

Regional Integration in South Asia:

What Role for Trade Facilitation?

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Abstract

The trade performance of countries in South Asia over the past two decades has been poor relative to other regions. Exports from South Asia have doubled over the past 20 years to approximately USD 100 billion. In contrast, East Asia's exports grew ten times over the same period. The low level of intraregional trade has contributed to weak export performance in South Asia. The empirical analysis in this paper demonstrates gains to trade in the region from reform and capacity building in trade facilitation at the regional level. When considering intraregional trade, if countries in South Asia raise capacity halfway to East Asia's average, trade is estimated to rise by USD 2.6 billion. This is approximately 60

percent of the total intraregional trade in South Asia. Countries in the region also have a stake in the success of efforts to promote capacity building outside its borders. If South Asia and the rest of the world were to raise their levels of trade facilitation halfway to the East Asian average, the gains to the region would be estimated at USD 36 billion. Out of those gains, about 87 percent of the total would be generated from South Asia's own efforts (leaving the rest of the world unchanged). In summary, we find that the South Asian region's expansion of trade can be substantially advanced with programs of concrete action to address barriers to trade facilitation to advance regional goals

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Regional Integration in South Asia: What Role for Trade Facilitation?+

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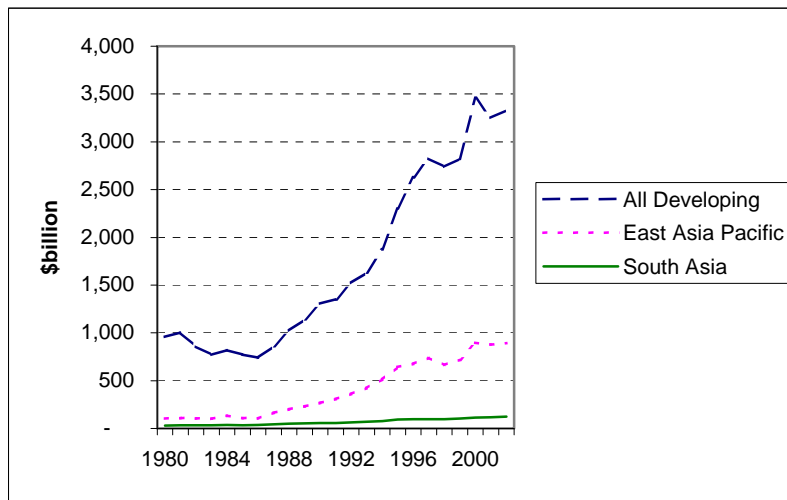
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1. Introduction

The trade performance of South Asian countries over the past two decades has been poor relative to other regions. Exports from South Asia have only doubled over the past 20 years to approximately \$100 billion. In contrast, exports in East Asia grew ten times (Pireola and Newfarmer 2006). South Asia's share of the total exports from developing countries has declined, due in part to its relatively slow export growth (Figure 1). This reflects both South Asia's limited trade integration with the rest of the world and the limited intraregional trade. In particular, Pierola and Newfarmer(2006) note that South Asia's intraregional trade as a share of its total trade volume has remained around 2 percent since 1980. This is very low compared to approximately 15 percent for East Asia (excluding Japan), for example (Figure 2). Overall intraregional trade in South Asia constitutes about 33 percent of gross domestic product (GDP), while it contributes to 71 percent of the GDP in East Asia.

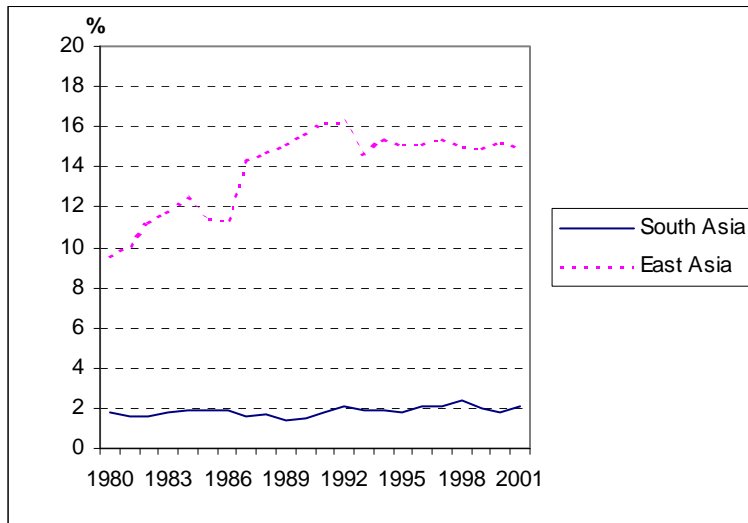
Figure 1: Exports from Developing Countries, 1980-2002



Source: Calculated by the authors based on United Nations COMTRADE data

Note: South Asia includes : Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. East Asia Pacific includes : American Samoa, Cambodia, China, Fiji, Indonesia, Kiribati, Korea, Lao PDR, Malaysia, Marshall Islands, Micronesia, Mongolia, Myanmar, Palau, Papua New Guinea, Philippines, Samoa, Solomon Island, Thailand, Tonga, Vanuatu, and Vietnam.

Figure 2: Intra-regional Trade as a Share in Region's Total Trade



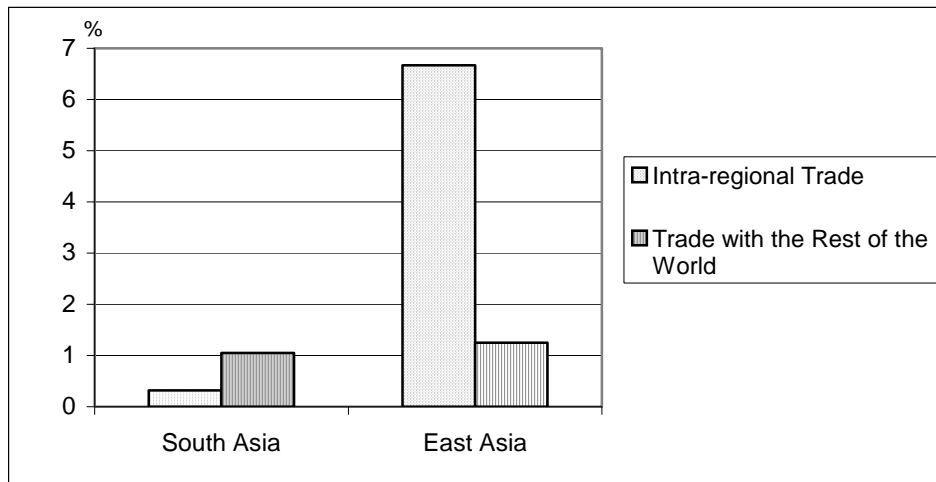
Source: Calculated by the authors based on United Nations COMTRADE data

Note: East Asia includes: Brunei, Cambodia, China, Hong Kong, Indonesia, Lao PDR, Macao, Malaysia, Mongolia, Myanmar, Palau, Papua New Guinea, Philippines, Singapore, Solomon Islands, Thailand, and Vietnam. South Asia includes : Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

South Asian countries should explore more trade opportunities within the region. Figure 3 shows the observed amounts of intra- and interregional trade relative to a predicted value of trade for both South Asia and East Asia. The latter is an expected value given the average geographical distance, levels of GDP, and other relevant factors. The figure demonstrates that intraregional trade in South Asia is lower than that of East Asia—even when geographic proximity, levels of GDP, population, and trade arrangements are taken into account. Conversely, trade with the rest of the world for both regions are similar. In fact, South Asia has been engaged in trade with the major industrialized countries, most importantly, with the EU, the United States and Japan. In reality, however, the distances from these major markets impose significantly higher transport costs for exporters in South Asia. Therefore, the region is likely to gain by expanding intraregional trade through the complimentary investments in infrastructure, continued regulatory reform, and other policy initiatives discussed in this paper.

South Asia should facilitate intraregional trade in order to stabilize its economy, which is currently vulnerable to external shocks. As indicated in Figures 1 and 2; the financial crisis in the late 1990s severely affected developing countries as a whole, including those in South Asia, and most severely in East Asia. Exploring opportunities to expand intraregional trade would give South Asia greater chances to not only benefit from trade but also increase stability against external shocks. The region can and should take steps to move toward accelerated growth paths—leveraging both intra- and interregional trade.

Figure 3: Actual to Predicted ratios for Intra- and Interregional Trade¹



Source: Authors' calculation based on United Nations COMTRADE data and World Development Indicators Note: Actual trade implies value of trade recorded in COMTRADE data. The predicted trade represents the value of trade that is predicted by a gravity model by taking geographical distance, gross domestic product, and other relevant factors into account.

There are a number of barriers to promoting intraregional trade and expanding exports as a whole. Tariff rates are one of the highest among developing countries. They have been reduced in the past decade, however, and are no not the only constraint to growth.² This implies the presence of other obstacles to trade liberalization and nontariff barriers—including transactions costs and behind the border barriers.

Specifically, constraints in supply chains and trade logistics include a number of increasingly important barriers to exports for South Asian countries. The lack of harmonized transport systems, frequent reloading of goods, port congestion affecting turnaround time for ships, complicated customs-clearance procedures, and nontransparent administrative procedures at customs are often at the center of trade constraints.³ These constraints are often more serious in developing countries than in developed countries. One study shows, for example, that for 168 out of 215 U.S. trading partners, transport cost barriers outweigh tariff barriers (World Bank 2002a). Given that income growth is greater with more cross-border trade, at least in theory, eliminating nontariff barriers contributes to trade integration. Until recently, trade facilitation generally referred to policy measures that aimed to reduce the costs of transportation. It now encompasses a broader set of interrelated factors that reduce nontariff barriers in order to lower the cost of moving goods between destinations and across international borders.

This paper provides a summary overview of trade facilitation in South Asia. The primary question addressed here is “What are the potential gains to trade in the region with

¹ The bilateral value of trade is predicted according to GDP, population, distance, and arrangements between importer and exporter. The share of observed trade that is smaller than 100 percent infers the presence of trade barriers.

² Cite tariff data, World Bank sources.

³ For a more detailed description of these factors see: World Bank (2004a).

programs to raise capacity in trade facilitation?” The following section outlines an operating definition of trade facilitation to frame the analysis. Section 3 reviews studies to measure the impact of trade facilitation. Section 4 summarizes the conditions in South Asia across a range of trade facilitation variables. Section 5 demonstrates the potential gains from capacity building in trade facilitation in South Asia based on econometric analysis.

2. What Is Trade Facilitation?

The definition of trade facilitation varies depending on the extent of measures to be included. In a narrow sense, trade facilitation simply addresses the logistics of moving goods through ports or at customs checkpoints at national borders. A broader framework for understanding trade facilitation and its impact on international commerce includes a number of interrelated factors. These include port reform and modernization and streamlining regulatory requirements and harmonizing standards, as well as customs regimes. Common to all these areas is expanding the use of information technology to lower trade transactions costs. This might involve, for example, compiling a unique set of computerized information for each shipment entering a port so that cargo is processed more rapidly at arrival. Modern customs methods of profiling consignments or traders based on risk-assessment techniques can help expedite cargo clearance (World Bank, 2004a). The use of technology in services and business-to-business (B2B) e-commerce is also a rapidly expanding area of trade that broadens markets while significantly reducing logistics and transactions costs.

