
| **Activity** | **Time taken** | **Activity** | **Time taken** |
| **Containers discharged/ DO obtained** | | | |
| • Submission of CUSDEC | Between 4 $\frac{1}{2}$ and 10 hours | • Submission of CUSDEC | 4 hours |
| • Key in | | • Key in | |
| • Assessment notice generated | | • Assessment notice generated | |
| • Superintendent of Customs (SC) in charge of appointing/ appraising | | • BOI charges | |
| | | • Import approval by BOI officer | |
| • SC verifies custom house agent, bank payment, accounting update | | | |
| • Matching CUSDEC and Assessment Notice | | | |
| | | CBCU: SL customs registration/approval | 30 minutes |
| **Port:** | Between 1 $\frac{1}{2}$ and 2 hours | **Port:** | Between 1 $\frac{1}{2}$ and 2 hours |
| • SLPA charges | | • SLPA charges | |
| • Customs pass obtained at documents centre | | • Customs pass obtained at documents centre | |

Table 8. *(continued)*

| Non-BOI | | BOI | |
|---|---|---|---|
| **Activity** | **Time taken** | **Activity** | **Time taken** |
| Container moved to cargo examination centre (customs) | 3 hours | Container moved from port for BOI inspection | 1 hour |
| Cargo examined at cargo examination centre | 3 hours | Cargo inspected at BOI cargo verification terminal | 2 hours |
| **Move to consignee's premises** | | | |

*Source:*   Taneja and others, 2011.

Similarly, activities involved in exporting by sea for BOI-supported firms takes less time for certain stages compared with non-BOI firms. The first stage for non-BOI firms can take up to five hours, whereas for BOI firms it is only 3.5 hours. Once again, more procedures are involved for non-BOI firms, including the verification of documents by the Superintendent of Customs and matching of CUSDEC with other documents. Table 9 provides an overview of the time taken for procedures involved with exporting by sea for BOI firms and non-BOI firms.

**Table 9. Time taken for activities involved in exporting by sea (BOI vs. non-BOI)**

| Non-BOI | | BOI | |
|---|---|---|---|
| **Activity** | **Time taken** | **Activity** | **Time taken** |
| **Containers stuffed/ready** | | | |
| • Submission of CUSDEC | Between 3 $1/_2$ and 5 hours | • Submission of CUSDEC | 3 $1/_2$ hours |
| • Key in | | • Key in | |
| • Assessment notice generated | | • Assessment Notice generated | |
| • Superintendent of Customs (SC) appointing/ appraising | | • BOI charges | |
| • SC verifies custom house agent, bank payment, accounting update | | • Export approval by BOI officer | |

**Table 9. *(continued)***

| Non-BOI | | BOI | |
|---|---|---|---|
| **Activity** | **Time taken** | **Activity** | **Time taken** |
| • Matching CUSDEC and Assessment Notice | | | |
| • Inspection of container | 2-3 hours | • Inspection of container | 2 hours |
| **Entry to port gate** | | | |
| Customs, Navy, SLPA inspection | 30 minutes | Customs, Navy, SLPA inspection | 30 minutes |
| Move to port stack | 30 minutes – 1 hour | Move to port stack Move to port stack | 30 minutes – 1 hour |
| SLPA charges | 1 hour | SLPA charges | 1 hour |
| Boat note passing: SLPA and Customs | 2 hours | Boat note passing: SLPA and Customs | 2 hours |
| Load container and vessel sailing | From 4 hours to 4 days | Load container and vessel sailing | From 4 hours to 4 days |

*Source:* Taneja and others, 2011.

*(f)      Minimizing time taken for importing and exporting by air*

The difference in the time taken by BOI companies and non-BOI companies to process imports and exports by air is not as significant as above. However, there is still a noticeable difference in some cases, such as the examination of cargo for imports arriving by air. BOI-supported firms take, on average, one hour for this process, whereas non-BOI firms may take twice as long. This is due to the fact that facilities are provided by some EPZs where importing firms can process their cargo within the zone. Table 10 sets out the time taken to process goods imported by air for BOI and non-BOI enterprises.

In a similar manner, the time taken to process exports by air does not differ significantly when comparing BOI companies with non-BOI companies. The security check by the Air Force, for example, takes between 30 minutes and one hour for both cases, and the X-ray scanning and final customs inspection each take one hour. The other stages differ by 30 minutes at most, except for the preliminary examination of cargo, which takes an additional hour for non-BOI firms.