In order to realize the benefits of improving transport or customs administration “at the border,” regulatory and institutional reforms are essential. These “inside the border” measures play a crucial role in trade transactions costs. Domestic regulatory procedures and institutional structures based on international best practice models can improve transparency and professionalism in border clearance procedures. Streamlining regulations to remove technical barriers and liberalizing transport and telecommunications regimes can also facilitate trade. Privatization and de-regulations in the transport sector can also increase competition and improve efficiency.

Security is also an important part of trade facilitation in modern commerce. Terrorism and threats to security can disrupt global supply chains across borders and damage economic progress. The terrorist attacks on September 11, 2001 in New York and Washington have increased calls for strengthening border security, transport, and maritime systems. In response, a number of new security programs have been initiated. The United State introduced the Container Security Initiative in January 2002.⁴ The International Maritime Organization (IMO) developed the International Ship and Port Security Code (ISPS) which was adopted by more than 100 countries, and went into effect on <<AU: PLEASE FIX DATES LIKE THESE:>>July 1, 2004.⁵ In the short run,

⁴ The initiative is aimed at preventing “terrorists from concealing personnel or weapon of mass destruction in U.S.-bound cargo.

⁵ ISPS sets security-related requirement for governments, port authorities and shipping companies in order to monitor freight flows and reduce the threat of terrorist attacks.

tightened security at the borders may cause delays in border crossings. The wider use of technology such as bar codes for containers, wireless communication systems, and other technology upgrades will impose additional costs on transport companies. Over the long term, however, new technology and security can add certainty and stability to the global economy and accelerate trade with a streamlined supply chain.

Initiatives to reduce nontariff barriers associated with trade facilitation have also been affected by the multilateral trade agenda in the World Trade Organization (WTO) disciplines. During the Singapore Ministerial Conference of the WTO in 1996, trade facilitation was added to the agenda for explicit discussion. The Cancun Ministerial Conference of the WTO in September failed to launch the negotiation on trade facilitation. This was due, in part, to disagreement over the merits of starting talks on trade facilitation, including increased transparency and streamlined administrative requirements. Some developing countries were initially unwilling to place these on the formal negotiating agenda of the WTO (Wilson, 2003; Bagai, Newfarmer and Wilson, 2004).

On July 31, 2004, WTO members reached consensus to launch negotiations on trade facilitation. The negotiations will focus specifically on three articles of the General Agreement on Tariffs and Trade (GATT). This includes Article V (freedom of transit) which relates to conditions in which the transit of goods is free from barriers to transport and discrimination among suppliers, firms, and traders. GATT Article VIII (fees and formalities on imports and exports) addresses customs clearance procedures and a commitment of nondiscrimination and transparency in fees and rules applied to goods crossing borders. GATT Article X (publication and administration of trade regulations) includes commitments to assist in ensuring timely publication of regulations on imports, including fees, customs valuation procedures, and other rules. It also includes obligations to maintain transparent administrative procedures for disputes in customs. Developing countries have an important role in shaping the negotiations to further reduce barriers associated with trade logistics.

3. Measuring the Impact of Trade Facilitation

A critical question of direct relevance to trade facilitation in a development context is to what extent do factors affecting trade transactions costs matter? This question drives the need of measuring the impact of trade facilitation on economic growth. Yet, quantifying the gains of trade facilitation is complex and challenging. The Organization for Economic Cooperation and Development (OECD 2001) summarizes available studies, most of which are limited in their definition of trade facilitation or use data collected many years ago. The paper thus stresses the importance of updating and improving available data on the benefits of trade facilitation. Walkenhorst and Yasui (2003) argue that it is impossible to measure the income gains from trade facilitation in absolute USD-terms while they point out that the degree of potential benefits of trade facilitation vary across countries,

sectors, and types of traders.⁶ Therefore, instead of measuring overall welfare impacts of trade facilitation, their study focuses on looking at the distribution of gains among groups of countries and comparing the income effects of trade facilitation in various scenarios determined by different combinations of countries, sectors, and types of traders.

There are a number of other empirical studies which have addressed specific policy changes related to trade facilitation. A study by APEC (1999) finds that “shock” reduction in trade costs from trade facilitation efforts vary from 1 percent of import prices for industrial countries and the newly industrializing countries of Korea, Chinese Taipei and Singapore, to 2 percent for other developing countries. The study estimates that effects of APEC trade liberalization and facilitation would increase the volume of APEC merchandise exports in 1996 by 3.3 percent by 2010. A study by Maskus, Wilson, and Otsuki (2001) evaluates the gains to trade facilitation related to harmonized regulations and standards. Moenius (2004) looks at how bilaterally shared standards and country-specific standards impact on trade respectively, and finds that the former standards raise trade volume, and therefore, harmonization of standards promotes trades. Against author’s hypothesis, the results show that country-specific standards also promote trade on average. To be specific, country-specific standards promote trade in the manufacture sector while they have negative impacts on trade in nonmanufacture sector. This is so because institutional standards like ISO would lower information gathering costs which are particularly high in the manufacture sector.

By employing a general equilibrium model, several studies assess the impact of reduced transaction costs on trade flows. For instance, Baier and Bergstrand (2001) examine the impacts on the trade growth of transport-cost reductions, trade liberalization, and income convergence. The authors find that 8-9 percent of the average growth in real bilateral trade flows among 16 OECD countries during the late 1950s-the late 1980s is explained by transport-cost reductions. A study by United Nations Conference on Trade and Development (UNCTAD 2001) shows that a 1 percent reduction in the cost of maritime and air transport services could increase Asian GDP by some US \$3.3 billion. If trade facilitation is considered in a broader sense to include an improvement in wholesale and retail trade services, a 1 percent improvement in the productivity of that sector would lead to an additional gain of US\$3.6 billion.

With respect to the impacts of improved customs clearance, Hummels (2001) concludes that each day saved in shipping time in part due to a faster customs clearance is worth 0.5 percent reduction of ad-valorem tariff. In order to analyze the significance of border delays in measuring the welfare impacts of trade liberalization, Cudmore (2004) compares results of a conventional equilibrium model with the one that incorporates border delays. While the former model shows that trade liberalization would result in a welfare gain by 0.044 percent, the latter model indicates that trade liberalization would

⁶ For instance, the authors mention that trade transaction costs (TTCs) range from 1-15 percent of traded goods depending on country’s pre-trade facilitation condition. Furthermore, border costs for agro-food products are 50 percent higher than those for manufacturing products, and that TTCs for small medium enterprises are 50 percent higher than those for big enterprises.

cause a welfare loss by 0.13 percent. This implies that reducing border delays is critical in order for trade liberalization to have positive impacts on welfare.

Other examples of empirical studies include Hertel, Walmsley and Itakura (2001). They examine the impact on trade of greater standards harmonization for e-business and automating customs procedure between Japan and Singapore. The authors find that reforms would increase trade flows between these countries as well as their trade flows with the rest of the world. The Australian Department of Foreign Affairs and Trade and Chinese Ministry of Foreign Trade and Economic Cooperation (2001) suggest that moving to electronic documentation for trade would result in a cost savings of some “1.5 to 15 percent of the landed cost of an imported item.” If a simple average of a 3 percent reduction in landed costs were applied to intra-Asia-Pacific Economic Cooperation (APEC) merchandise trade, the gross savings from electronic documentation could be US\$60 billion. Other empirical studies measure the impact on trade of e-commerce (Freund and Weinhold, 2000), communication costs (Fink, Mattoo and Neagu, 2002), and standards (Moenius, 2000; Otsuki, Wilson and Sewadeh, 2001a, 2001b).

An increasingly important policy question in international trade and development concerns estimating the gains from capacity building in trade facilitation and the relative impact of specific reform measures and investments. Wilson, Mann, and Otsuki (WMO) (2005) find that enhanced capacity in global trade facilitation would increase world trade of manufacturing goods by approximately \$377 billion dollars – an increase of about 9.7 percent.⁷ This is based on a scenario in which capacity building is raised half-way to the global average across 75 countries. The authors specifically examine four areas: port efficiency, customs, regulations and standards, and information infrastructure. They find that the improvement in customs environment results in about \$107 billion (0.8 percent) gain. The gain from the improvement in regulatory environment is \$83 billion. The largest gain comes from improvements in services sector infrastructure and e-business usage (\$154 billion or 4.0 percent).

WMO (2004) find that the gains from exporter’s improvement in trade facilitation exceed those from the importer’s gain. That is, countries could increase exports most through domestic reform and capacity building in trade facilitation. These results also suggest, in general, that increased capacity to comply with 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) along with other reforms could raise global trade for all WTO members.

Given the recent introduction of security as a new dimension of trade facilitation, studies that measure economic gains from improving security are also relevant. Leonard (2001) estimated the new security-related costs at 1-3 percent of the value of traded goods. The analysis by the OECD (2002a, 2002b) suggests a more modest impact (World Bank, 2004a). Walkenhorst and Dihel (2002) quantify the impact on welfare of frictional trade costs resulted from the implementation of new measures to tighten security after the

⁷ See the data appendix section for a detailed description of the data set and analytical framework for these estimates.

September 11 events, and find that a one percent ad-valorem increase in frictional costs to trade would lower world welfare approximately by \$75 billion per year. In relative terms, such welfare loss is greater in South Asia, North Africa, and the Middle East than in North America, because these regions are heavily dependent on international trade. (Walkenhorst and Dihel, 2002).

4. Summary Overview of Conditions in South Asia

This section provides a summary overview of trade facilitation in South Asia. Trade facilitation in South Asia has become increasingly important as the region has adopted more open trade policies since the late 1980s. In 1985, India, Pakistan, Bangladesh, Sri Lanka, Maldives, Nepal, and Bhutan formed the South Asia Association for Regional Cooperation (SAARC). This started with the SAARC Preferential Trading Agreement (SAPTA). Recently, the SAARC member countries signed the South Asian Free Trade Area (SAFTA) pact in Islamabad, Pakistan. The free trade area came into effect on January 1, 2006.

The significance of SAFTA in regard to trade facilitation is that Article 3 in the accord states members' commitments to trade facilitation reform. This includes plans to integrate more closely transport systems and harmonize standards in the region, among other steps. India has specifically indicated interest in providing the "main technical support and other trade facilitation steps in the field of harmonization of customs procedures and standards for products of trade interest to the region" (Hindu Business Line, May 11, 2000). Some experts expect the SAFTA to be "a step towards better physical, industrial and communication infrastructure development in the region" (Nayar, 2004).

There are also sub-regional and bilateral initiatives aimed at liberalizing trade among SAARC countries and promoting trade and investment facilitation efforts. Among the important sub-regional initiatives are Bangladesh-Bhutan-India-Nepal Growth Quadrangle Initiative (BBIN-GQ) and Bangladesh-India-Sri Lanka-Thailand Economic Cooperation (BIST-EC). With respect to bilateral initiatives, South Asian countries have also exhibited interest in promoting trade through cooperative arrangements, including initiatives such as the India-Bhutan Economic Cooperation, India-Nepal Economic Cooperation, Pakistan-Nepal and also Free Trade Agreements between Pakistan-Sri Lanka, India-Bangladesh FTA, and the Sri Lanka-Maldives FTA (RIS, 2004).

More efficient trade logistics and facilitation policies are recognized as essential for economic growth and success in the SAFTA. South Asia continues to face, however, critical constraints to trade and the need for coordinated programs to address common goals.⁸ For example, Subramanian and Arnold (2001) provide examples of continued

⁸Complying with rising security standards in international trade is also a challenge for South Asia. For example, the U.S. Customs Security Initiatives (CSI) requires pre-loading inspection of inbound cargo by security officials stationed at exporting countries' customs facility. Among South Asian countries, only Sri Lanka signed the CSI in June 2003 (Daily Monitor, June 27, 2003). In July 2004, the International Ship and Port Facility Security Code (ISPS) became effective. The code requires governments, merchant vessels, and port facilities to seek accreditation by meeting set security standards. The ports of Colombo (Sri Lanka), Chennai, Mumbai, Nhava Sheva, Kolkata and Kochi (India), Chittagong (Bangladesh), and

impediments along a logistics chain in the South Asia sub-region, consisting of Bangladesh, Bhutan, Nepal and eastern India and the seven northeastern Indian states.⁹ This study examined commodity flows in domestic, regional, and international routes currently in use and associated logistic barriers.¹⁰ In another recent study the Research and Information Systems for the Non-Aligned and Other Developing Countries (RIS) (2004) examined transport infrastructure in road, rail, air, and port networks in South Asia. The authors identify the potential for regional cooperation in improving the conditions in each area.

In order to highlight conditions in South Asia it is useful to compare the region's performance with others. This includes in particular East Asia, given its geographic proximity and emergence of China as an important economic actor, among other factors. The following section provides a brief outline of efficiency and capacity constraints in South Asia within this context in: (1) port efficiency and infrastructure, (2) land transportation including roads and railways, (3) customs and border crossing (4) standards and technical regulations, and (5) information technology and e-commerce.

(1) Port Infrastructure and Efficiency

Air and maritime ports in South Asia are generally considered less competitive than those in East Asia. Figure 4 shows that infrastructure and efficiency in ports in South Asia are lower than those in East Asia. For example, it takes only a couple of hours at the port of Singapore or Laem Chaband in Thailand to clear a vessel. In contrast, it takes 2 to 3 days for ports in Bangladesh (RIS, 2004).¹¹ It takes 30-35 days for goods shipped via container from the U.S. West coast to Pakistan. Port efficiency is highly correlated with shipping costs. Clark, Dollar, and Micco (2004) find that improving port efficiency from the 25th to 75th percentiles lowers shipping costs by more than 12 percent.¹² Tariffs for port entry are part of this total and can be high in South Asia. The port at Jawaharlal Nehru in India of which about 75 percent of calls are direct, for example, averages \$20,000 for a call by a 4000 TEU ship. Cargo dwell time at the Dehli airport averages 2.5 days where the norm is 12 hours (Roy, 2004). Given the current low level of port efficiency in the region, South Asia could expect significant gains from improving ports to lower transactions costs and facilitate trade.

Karachi (Pakistan) have obtained necessary approvals under the ISPS (See; Kruk). The costs of meeting these and other security protocols and extending coverage to other ports in the region, however, are likely substantial. New mechanisms to support regional cooperation and infrastructure upgrades in security will be critical to expanded trade opportunities.

⁹ The states in eastern India are West Bengal, Uttar Pradesh, Bihar and Orissa. The northeastern Indian states include Assam, Mizoram, Nagaland, Arunachal Pradesh, Tripura, Meghalaya and Manipur.

¹⁰ See page 34 in Subramanian and Arnold (2001) for the list of routes and commodities.

¹¹ One recent study found that the major barrier to export logistics in Bangladesh centers on inefficient ports and the shipping sector. See; Arnold (2004).

¹² Among the factors that affect port efficiency, Clark, Dollar, and Micco (2004) examine infrastructure, organized crime, and regulation. They find that infrastructure and organized crime exert a significant positive and negative influence respectively on efficiency. In addition, excessive regulation reduces efficiency.

Air and maritime ports play a pivotal role in trade for South Asia. There are three types of maritime ports: (1) transshipment hubs, (2) regional hub ports, and (3) regional seaports (Subramanian and Arnold, 2001). Transshipment hubs are located on or close to major shipping routes and attract frequent calls by large shipping lines. The port of Colombo in Sri Lanka is presently the only transshipment hub and is the most developed and successful port in the region. Colombo's ranking in the top 100 container ports in the world is declining, however, primarily due to intense competition from Chinese ports.¹³ Nhava Sheva port, India's largest port, is considered as a regional hub port. Regional seaports handle feeder services from the major transshipment hubs. Examples are the port of Calcutta, port of Haldia in India, and port of Chittagong in Bangladesh.

South Asia's low port efficiency ranking today, as noted in Figure 4, is reflected in a number of problems. There is congestion in regional hub ports and regional seaports and the associated delays prevent exporters from guaranteeing "just in time" deliveries. For example, on August 6, 2004, *Business Standard* reported continued problems of congestion at the Nhava Sheva port in India. At this regional hub port, exporters are "estimated to lose around Rs800 core a month because of delayed shipments." They usually pay 4 percent of the product value for shipment. Due to congestion, however, an exporter had to send his consignment by air, which cost "40 per cent of the value of the product" (*Business Standard*, August 6, 2004). Delays at regional seaports are longer. In contrast to transshipment hubs and regional hub ports, regional seaports do not operate on a fixed day-of-the-week schedule. This can cause delays and uncertainty in turn-around time at the ports. Subramanian and Arnold (2001) also highlight the problem of excessive delays in moving cargo through the ports of Calcutta and Chittagong in Bangladesh and the associated impact on trade.

There are clear indications of progress being made in addressing the obstacles noted above. Global container terminal operators are moving to invest in upgrading facilities in South Asia. India has instituted a policy to encourage private sector investment in ports, including inland waterways. As part of these developments, India has awarded \$460 million in contracts to upgrade the Rajiv Gandhi Container Terminal in Cochin and build a new terminal at Vallarpadam. Maersk, a liner shipping company, has been awarded the concession for the second private container terminal at JNPT in Mumbai. In Pakistan, international operators, Hutchinson and P&O, are operating container terminals in the Ports of Karachi and Qasim.

(2) Land Transportation

The lack of cross border transit points and road connections across the region are significant hindrances to intra-regional trade.¹⁴ For example, barriers to trade and commerce in Afghanistan are centered, in part, on both problems in infrastructure, as well as cargo transshipment.¹⁵ There is an inland water transport route between India and Bangladesh. Goods moving between India and Pakistan often must be transshipped

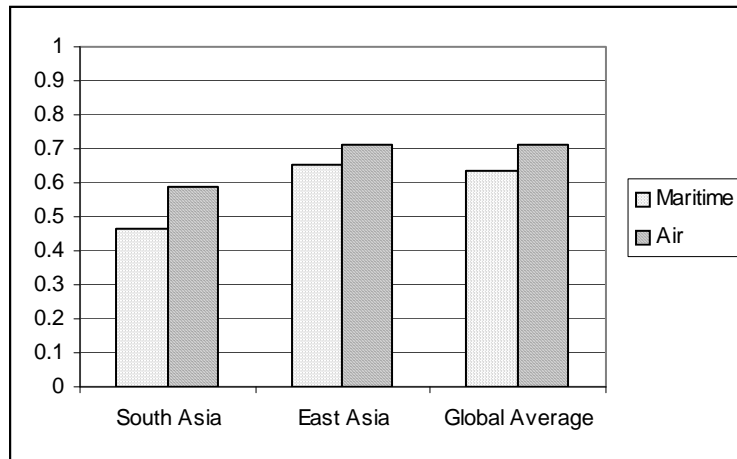
¹³ Kruk (2004).

¹⁴ See for example; World Bank (2002b) and World Bank (2004b).

¹⁵ World Bank (2004b).

through a third country. The lack of integrated transport networks in the region clearly raise cargo shipping costs. This is a critical problem particularly for landlocked countries, including for example Afghanistan, Bhutan, and Nepal. A significant factor driving costs and barriers is that at most every border in the region goods must be transshipped. In addition, labor strikes in the region can cause delays in transit and congestion in land transport networks. These constraints keep shippers from taking the routes that offer the most efficient shipping route in terms of time and cost.

Figure 4: Port Efficiency Indicators (maritime and air)



Source: Wilson, Mann, Otsuki (WMO) database 2004

Inland roads are a major means of moving goods across South Asia and India has “an extensive 3.3 million km road network making it one of the largest in the world” (RIS, 2004). A number of road corridors in the region, however, are not maintained and of limited capacity.¹⁶ This makes it expensive to move commodities across long distances with countries imposing load limits. For example, in India the percentage of paved roads at 56 percent is lower than that in countries of East Asia which averages 88 percent (World Bank).

The costs of road transport can be high. For example, the average transport costs on the Kolkata-Petrapole route between Bangladesh and India is Rs2543 which is about 40 percent higher than other highways (Das and Pohit, 2004). Costs are also a function of vehicle maintenance. A carpet manufacturer in Kathnabdu reported that because of the poor quality of the local roads, it must “repair one of its vehicles every week and spends NRs 100,000 a year on maintenance” (Biggs et al., 2000). Road transport is also affected by aging bridges and lack of capacity. This in turn limits truck and cargo weight and therefore efficiency in freight movement. Other restrictions are based in licensing restrictions, for example foreign trucks are not permitted to enter Bangladesh. All of these conditions prevent shippers from taking the most efficient routes – extending time and cost which impede opportunities for international and intra-regional trade.

¹⁶ For a more detailed discussion see Subramanian (2001).

There have been a number of projects to upgrade railway networks over the past decade, however, problems remain. For example, India has moved to electrify tracks and convert from meter gauge to broad gauge to harmonize its system infrastructure (UNESCAP, 2001). Freight accounts for 41 percent of traffic units on India's railway system, however, and in contrast freight accounts for 76 percent of traffic on China's rail network.¹⁷ Moreover, the types of rail gauge still varies among countries and regions.¹⁸ The railways in India and Bangladesh suffer from "over-staffing, poor maintenance, and old rolling stock" (Subramanian and Arnold, 2001). Reportedly Bangladesh railways have a serious problem with maintenance especially in the parts of the country where flooding is a problem. Due to these and other factors, the railway sector has lost share to the road sector and exporters consequently limit use of railways.