**Table 10. Time taken for activities involved in importing by air (BOI vs. non-BOI)**

| Non-BOI | | BOI | |
|---|---|---|---|
| **Activity** | **Time taken** | **Activity** | **Time taken** |
| **Container discharged at Katunayake Airport** | | | |
| • Submission of CUSDEC | Between 3 $\frac{1}{2}$ and 4 hours | • Submission of CUSDEC | 3 $\frac{1}{2}$ hours |
| • Key-in | | • Key-in | |
| • Assessment notice generated | | • Assessment Notice generated | |
| • Superintendent of customs (SC) in charge of appointing/ appraising | | • BOI charges | |
| • SC verifies customs house agent, bank payment, accounting update | | • Import approval by BOI officer | |
| • Matching CUSDEC and Assessment Notice | | | |
| • Screening (DDC/ADC) | | | |
| Cargo examination | 2 hours | BOI verification/ inspection at EPZ or warehouse at cargo village | 1 hour |
| Pay warehouse charges | 30 minutes – 1 hour | Pay warehouse charges | 30 minutes – 1 hour |
| **Delivery of cargo** | | | |

*Source:*  Taneja and others, 2011.

**Table 11. Time taken for activities involved in exporting by air (BOI vs. non-BOI)**

| Non-BOI | | BOI | |
|---|---|---|---|
| **Activity** | **Time taken** | **Activity** | **Time taken** |
| **Container stuffed/ready** | | | |
| • Submission of CUSDEC | 3 $^1/_2$ hours | • Submission of CUSDEC | 3 hours |
| • Key-in | | • Key-in | |
| • Assessment notice generated | | • Assessment notice generated | |
| • Superintendent of customs (SC) in charge of appointing/ appraising | | • BOI charges | |
| • SC verifies custom house agent, bank payment, accounting update | | • Export approval by BOI officer | |
| • Matching CUSDEC and Assessment Notice | | | |
| Panel appointing/ examination of cargo | 2 hours | BOI verification/ inspection at EPZ | 1 hour |
| Security check by Sri Lanka Air Force before entering cargo village | 30 minutes – 1 hour | Security check by Sri Lanka Air Force before entering cargo village | 30 minutes – 1 hour |
| Handing over goods to airline | 1 hour | Handing over goods to airline | 30 minutes |
| • X-ray scanning of loose cargo | 1 hour | • X-ray scanning of loose cargo | 1 hour |
| • Palletization | | • Palletization | |
| • Final inspection by Customs before loading | | • Final inspection by Customs before loading | |

*Source:*    Taneja and others, 2011.

# E. Conclusion

This study focuses on analysing the impacts that EPZs have on poverty reduction due to their trade facilitating provisions. Using surveys conducted among employees working in firms operating within EPZs as well as outside these zones, in addition to depth-interviews among managers and directors of manufacturing firms, the study revealed some interesting findings.

While there are clear economic benefits of EPZs with regard to poverty reduction, these zones also have some detrimental impacts. EPZs are an important employment generator, providing jobs to more than 127,000 working individuals, as of 2012. These firms also draw employment from rural areas, both in the immediate areas surrounding the zones and from areas further away. Furthermore, they provide vital employment opportunities for women, as most of the zones employ a majority of female workers. They also create indirect employment by providing the opportunity for entrepreneurs to set up restaurants and hostels that cater to the employees in these zones.

However, there is also a less positive side to these zones. The research indicates that proper nutritional intake is poor among many employees within EPZs. This may not be a direct result of the actions of the administration within the firms in these zones, but it is clear that more needs to be done to improve awareness of proper nutrition and diet, particularly because many of the employees are uneducated and lack sufficient knowledge about such issues.

With regard to trade facilitation, it is clear that EPZs offer some important advantages. Through simplification of customs procedures that reduce the number of steps and documents needed when processing imports and exports, thereby cutting down on the amount of time taken to process these goods, EPZs have had a significant impact on facilitating trade. This is particularly the case with goods being delivered by sea.

Furthermore, operating within an EPZ allows firms to take advantage of backward and forward linkages available in the zone. Manufacturers in the garment industry, for example, can source from suppliers of yarn and thread processing plants within the same EPZ and further down the supply chain, and they can link up with washing plants that create finishes for articles of clothing, also within the EPZs. These are opportunities that are rarely available for companies that operate outside these zones.

The research conducted in this study, however, is not exhaustive, and there is ample room for further analysis. One area to explore is an in-depth examination of the indirect employment that is generated across Sri Lanka by EPZs. Interviews could be conducted among business operators in various sectors of the economy, including logistics providers, restaurant operators and managers of hostels, to gauge the economic benefits that come from being situated close to an EPZ.

A more quantitative approach to analysing the impact of these zones on poverty reduction and trade facilitation could be taken through the use of computable general

equilibrium (CGE) modelling. This would employ a social accounting matrix and relevant software to analyse the effect that EPZs have on rural households, using a sequence of systematic shocks on various sectors of the economy in order to evaluate the impact on poverty reduction in the country. The model could also test the effect of EPZs on trade facilitation by analysing the degree to which imports and exports experience the impacts resulting from various shocks on the economy. This approach would enable a more systematic quantification to be made of the impact that EPZs have on poverty reduction and trade facilitation.