(3) Border Crossings and Customs

Border crossings most often include inter-related infrastructure and facilities such as customs clearance checkpoints, truck waiting areas, storage depots, rail yards, and loading or unloading areas at ports. The border crossing at Benepole is reportedly one of the most developed in the region with facilities for warehousing, well-developed services, and other facilities. In contrast, some border crossings do not even have customs facilities (Subramanian and Arnold, 2001). Problems arise when customs clearance centers are located far away from other border crossing facilities. For instance, the sanitary and phytosanitary testing laboratory in Calcutta is located one thousand kilometers from the customs facility at Birgunj, Nepal. Exporters have to pay additional fees for vehicle detention charges for weeks while waiting for test results (Karmacharya, 2002). This not only raises the costs but also clearly affects the quality of export products.

Poor management at customs is not a major constraint compared to the problems with ports and land transportation; however, there are costly delays in transactions in border crossings. Some of these delays are associated with the preparation of customs documents and inspections due to a lack of standard documents. At the India-Bangladesh border a consignment needs at least 22 documentations, more than 55 signatures, and minimum 116 copies for the final approval (RIS, 2004). Each country requires different documents, such as transit, export, and import declarations. Exporters must prepare separate documents at each side of the border. Furthermore, the region uses different product classification systems for commodities: the Standard International Trade Classification is used by Pakistan and the Harmonization System (HS) by other countries. (Krueger et al., 2004). This contributes to a general lack of transparency and problems in product classification in trade.

There are other administrative problems with customs that continue in the region.¹⁹ They include limitations on staff working hours and lack of uniformly applied import duty rates, among others. Nontransparent inspection procedure in any country reduces efficiency and slows customs clearance times. As a result of these and other factors

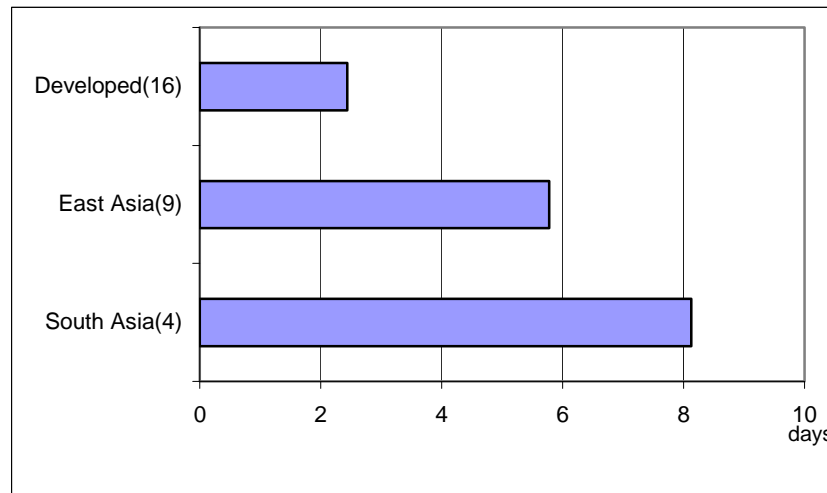
¹⁷ Data are from 2002, communication with Simon Thomas, World Bank.

¹⁸ For example, most of the network in Eastern India is broad gauge (Subramanian and Arnold, 2001).

¹⁹For a more detailed description see Subramanian (2001).

customs clearance in South Asia requires dedicated improvements administrative rules applied at the border and associated reform.²⁰ Figure 5 shows that it takes more than 8 days on average to clear customs by sea in South Asia, while it takes less than six days in East Asia (Figure 5).

Figure 5: Average Days Required for Customs Clearance by Sea



Source: World Bank (2004a)

Note: Calculated from International Exhibition Logistics Associates data. Developing countries include Australia, Belgium, Denmark, Germany, Finland, France, Great Britain, Italy, Netherlands, Norway, Portugal, Sweden, U.S.A., Canada, and Japan. East Asia includes Hong Kong, Indonesia, Malaysia, China, Philippines, Singapore, Taiwan, Thailand, and Vietnam. South Asia includes Bangladesh, India, Pakistan, and Sri Lanka.

Countries in the South Asia region have moved over the past decade, however, to improve customs. For example, India has launched a modernization project in customs which includes leveraging Electronic Data Interchange (EDI) technology, which allows exchanging documents and forms electronically, to streamline clearances. With assistance from the World Bank, Pakistan has started reforms in the Central Board of Revenue including customs offices and is expected to have a revenue increase by Rs.65 billion of in the fiscal year 2004-5 (Rizvi, 2004). Pakistan has also introduced electronic filing of a single shipping document at Port Qasim as part of an effort by its customs service to streamline clearance and reduce transaction costs (World Bank, 2004a). In Bangladesh, the steps required for import and export clearance of fiber, fabric, and garments have been reduced by 75 percent (World Bank, 2004a). Afghanistan is working on customs modernization in a new \$31 million World Bank project. Nepal is currently undertaking reforms under a Three Year Customs Reform and Modernization Action

²⁰ Policy programs and action to reduce corruption in the region is also an issue which must be addressed within this context. In some countries, exporters have to pay informal payments not only to customs officers but also to police at check points along the routes and to cargo handlers at ports. In the South Asia region, there are examples of payments of 30 percent of invoice value for a consignment on the Bangladesh-Phulbari corridor through Kakarvita and of US\$150 per consignment on imports and exports via Haldia (Subramanian and Arnold, 2001).

Plan. Reforms include upgrading physical facilities, administrative structure, automation of customs, and simplification and harmonization of procedure (Government of Nepal MoF). The reforms resulted in a revenue increase by Rs.900 million in the first six months of 2004 from the same period in the previous year (*Gorkhapatra Daily*, January 24, 2004).

Compared to East Asia, however, South Asia continues to lag behind in deploying technology in customs administration. For example, EDI is widely adopted in East Asian countries, such as Singapore, Thailand, the Philippines, and Indonesia (World Bank, 2003). In contrast, EDI systems are not yet to be implemented in Bhutan, Nepal, and Sri Lanka (UNESCAP, 2001).²¹ India moved to adopt EDI systems in 1992 and the Confederation of Indian Industry has been promoting implementation of EDI in all major customs points (Hindu Business Line, July 5, 2004).

In order to advance reform, South Asia can learn from experiences in East Asia. One such example is the Philippines' modernization of customs.²² Like many countries in South Asia, the Philippines relied on multiple customs clearance documents to clear exports and imports. It was reported that customs clearance involved 10 separate documents in multiple copies, with over 90 steps, and more than 40 signatures (World Bank, 2001). By implementing the ASYCUDA system for customs clearance developed by UNCTAD, there has been a significant reduction in paper transactions. Another example is the customs administration reform in China. In October 2003, Shanghai customs began on a seven day schedule to reduce congestion and accelerate trade (Shanghai WTO Affairs Consultation Center, 2003). Together with the application of information technology, administrative reform contributed to Shanghai's high efficiency rating among Chinese customs clearance posts.

(4) Standards and Technical Regulations

Like other developing countries, those in South Asia confront challenges and can realize opportunities for market expansion in meeting standards and technical regulations. These measures are directly related to trade facilitation. Based on data in the World Bank Technical Barriers to Trade (TBT) database, South Asian firms in India and Pakistan report standards and technical regulations as very important to export success – at a higher percentage than countries in other regions (Figure 6). There are specific examples across the region in other countries which suggest standards as a means to facilitate trade are critical. For example, Nepal's woolen carpets industry was severely affected when Germany, an importer of 90 percent of the products, required eco-labels on the products (Shrestha and Shakya, 2002). Nepalese exporters often fail to present "quarantine and health standard certificate" at the border with India (Shrestha and Shakya, 2002). Similarly, the Indian coffee industry has had difficulties in meeting market standards.²³

²¹ Sri Lanka has been a member of the Asia Pacific Council for Trade Facilitation and Electronic Business (AFACT) since 1995 and sponsors the National EDI/EC Committee which promotes the application of EDI.

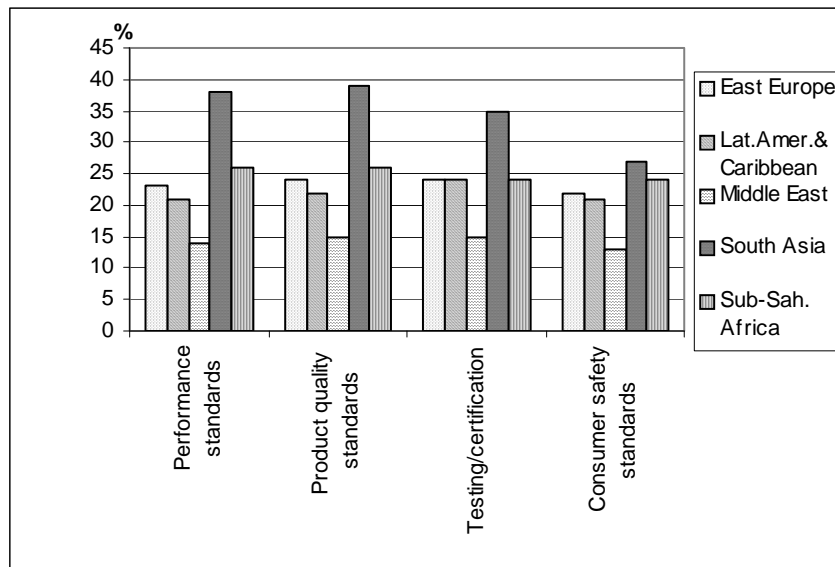
²² For an overview of reform efforts in the Philippines see Parayno (2004).

²³ For an overview of standards and technical barriers in India see: Saqib (2003).

On one hand, the industry must comply with sanitary and phytosanitary (SPS) measures in agricultural trade. Firms also must address increasing pressures to comply with national pollution laws to protect biodiversity. These regulations impose significant financial constraints on the coffee industry, for example (Damodaran, 2002).

South Asian countries have recognized the importance of harmonization of standards in the context of trade facilitation. In 1999, SAARC and the EU signed a Memorandum of Understanding to enhance cooperation to assist the harmonization of SAARC standards (EUROPA, 2004). India and Nepal included issues of standards in discussions on their bilateral agreement (Hindu Business Line, August 10, 2001). The Nepal Bureau of Standards and Metrology tries to harmonize national standards with international standards such as ISO, and provides the Nepalese industries with quality assurance services, consignment inspections, and programs of environmental labeling for export industries (Shrestha and Shakya, 2002). Additional efforts are required in Nepal and other countries – many of which can be supported through regional cooperation platforms -- in standards.

Figure 6: Technical Regulations and Standards
(percent of firms ranking regulations important to export expansion)



Source: Authors' calculations based on the World Bank Technical Barriers to Trade Database

(5) Information Technology and Services Sector Infrastructure

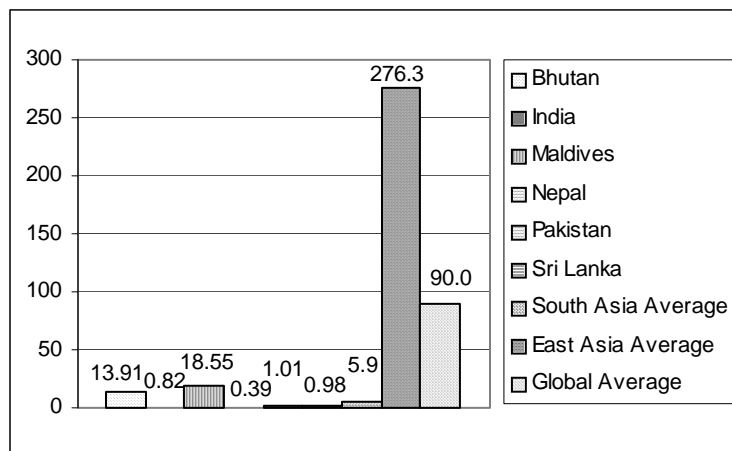
The countries in the South Asia region have made progress over the past decade in access to information technology and application of technology in trade transactions. As noted above, technology is being applied in customs and border clearance to facilitate trade transactions, such as EDI systems and networks. India's performance in information technology production, in particular the software sector, are widely known. In Pakistan, the progress has been rapid in the past years. Currently, there are more than 1812 cities, towns and villages have internet facilities, in comparison to only 850 in June 2002 (MoF, Government of Pakistan, 2002-03 and 2003-04). The number of fixed working telephone

connections has increased from 2.4 million in 1996 to 4.2 million by the end of February 2004. Over 700 IT companies had been established by 2003. At the same time, the fixed line and mobile deregulation policies have been recently introduced in order to enhance competition and attract private investment (MoF, Government of Pakistan, 2003-04).

There remains, however, significant work ahead in broadening the use of information technology and electronic commerce to expand trade in the region. The number of internet hosts in the region relative to others, for example, is low and has significant room for expansion. The number of individuals with access to the internet also needs to be expanded, including those in government and private sector engaged in trade transactions. Figure 7 and 8 show that the numbers of internet hosts and users per 10,000 in 2003 for East Asia are higher than those for South Asia.

In particular, “India still has a fraction of the number in the Philippines, Thailand, or Malaysia.”(source, World Bank). In considering the number of main telephone lines per 1000 people – both fixed and cellular – India trails behind Malaysia, Thailand, Philippines, China and Indonesia.”(source, World Bank). Miller (2001) analyzes the reasons why the internet has not spread as widely in India. First, the country is not economically developed enough so that the cost of access is relatively high. Second, telephone connections are not well established for wide-spread internet use. Third, tariff rates on phone calls are high. Lastly, the lack of modern physical infrastructure networks to deliver products to customers imposes limits on expansion of e-commerce (Miller, 2001).

Figure 7: Internet Hosts per 10,000 Inhabitants in 2003

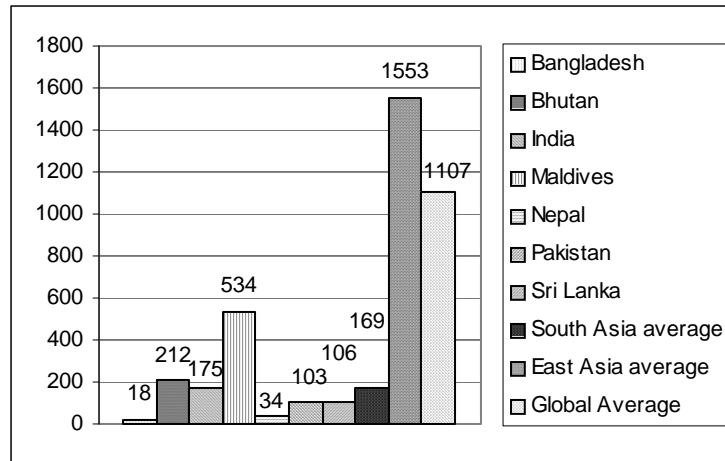


Source: Authors' calculation based on International Telecommunication Union (2004) data

Improvement in information technology services is as equally important as development of physical infrastructure. Biggs et al. (2000) examines the case in Nepal where service is poor and hinders business activities. For example, phone lines usually do not work well outside of the cities. Services are not available all day, and when available, voice quality is often poor (Biggs et al., 2000). Continued efforts to deregulate telecommunications, open markets to competition and investment, and expand financing for infrastructure

promises better quality of service, lower transactions costs and expanded trade across the region.

Figure 8: Internet Users per 10,000 Inhabitants in 2003



Source: Authors' calculation based on International Telecommunication Union (2004) Data

What is lacking in South Asia compared to East Asia, in part is derived from limited cooperative action to promote progress. For example, the Asia Pacific Economic Cooperation (APEC) has targeted achieving paperless trading among all member countries by 2010. This is being advanced by computerizing custom procedures through United Nations Rules For Electronic Data Interchange for Administration Commerce and Transport (UN/EDIFACT) and reducing the number of documents required for sea, air and land transport. Under this initiative, each member country incorporated strategies to achieve paperless trading in its Individual Action Plans in APEC. For instance, Vietnam established a development plan to employ information technology for customs administration during the period of 2001-2005, and “has been marking a new progress in the process of modernization, simplification and harmonization of customs procedures” (APEC, 2003). The overall savings from this paperless trading initiative is expected to be “between 1.5 to 15 per cent of the landed cost of an imported item.” (Australian Department of Foreign Affairs and Trade and Chinese Ministry of Foreign Trade and Economic Cooperation, 2001). With strong regional initiatives like those in East Asia, South Asia could accelerate development of information technology infrastructure and concurrently lower transactions costs. Other examples of regional cooperation, such as those supported by the World Bank in the Trade and Transport Facilitation in Southeast Europe (TTFSE) project on customs and border reform could also be considered as one model of reform for South Asia.²⁴

²⁴ The Trade and Transport Facilitation in Southeast Europe Program initiated in 2000 by the national governments in Southeast Europe, the World Bank, and the United States in collaboration with the European Union. The project is aimed at reducing transport costs, eliminating corruption, and providing European Union-compatible customs standards, and some progress have been made. For details, see <http://www.seerecon.org/ttfse/>.

5. Estimating the Gains from Capacity Building in South Asia

The previous section outlined a number of specific areas for reform and modernization in South Asia to facilitate trade. In this section, we draw on Wilson, Mann Otsuki's (WMO) (2005) indicators for 75 countries in the trade facilitation to evaluate: port efficiency, customs environment, regulatory environment and service-sector infrastructure. 'Port efficiency' in this analysis is designed to measure the quality of infrastructure of maritime and air ports. 'Customs environment' is designed to measure direct customs costs as well as administrative transparency of customs and border crossings. 'Regulatory Environment' is designed to measure the economy's approach to regulations. 'Service-sector Infrastructures' indicates the extent to which an economy has the necessary domestic infrastructure (such as telecommunications, financial intermediaries, and logistics firms) and networked information to improve efficiency and transform activities to enhance economic activity.

While these indicators cover a range of performance in trade and transport facilitation, *they do not cover all areas discussed in the previous sections*. Data availability for cross country analysis is lacking in a number of areas, for example, direct use of information technology in customs and associated costs and benefits of such improvement. New datasets and cross-country indicators on trade facilitation, such as those planned for the World Bank "Doing Business 2006" report, among others, should help expand understanding of the link between trade and logistics costs.

The analysis here and indicators draw on three sources—*Global Competitiveness Report*, *World Competitiveness Yearbook*, and a dataset compiled in Kaufmann, Kraay and Zoido-Lobaton (1999). Each indicator is constructed as a simple average of two inputs as presented in the Appendix.²⁵ We have expanded the WMO data set for this analysis by including Pakistan given the availability of data in the most recent version of *Global Competitiveness Report 2003/2004* for port efficiency and customs. Trade facilitation indicators are available for Bangladesh, India, Pakistan and Sri Lanka among countries in South Asia, but not for Afghanistan, Bhutan, Maldives and Nepal. The first country group represents the South Asia region well, however, as these countries represent approximately 98.6 percent of the region's GDP.

The four South Asian countries exhibit a low performance in port efficiency relative to the sample average (Figure 9). In customs environment all the South Asian countries except Pakistan score lower than the global average. Pakistan is slightly above the sample average. In regulatory environment, Sri Lanka has a relatively high score, which falls just

²⁵ Each input is normalized by the score of the highest ranked country such that the highest score for each input is one.

under the range of best-practice.²⁶ Service-sector infrastructure is estimated to be the most developed in Sri Lanka among the South Asian countries. It is ranked at slightly below the sample average.

The East Asia region is located close to South Asia, however, it is clearly more developed. East Asia also is more advanced in almost all aspects of trade facilitation than the South Asia region.²⁷ This implies that the South Asian countries are confronting significant obstacles to trade facilitation and that the potential benefits from raising capacity toward levels in the more advanced countries outside the region -- such as East Asia -- could be considerable.²⁸

It is important to note that capacity building in South Asia and the rest of the world will simultaneously increase both region's intra-regional trade and the trade with the rest of the world. Yet, by looking at the simulation results for intra-regional trade and the trade with the rest of the world respectively, we identify how much gains come from South Asia's own improvement and how much gains of the region depend on gains in trade with its partners. The first set of the analysis will explicate the benefits that accrue to South Asia from its own capacity building in trade facilitation. The second set of the analysis will demonstrate the region's benefit from its capacity building as well as capacity building undertaken by the rest of the world.

Table 1 summarizes the results of the two sets of the analysis. It is found that the total gains in the value of trade flow to South Asia from the capacity building in both the South Asia's and the rest of the world's capacity building is approximately 36 billion. This amount is the sum of (A) the gains in the intra- South Asia trade from the region's own capacity building, (B) the gains in trade between South Asia and the rest of the world from South Asia's capacity building, and (C) the gains in trade between South Asia and the rest of the world from capacity building by the rest of the world. The first set of the analysis will investigate the detail of the first element (A), and the second set of the analysis will investigate the detail of the second (B) and the third (C) elements.