# Annex 1

**Questionnaire survey conducted among workers employed in EPZs**

1.  Name:

2.  Age:

3.  Occupation:

4.  Height:

5.  Weight:

6.  How many years have you been working here?

7.  What is your salary?

8.  How much do you spend on the following:
    a.  Food ..............................................................................
    b.  Accommodation/housing .............................................
    c.  Travel ...........................................................................
    d.  Clothes .........................................................................
    e.  Phone ...........................................................................
    f.  Others (please specify) ...............................................

9.  What is your level of education?

10. Have you received any type of vocational training for the work that you do?

11. Have you ever received any type of vocational training?

12. What are the different training programmes available to you in this company?

13. Do you receive any benefits besides wages (i.e., health-care benefits, life insurance, medical insurance, EPF, ETF)?

14. What are your major sources of protein? (Multiple response)
    a.  Eggs
    b.  Fish
    c.  Meat
    d.  Soya meat
    e.  All of the above
    f.  None of the above

15. What were your major sources of protein before you joined the EPZ? (Multiple response)
    a.  Eggs
    b.  Fish

     c.   Meat

     d.   Soya meat

     e.   All of the above

     f.   None of the above

16.  Why did you choose to work in an EPZ?

     a.   What are the main benefits of working in an EPZ?

     b.   What are the main costs/drawbacks of working in this EPZ?

17.  How far do you travel to come to work?

18.  Do you have any physical ailments? (Multiple response)

     a.   Aching limbs

     b.   Back pain

     c.   Chest pains

     d.   Irritation of the eyes

     e.   Poor hearing

     f.   Others (please specify)

# Annex 2

### Questionnaire survey conducted among managers and directors at manufacturing firms in EPZs

#### A. Basic information

1. Name of firm

2. Date of establishment

3. Where is your production facility located?

4. Exporting since (year)

5. No. of employees
   (a) Sri Lankan
   (b) Foreign

6. Ownership
   (a) Fully owned by Sri Lankans
   (b) Joint venture with foreigners
   (c) Fully owned by foreigners

7. What are the main products/services you offer?

#### B. Poverty reduction measures

1. What is the wage scale used for workers here? Could you give a rough breakdown of the number of employees earning each salary range?

2. What are the different employment categories? What is the gender ratio for each category?

   Employment category            Males                  Females

3. What are the training and educational programmes offered to employees?

4. Are such programmes offered to employees in all categories? If not, to which categories?

5. In your view, have these training/educational programmes been beneficial both to the organization and individuals?
   (a) Organization – in terms of productivity, volume of production etc.
   (b) Employees – in terms of improving their skill levels etc.

6. What are the health-care benefits offered to these employees? Are these offered to all categories?

7. Are there any other benefits offered to the employees or their dependents?

8.  Has the establishment of EPZs in rural areas that promote infrastructure and industrial upgrading enhanced economic opportunities for the poor, in terms of:

    (a) Employment generation

    (b) Access to high quality services etc.

## C. Trade facilitation measures

1.  What are the different stages of the export manufacturing process?

2.  Have there been any trade facilitation measures that have improved the export manufacturing process?

3.  What are some methods that you are aware of that are used to streamline administration of the EPZ in order to improve trade facilitation?

4.  Have you seen an increase in your volume of exports and imports after becoming part of an EPZ?

5.  What are the main obstacles holding your company back from increasing its exports/imports (are they related to trade restrictions, lengthy customs procedures, bureaucratic red tape)?

6.  In your view, have EPZs been instrumental in improving the business (and trading) environment in the country?

7.  If there has been any infrastructure development that has accompanied the establishment of the EPZ, and has this helped in contributing to a faster and smoother trading process?

# Annex 3

## Survey methodology[112]

Using equation (1), the authors tested whether the observed proportion $p_1$ based on a random sample of size $n_1$ is significantly different from the observed proportion $p_2$ based on an independent sample of size $n_2$.

$$z = \frac{p_1 - p_2}{\sqrt{\dfrac{p_1 (1 - p_1)}{n_1} + \dfrac{p_2 (1 - p_2)}{n_2}}} \tag{1}$$

The authors also evaluated whether there is a statistically significant difference between the mean (averages) of the two groups. For example, the mean salary of workers in firms operating within EPZs was compared with the mean salary of workers in firms operating outside EPZs. The level of significance employed in this test was a 5 per cent level of significance unless otherwise specified.

Using equation (2), the authors tested whether the observed mean $x_1$ based on a random sample of size $n_1$ is significantly different from the observed mean $x_2$ based on an independent sample of size $n_2$. To perform this test, the authors first calculated the standard deviations $s_1$ and $s_2$.

$$z = \frac{x_1 - x_2}{\sqrt{\dfrac{(s_1)^2}{n_1} + \dfrac{(s_2)^2}{n_2}}} \tag{2}$$

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[112] All statistical calculations were conducted using *The Analytical Group Inc., Significance Test Calculator* software.

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