The simulation analysis based on the gravity model of bilateral trade flow has its own advantage to use the estimated elasticities of trade flow with respect to various influence factors including trade facilitation measures instead of using any assumed values of parameters. There are several drawbacks of this approach that should be remembered. The gravity model treats each sample independently, and hence, capacity building may create trade among certain countries, say, within the regions, and, at the same time, may divert trade with other countries, say, against the rest of the world. This trade diversion

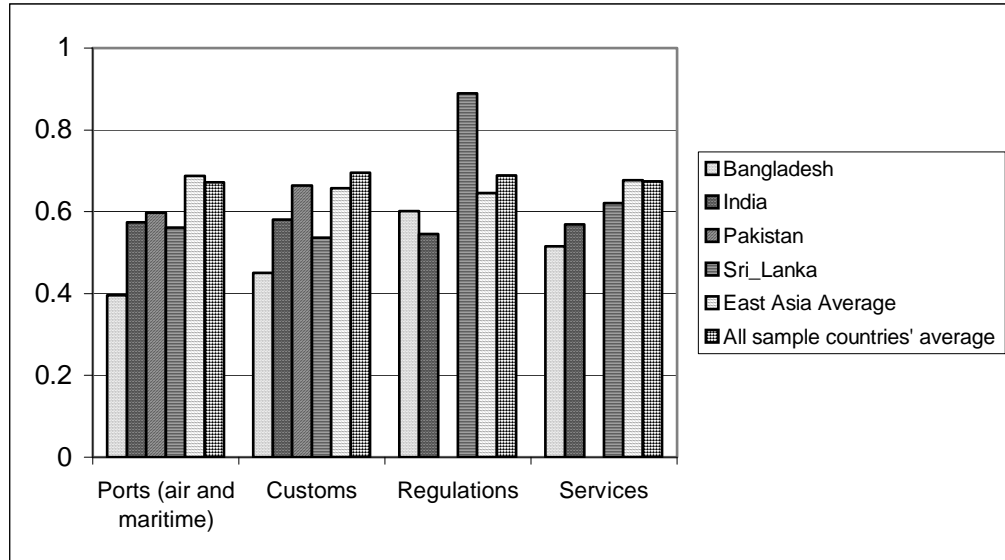
²⁶ The "regulatory environment" indicator reflects transparency of government policy and control of corruption. This category is less objective than the other three categories and, therefore is sensitive to the way the evaluation is made. For example, Bangladesh is rated as the most corrupt in the World according to Transparency International 2000-2002.

²⁷ The sample for East Asia does not include the OECD countries.

²⁸ It also should be noted that the benchmarks of trade facilitation for four South Asian countries are higher than those for most of the developing countries with similar income levels. Therefore, in setting capacity building goals for the region, it is appropriate to compare performance with countries at more advanced stages of development.

effect is doomed to be ignored, thus, our estimated trade gains tend to overestimate the actual gains. There are many factors to be consider if we wish to address aspects of benefit broader than on trade flows, say country's or global welfare and resource costs for capacity building. Those aspects require far more information than are currently available, and therefore, we limit our scope to trade flows.

Figure 9: Trade Facilitation Indicators



Source: Wilson, Mann, Otsuki database 2004

Note: Data on regulatory environment and service-sector infrastructure are not available for Pakistan.

Table 1: The Estimated Total Gains in the Value of Trade Flow from the Capacity Building in Trade Facilitation

		Capacity building undertaken by	
		South Asia (SA)	Rest of the world (ROW)
Trade pattern	SA – SA	2.6 billion (A)	
	SA – ROW	28.9 billion (B)	
Total		36.3 billion (D)	

Expanding Intra-regional Trade

In this subsection, we estimate gains from regional integration with a focus on collective programs in capacity building within South Asia. We investigate the gains to regional

trade with a program to raise capacity in trade facilitation across the region. The trade gains to a country from unilateral action correspond to gains from improvement by that country alone in a given category of trade facilitation. The gains to a country from collective capacity building in a given category of trade facilitation are equal to the gains to that country from the improvement by its trading partners *plus* those from unilateral capacity building.

WMO (2004) include estimated elasticities for the value of bilateral manufacturing trade with respect to each trade facilitation indicator. The analysis here draws on the data and elasticities estimated in WMO (2004). The performance of the East Asia region is set as a goal for the South Asia region. This is both due to the geographic proximity of the regions and the fact that East Asia is more advanced in trade facilitation. We will set the target level at halfway to the East Asia average.²⁹ We calibrated the Pakistan's values of regulatory environment and service-sector infrastructure by using predicted values based on GDP per capita in order to avoid a significant underestimation of trade gains in Pakistan, hence, those in the South Asia region.³⁰

In this analysis we ask the question: "How would intra-regional trade change if South Asia would act collectively to raise capacity in trade facilitation?" We assume that only countries in the region improve in these measures. We find that such action taken together by the South Asian countries is estimated to create considerable gains to trade within the region. Table 2 indicates that the total estimated gain from capacity building in all four categories of trade facilitation is approximately \$2.6 billion. This is almost a 60 percent rise in total intra-regional trade in South Asia. The projected gains from both unilateral and partners' capacity building are significant. The country with the largest projected gains in South Asia is India. Trade flows for India is expected to increase by \$1.1 billion as shown in Table 2. Capacity building in service-sector infrastructure contributes the most to those gains. Sri Lanka gains the most from other South Asian countries' capacity building relative to gains from its own action. This is because Sri Lanka has relatively high scores in the indicators, which suggests more limited improvement needed to reach East Asia levels. Figure 10 also illustrates trade gains in percentage. It is estimated that India and Bangladesh, in particular, could significantly increase trade across all the areas examined.

²⁹ Clearly given financial and others resources are limited, achieving 100 percent of the East Asian level may not be feasible in a short term.

³⁰ We used the predicted value for each of regulatory environment and service-sector infrastructure indicators once it is fitted on log of GDP per capita using the 75 country sample in the WMO database.

Table 2: Trade Gains (\$million) from Capacity Building by Each of South Asian Countries and Entire South Asia Region in Trade Facilitation³¹

	Port efficiency (Air and Maritime)	Customs	Regulation	Service-sector infrastructure	All
Bangladesh	228	144	71	339	782
India	314	193	123	519	1,149
Pakistan	74	29	42	191	336
Sri Lanka	97	63	41	175	377
South Asia	712	429	278	1,224	2,644

Source: Authors' calculation based on Wilson, Mann, Otsuki database 2004

Among the four trade facilitation indicators, results suggest that capacity building in information technology and services infrastructure, reflected in expanded internet access and use, would lead to the greatest gains to intra-regional trade. Capacity building in port (air and maritime) efficiency would achieve the second largest trade gains. This suggests that the South Asia region is currently underdeveloped more in areas related to information technology infrastructure than in administrative or regulatory aspects of trade facilitation at the border. It is important to note that these results should be considered an indication of where priorities may be most important, however, and not viewed alone. For instance, the "services-sector infrastructure" may reflect to some extent the effect of other variables (e.g. inland transport, or specific policy and institutional issues related to border clearance) that the model does not include. This highlights the importance of new datasets and data gathering for analysis, among other issues.

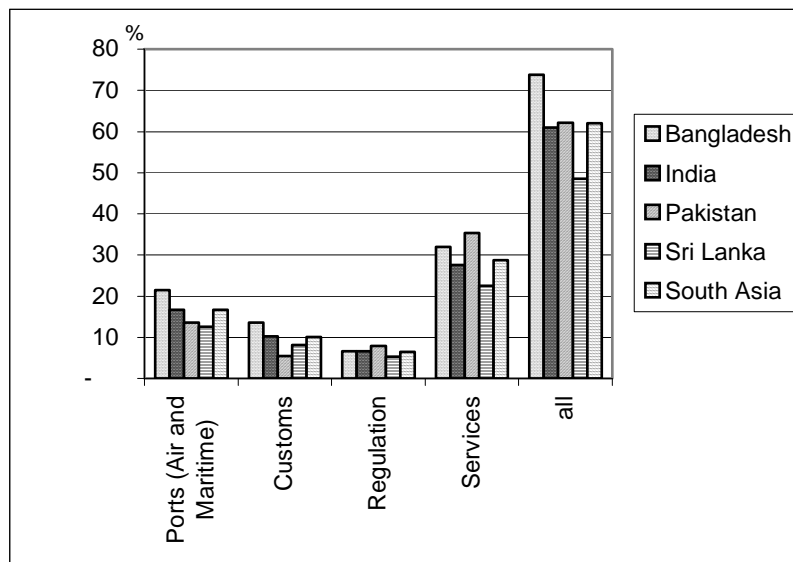
Until now, we have considered a transitional scenario toward the regional harmonization of capacity in trade facilitation. As an informative exercise, we will now consider a harmonization of the other influencing factors that are represented by tariff barriers, and will speculate how much improvement will be needed for the South Asian countries to achieve the formerly set goal (halfway toward the East Asia average). In our gravity model estimation, we have obtained the elasticity of trade flow with respect to tariff rates. The elasticity is used to predict the trade flow at a common tariff rate, namely, the average tariff rate in South Asia, and calculated the amount of capacity building needed to achieve the trade flow at the common tariff rate. In this exercise, we consider the capacity building in trade facilitation in only importing countries since tariff rates are assumed to be changed only by importing countries for simplicity. Tariff data were not available for some South Asia countries in the studied period, thus, those countries are not included in this exercise.

We find, under this scenario, that a 65 percent improvement in port efficiency from the status quo level is needed for Bangladesh to achieve the target level of trade, and that a

³¹ To calculate the predicted values of regulation and service infrastructure, we regressed the indicators with logarithm of GDP and obtained the fitted value.

37 percent improvement is needed for Sri Lanka to achieve the trade flows at the South Asia average tariff rate. The tariff rates of these countries were below the South Asia average in the studied period, applying the South Asia average rate to those countries implies a reduction of trade flow. On the other hand, India's tariff rates were lower than the South Asia's average rate, and hence, applying the South Asia average rate to this country will result in a trade flow that exceeds the trade flow at the South Asia average tariff rate. This exercise can be repeated for the rest of trade facilitation measures.

Figure 10: Trade Gains (percentage) from Collective Capacity Building in the Context of Intra-regional Trade in South Asia



Source: Authors' calculation based on Wilson, Mann, Otsuki database 2004

Global Trade and the South Asia Region

Now we turn to the analysis of gains from collective action in capacity building between the South Asia region as one group and the rest of the rest of the world as another group. The rest of the world is represented by 76 countries in the WMO data set. In the previous section we estimated the gains to trade from action only by South Asia and the implications for intra-regional trade. Capacity building in trade facilitation by countries in the region is also expected to generate gains from trade with the rest of the world *even if the rest of the world does not reform or invest in capacity building measures*. If the rest of the world would upgrade capacity in trade facilitation simultaneously, however, the estimated gains to South Asia would rise further. For example, consider development assistance and reform undertaken through obligations in the World Trade Organization in trade facilitation by all WTO members.

A similar simulation scenario as in the previous section is used here to examine the question: "How would trade change if South Asia and the rest of the world acted together

to reform and raise capacity in trade facilitation?” “What are the implications for South Asia from global reform?” “What are the implications for South Asia from global reform?” We set the target level of each trade facilitation indicator at halfway up to the East Asia average. The same scenario also is employed for the rest of the world in order to make a comparison possible between South Asia’s trade gains from its intra-regional trade and its trade with the rest of the world. The analysis will focus on trade between South Asia and the rest of the world within the sample of 76 countries. (We do not include gains from capacity building between countries in South Asia or gains between countries within the group of the rest of the world.)

As shown in Table 3, the total gains to South Asia from unilateral capacity building in the region are estimated at approximately \$27 billion. This represents about 32 percent of the region’s trade with the rest of the world. It is important to note that 87 percent of the total gains to South Asia are generated from *South Asia’s own moves* to upgrade infrastructure in ports and information technology, harmonize regulations, and improve customs. This stresses the importance of capacity building in trade facilitation in South Asia as a means of strengthening global ties outside the region -- as well as fostering intra-regional trade. The most promising area for focus appears to be service-sector infrastructure as demonstrated in Figure 11. The gains from capacity building in service-sector infrastructure should also be considered along with the significant gains from associated with raising port efficiency. This is similar to the conclusions reached in the analysis of intra-regional action above.

Table 3 indicates that the relative importance of South Asia’s capacity building to that of the rest of the world. By construction, the gains to the South Asia region from unilateral capacity building coincide with the gains to the rest of the world from its partners’ (South Asia’s) capacity building. Trading partners outside of the region clearly gain from improvements made in South Asia. As indicated in Figure 9, the average performance in trade facilitation in South Asia is lower than that in East Asia’s and the sample average. Therefore, raising capacity in South Asian countries could significantly contribute to both trade expansion within the region and outside of the region.

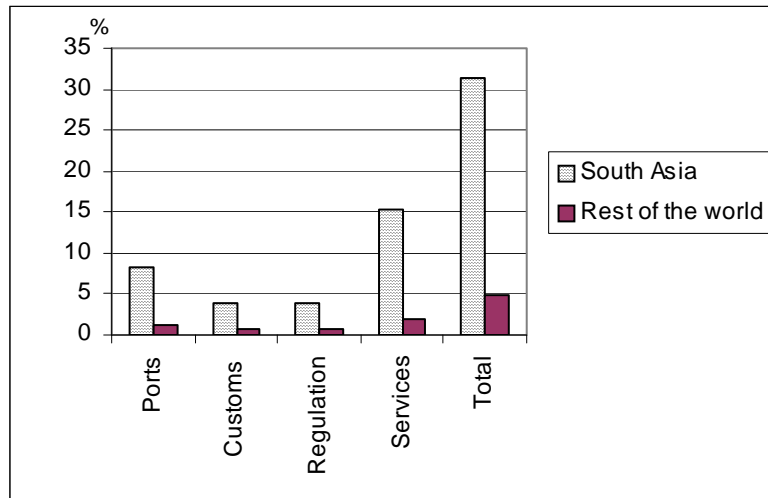
Table 3: Trade Gains (\$ million) from Unilateral and Collective Capacity Buildings between South Asia and the Rest of the World

	Port efficiency (Maritime and Air)		Customs		Regulation		Service-sector infrastructure		Total	
	unilateral	partners	unilateral	partners	unilateral	partners	unilateral	partners	unilateral	partners
South Asia	8,421	1,268	3,881	755	3,809	836	15,452	1,941	27,560	4,800
Rest of the world	1,268	8,421	755	3,881	836	3,809	1,941	15,452	4,800	27,560

Source: Authors’ calculation based on Wilson, Mann, Otsuki database 2004

Note: “The rest of the world” includes a group of 76 countries excluding the South Asian countries.

Figure 11: Trade Gains to South Asia (percent) from Its Own (unilateral) Capacity Building and Capacity Building by the Rest of the World



Source: Authors' calculation based on Wilson, Mann, Otsuki database 2004

5. Concluding Remarks

The South Asia region has a significant opportunity in 2004 to accelerate economic growth and reduce poverty through concrete actions to facilitate trade. These include taking steps to realize the promise of collective gains through platforms that advance regional integration. The drive to implement the South Asian Free Trade Area (SAFTA) and initiatives of the South Asian Association for Regional Cooperation (SAARC) offer such opportunities. Based on the analysis in this note, there are significant potential gains to trade for South Asia associated with collective efforts to raise capacity in trade facilitation. These include specifically investments in upgrading ports and information technology infrastructure in the region.³² There are also gains directly related with continued reform in customs clearance procedures and regulatory harmonization. The results of our analysis also show that steps to reduce barriers to trade logistics in the region promise expanded trade opportunities with the rest of the world. In this regard, collective action under regional initiatives is particularly important.

When considering intraregional trade, if the countries of South Asia raise their capacity halfway to East Asia's average, their trade would rise by an estimated \$2.6 billion. This is approximately 60 percent of the total intraregional trade in South Asia. The category of trade facilitation that will produce the greatest gains is service-sector infrastructure (\$1,224 million), followed by efficiency in air and maritime ports (\$712 million). South Asia also has a stake in the success of efforts to promote capacity building outside its borders. If South Asia and the rest of the world raised their levels of trade facilitation halfway to the East Asian average, the gains to the region would be an estimated \$36 billion. Out of these gains, about 87 percent of the total gains to South Asia would be generated from South Asia's own efforts (leaving the rest of the world unchanged). The

³² The SAARC members specifically decided on special projects in telecommunications and information technology at meetings in Islamabad in July 2004.

important role of India in advancing reform should also be noted. India represents 80 percent of the total GDP of South Asia and thus can act as a catalyst, along with partners in the region, to advance a trade facilitation agenda.

The success in any reform agenda to implement capacity building in trade facilitation in South Asia—or any other region—must necessarily involve complementary investments in policy areas beyond those related to barriers that affect trade logistics costs. Reducing barriers to foreign direct investment, lowering tariff rates of protection, and eliminating other nontariff barriers that slow productivity and block private sector growth are also important. Macroeconomic policy stability and many other factors will also clearly affect any reform agenda. The bilateral relationship between India and Pakistan, among other nations in the region, will also shape future progress. It is clear that regional integration can be advanced, however, with serious programs of concrete action to address barriers in trade facilitation, such as those reviewed here.

Data Appendix

Data come from the World Economic Forum, *Global Competitiveness Report, 2001-02* (GCR), IMD Lausanne, *World Competitiveness Yearbook 2000* (WCY), and Kaufmann, Kraay and Zoido-Lobaton (2002) (KKZ). All survey data in GCR comes from the World Economic Forum's Executive Opinion Survey. A total of 4022 firms were surveyed. "In order to provide the basis for a comparative assessment on a global basis, it is essential that we interview a sufficient number of senior business leaders in individual countries and that the sample in each country is not biased in favor of any particular business group. We have taken a number of steps to ensure this. First, we have asked each of our partner institutes, the organizations that administer the surveys in each country, to start with a comprehensive register of firms. From this, they were asked to choose a sample whose distribution across economic sectors was proportional to the distribution of the country's labor force across sectors, excluding agriculture. They were then asked to choose firms randomly within these broad sectors (for example, by choosing firms at regular intervals from an alphabetic list), and to pursue face-to-face interviews, following up for clarifications where necessary. The employment distribution was taken from data in the 1998 *Yearbook of Labour Statistics* of the International Labour Office. The respondents to the survey are typically a company's CEO or a member of its senior management."

The WCY uses a 115 question survey sent to executives in top and middle management of firms in all 49 countries of the WCY. The sample size of each country is proportional to GDP, and firms "normally have an international dimension." The firms are selected to be a cross section of manufacturing, service, and primary industries. There were 3532 responses to the Survey.

KKZ (2002) updates the data on governance that were developed in Kaufmann, Kraay and Zoido-Lobaton (1999) "Governance Matters." The database contain more than 300 governance indicators for 175 countries compiled from a variety of sources in 2000/2001. Six aggregate indicators are constructed corresponding to six basic governance concepts: nVoice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption.

The various raw data series were chosen because of their relevance to the four concepts of trade facilitation.

- "Port efficiency" for each country J is the average of two indexed inputs (all GCR):
 - Port facilities and inland waterways are : (1=underdeveloped, 7=as developed as the world's best, GCR)
 - Air transport is : (1=infrequent and inefficient, 7=as extensive and efficient as the world's best, GCR)
- "Customs environment" for each country J is the average of two indexed inputs (all GCR):
 - Hidden import barriers other than published tariffs and quotas

- Irregular extra payments or bribes connected with import and export permits
- “Regulatory environment” for each country *J* is constructed as the average of two indexed inputs:
 - Transparency of government policy is satisfactory (WCY)
 - Control of Corruption (KKZ)
- “Service-sector infrastructures” for each country *J* is as the average of two indexed inputs (all GCR):
 - Speed and cost of internet access are: (1=slow and expensive, 7=fast and cheap)
 - Internet contribution to reduce inventory costs is: (1=no improvement, 7=huge improvement)

[Source : Wilson, Mann and (2005)]

References

Arnold, John. 2004. "Bangladesh Logistics and Trade Facilitation," (mimeo). Washington, D.C.: World Bank 2004.

APEC (Asia Pacific Economic Cooperation) (1999). Assessing APEC Trade Liberalization and Facilitation: 1999 Update, Economic Committee, September 1999. APEC: Singapore.

———. 2003. "Vietnam Individual Action Plan: Customs Procedures." <http://www.apec-iap.org>.

Australian Department of Foreign Affairs and Trade and Chinese Ministry of Foreign Trade and Economic Cooperation. 2001. "Paperless Trading: Benefits to APEC." Commonwealth of Australia. www.dfat.gov.au/publications/paperless/paperless_trading.pdf.

Bagai, Shweta, Richard Newfarmer, and John S. Wilson. 2004. "Trade Facilitation: Ways WTO Disciplines Could Promote Development." *Trade Note* 15. (May 7). Washington, D.C.: World Bank.

Baier, S.L., and J.H. Bergstrand. 2001. "The Growth of World Trade: Tariffs, Transport Costs, and Income Similarity." *Journal of International Economics*, February 53(1): 1-27.

Biggs, Tyler, et al. 2000. "Pilot Investment Climate Assessment: The Business Environment and Manufacturing Performance in Nepal." World Bank Regional Program for Enterprise Development and Federation of Nepalese Chambers of Commerce and Industry.

Business Standard. 2004. "Nhava Sheva Port in Jam." *Business Standard*. (August 6). Mumbai. <http://www.businessstandard.com/common/storypage.php?hpFlag=Y&chklogin=N&auto no=163402&leftnm=lmnu2&lselect=0&leftindx=2>

Clark, Ximena, David Dollar, and Alejandro Micco. 2004. "Port Efficiency, Maritime Transport Costs and Bilateral Trade, *Journal of Development Economics*, vol. 75, Issue 2, pp. 417-450.

Cudmore, Edgar, and John Whalley. 2004. "Border Delays and Trade Liberalization." University of Western Ontario and NBEER Peking University CESinfo. <http://www.nber.org/books/ease14/cudmore-whalley6-11-04.pdf>

Daily Mirror. 2003. "US Takes Lanka on Board Container Security Initiative." *Daily Mirror*. (June 27).

Damodaran, A. 2002. "Conflict of Trade-Facilitating Environmental Regulations with Biodiversity Concerns: The Case of Coffee-Farming Units in India." *World Development*. vol. 30. no. 7.: Great Britain: Elsevier Science Ltd. pp. 1123-1135.

Das, Samantak, and Sanjib Pohit. 2004. "Quantifying Transport, Regulatory and Other Costs of India-Bangladesh Trade." (March). National Council of Applied Economic Research. <http://www.ncaer.org/WP92.pdf>

EUROPA. 2004. "Regional Co-operation." (July 26).
http://europa.eu.int/comm/europeaid/projects/asia/regional_en.htm

Fink, Carsten, Aaditya Mattoo, and Cristina Ileana Neagu. 2002. *Assessing the Role of Communication Costs in International Trade*. World Bank Working Paper 2929. Washington, DC.: World Bank.

Freund, Caroline, and Diana Weinhold. 2000. *On the Effect of the Internet on International Trade*. International Finance Discussion Paper 693. Board of Governors of the Federal Reserve System.

Gorkhapatra Daily. 2004. "Reform in Customs Boosts Revenue." *Gorkhapatra Daily*. (January 24).
<http://www.gorkhapatra.org.np/pageloader.php?file=2004/01/26/topstories/main3>

Government of Nepal Ministry of Finance (MoF). <<AU: PLEASE GIVE YEAR:>>???.
"Three Years Customs Reform and Modernization Action Plan 2003-2006."

Hertel, Thomas W., Terrie Walmsley; and Ken Itakura. 2001. "Dynamic Effect of the "New Age" Free Trade Agreement between Japan and Singapore." *Journal of Economic Integration* 16(4): pp. 446-84.

Hindu Business Line. 2000. "India: Panja for Rapid Economic Integration." *Hindu Business Line*. (May 11): pp. 1.

———. 2001. "India, Nepal Discuss Trade, Transit Treaty." *Hindu Business Line*. (August 10): pp. 1.
<http://www.thehindubusinessline.com/businessline/2001/08/10/stories/141032bb.htm>.

———. 2004. "CII Urges Use of Electronic Media for Trade Facilitation." *Hindu Business Line*. (July 5): pp. 1. <http://www.blonnet.com/2004/07/05/stories/2004070501580500.htm>.

Hummels, David L. 2001. "Time as a Trade Barrier." (mimeo). Department of Economics. Purdue University, Lafayette, Ind.
<http://www.eiit.org/ConfInfo/2000Papers/hummels.pdf>

Karmacharya, Binod K. 2002. "Facilitating Trade in SASEC Region in the Perspective of Recent Developments: A Case Study of India and Nepal." Paper presented for Asian

Development Bank: South Asia Business Forum (SABF), South Asia Sub-regional Economic Cooperation (SASEC), 12-13 August 2002, New Delhi, India.

Krueger, Elizabeth, et al. 2004. "Impact of South Asia Free Trade Agreement." *Policy Analysis Workshop, Public Affairs* 869. (Spring). Madison, Wisconsin: La Follette School of Public Affairs University of Wisconsin-Madison.
<http://www.lafollette.wisc.edu/publications/workshops/2003-2004/pa869/2004-SAFTA.pdf>

<<AU: ALL ENTRIES NEED TO BE IN CHRONOLOGICAL ORDER, WITH THE EARLIER YEAR LISTED FIRST:>>

Kruk, Bert. **<<AU: PLEASE GIVE YEAR:>>**?????. Note on South Asian Port Environment. Washington, D.C.: World Bank.

———. 2004. Note on "Asian Ports." (August). Washington, D.C.: World Bank.

Leonard, J. 2001. "Impact of the September 11, 2001, Terrorist Attacks on North American Trade Flows." Arlington, Va.: E – Alert, Manufacturers Alliance.

Lloyd's *Register*, August 27, 2004.

Maskus, Keith E., John S. Wilson, and Tsunehiro Otsuki. 2001. "An Empirical Framework for Analyzing Technical Regulations and Trade," in *Quantifying the Impact of Technical Barriers to trade: Can It Be Done?* Keith Maskus and John S. Wilson eds., University of Michigan Press, 2001.

Miller, Robert R. 2001. "Leapfrogging? India's Information Technology Industry and the Internet." Washington, D.C.: International Finance Corporation.
http://imagebank.worldbank.org/servlet/WDSContentServer/IW3P/IB/2001/07/28/000094946_01070604271571/Rendered/PDF/multi0page.pdf

Ministry of Finance (MoF), Government of Pakistan. **<<AU: PLEASE GIVE YEAR:>>**?????. "Transport and Communications." Chapter 14 in *Pakistan Economic Survey 2003-04*.
<http://www.finance.gov.pk/survey/home.htm>

———. **<<AU: PLEASE GIVE YEAR:>>**?????. "Transport and Communications." Chapter 14 in *Pakistan Economic Survey 2002-04*.
http://www.accountancy.com.pk/docs/Economic_Survey_2002-03.pdf

Moenius, Johannes. 2000. "Three Essays on Trade Barriers and Trade Volumes." Ph.D. dissertation. University of California, San Diego.

———. 2004. "Information versus Product Adaptation: The Role of Standards in Trade." Kellogg School of Management Northwestern University.

Nayar, Lola. 2004. "SAFTA a Step Forward for Regional Development: Experts." *South Asia Monitor*. (August 5).

Newfarmer, Richard, and M. D. Pierola. 2006. "SAFTA: Promise and Pitfalls of Preferential Trade Arrangements." (mimeo), World Bank, Washington D.C.

OECD (Organization for Economic Cooperation and Development). 2001. "Business Benefits of Trade Facilitation." TD/TC/WP(2001)21 FINAL. OECD: Paris.

———. 2002a. "The Impact of the Terrorist Attacks of 11 September 2001 on International Trading and Transport Activities." Unclassified Document TD/TC/WP (2002)9/Final. Paris.

———. 2002b. "Economic Consequences of Terrorism." *OECD Economic Outlook* 71: 117-40. Paris.

Otsuki, Tsunehiro, John S. Wilson, and Mirvat Sewadeh. 2001a. "What Price Precaution? European Harmonisation of Aflatoxin regulations and African Groundnut Exports." *European Review of Agricultural Economics* 28(3): 263-284.

———. 2001b. "Saving Two in a Billion: Quantifying the Trade Effect of European Food Safety Standards on African Exports." *Food Policy* 26: 495-514.

Parayno, Guillermo. 2004. Philippines Case Study in "Customs Modernization Initiatives." Luc De Wulf and Jose B. Sokol eds. Washington, D.C.: World Bank.

RIS (Research and Information System for the Non-Aligned and Other Developing Countries). 2004. *South Asia Development and Cooperation Report 2004*. New Delhi, India.

Rizvi, Shamim Ahmed. 2004. "Reforms in the CBR." *Pakistan Economist*. (June 7-13). Islamabad.

Roy, Jayanta. 2004. "Consequences and Benefits of Implementing a Multilateral Approach to Trade Facilitation," World Bank Seminar, Dakar.

Saqib, Mohammed. 2003. "Technical Barriers to Trade and the Role of Indian Standard-Setting Institutions." Chapter 11 in Aaditya Mattoo and Robert M. Stern eds. *India and the WTO*." (10 August). Washington, D.C.: World Bank and Oxford University Press.

Shanghai WTO Affairs Consultation Center. 2003. "Chapter Seven Pudong's Economic and Social development After China's Accession to the WTO." http://www.sccwto.net:7001/wto/english/shanghai2003_8.htm

Shrestha, Puspa Raj, and Bijendra Man Shakya. 2002. "Status of Standardization and Conformity Assessment in Nepal." World Trade Net Tropical Workshop on Business Implications for the Private Sector in Asia of the WTO-TBT Agreement, Manila, the Philippines, 3-5 December 2002.
http://www.intracen.org/worldtradenet/docs/whatsnew/tbt_philippines_dec2002/country_paper_nepal.pdf.

Subramanian, Uma. 2001. "Transport, Logistics, and Trade Facilitation in the South Asia Subregion." In T.R. Lakshmanan, Uma Subramanian, William P. Anderson, and Frannie A. Leautier, eds., *Integration of Transport and Trade Facilitation: Selected Regional Case Studies*. (January).

Subramanian, Uma, and John Arnold. 2001. "Forging Subregional Links in Transportation and Logistics in South Asia." (January). Washington, D.C.: World Bank.

UNCTAD (United Nations Conference on Trade and Development). 2001. *E-Commerce and Development Report*. Geneva: UNCTAD.

UNESCAP (United Nations Economic and Social Commission in Asia and the Pacific). 2001. "Part Five: Logistics, Transport Facilitation and Multimodal Transport." *Review of Developments in Transport and Communications in the ESCAP Region 1996-2001 Asia and the Pacific*. New York: United Nations.
<http://www.unescap.org/tctd/pubs/review2001toc.htm>

Walkenhorst, Peter, and Nora Dihel. 2002. "Trade Impacts of the Terrorist Attacks of 11 September 2001: A Quantitative Assessment." Paper prepared for the Workshop on the Economic Consequences of Global Terrorism. Berlin, June 12-13.

Walkenhorst, Peter, and Tadashi Yasui. 2003. "Quantitative Assessment of the Benefits of Trade Facilitation." TD/TC/WP2003(31)/FINAL. (13 November). Paris: OECD.
[http://www.oilis.oecd.org/oilis/2003doc.nsf/43bb6130e5e86e5fc12569fa005d004c/ec8dd2cee8fca29ac1256ddd0055e57b/\\$FILE/JT00153655.PDF](http://www.oilis.oecd.org/oilis/2003doc.nsf/43bb6130e5e86e5fc12569fa005d004c/ec8dd2cee8fca29ac1256ddd0055e57b/$FILE/JT00153655.PDF)

Wilson, John S. 2003. "Trade Facilitation: New Issues in a Development Context." *Trade Note* 12. (December 1). Washington, D.C.: World Bank.

Wilson, John S., Catherine Mann, and Tsunehiro Otsuki. 2005. "Assessing the Potential Benefit of Trade Facilitation: A Global Perspective" *The World Economy*, vol. 28 (6) pp. 841-871.

World Bank. <<AU: PLEASE GIVE YEAR:>>???. Pilot Investment Climate Assessment: Improving the Investment Climate in India. Washington, D.C.

———. <<AU: PLEASE GIVE YEAR:>>???. "Trade and Transport Facilitation Program in Southeast Europe Trade Facilitation Component (TFC)." <http://www.seerecon.org/ttfse/TTFSERoleParties.pdf>

- . 2001. “E Government: Philippine Customs Reform.” (January 3). <http://www1.worldbank.org/publicsector/egov/philippinecustomscs.htm>.
- . 2002a. *Global Economic Prospects and the Developing Countries 2002*. Washington, D.C.
- . 2002b. “India: Evaluating Bank Assistance for Transport Sector Development in the 1990s – A Country Assistance Evaluation.” Vol. 1 Departmental Working Paper. Report No. 24580. Washington, D.C.
- . 2003. *East Asia Integrates: A Trade Policy Agenda for Shared Growth*. Ed. by Kathie Krumm and Homi Kharas. Washington, D.C.
- . 2004a. *Global Economic Prospects: Realizing the Development Promise of the Doha Agenda 2004*. Washington, D.C.: World Bank.
- . 2004b. “Trade and Regional Cooperation between Afghanistan and Its Neighbours.” Report No. 26769. (February 18). Washington, D.C..