POLICY REVIEW

Trade facilitation in South Asia

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Abstract

Purpose – The purpose of this study is to discuss the progress and challenges of South Asia in trade liberalization and facilitation, and to quantitatively demonstrate the potential benefits of trade facilitation in South Asia.

Design/methodology/approach – The quantitative study simulates the trade gains to the region based on the gravity model estimation for 101 world countries.

Findings – The gains to the region are estimated to be $31 billion in 2007 and $26 billion in 2010 if South Asia and the “rest of the world” raised levels of trade facilitation halfway to the world average. Of those trade gains, about 80 per cent (in 2007) and 67 per cent (in 2010) of the total gains to South Asia will be generated from South Asia’s own efforts.

Originality/value – Thus this study demonstrates the importance of trade facilitation as an instrument for expansion of trade both within South Asia and with the rest of the world, as well as policy recommendations regarding the priority area for reform.

Keywords Transport and logistics cost, Customs procedures, Regulatory environment, Trade facilitation, Regional integration, Capacity building, Customs, Trade

Paper type Research paper

1. Introduction

Trade facilitation, such as policy reforms and infrastructure improvements, is believed to have a growth-promoting effect (Wilson et al., 2005). Over the past two decades, developing countries have substantially liberalized the trade of goods and services (World Trade Organization, 2011). Some developing countries, however, have not been successful in expanding trade, even after aggressive tariff reductions.

The trade performance of countries in South Asia has generally been poor, relative to other regions of Asia, despite the remarkable growth in exports in India over the last decade (United Nations Economic and Social Commission in Asia and the Pacific (UNESCAP), 2011). This poor performance is partly due to inactive intra-regional trade, significantly high tariffs and non-tariff barriers (Rahman et al., 2011). Ahmed and Ghani (2007) highlighted the high cost of doing business, underdeveloped institutions, and inadequate technology and infrastructure, as some of the major

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challenges facing South Asia. UNESCAP (2011) reported that South Asia still lags behind East Asia in trade logistics, despite a slight improvement in trade logistics in South Asia over the past five years.

Although South Asian countries have implemented a sequence of reforms in macroeconomic and trade policies to boost their respective global competitiveness, barriers to trade and businesses have not been reduced as significantly as they have in China and other East Asian countries (Rana, 2012). In addition, the legacy of import-substitution policies and bureaucracy since the independence of the South Asian countries (from British rule) has constrained rapid globalization via heavy regulation and inefficiencies in the public sector (Rana, 2012). In this study, we offer quantitative evidence demonstrating the significance of the region’s institutional and logistical barriers to trade and exhibit potential trade gains from trade facilitation capacity building in the region.

Complexities in regard to non-tariff measures and the lack of a precise definition of trade facilitation has complicated efforts to quantify the benefits of trade facilitation reform and related steps to lower trade transaction costs. The definition of trade facilitation varies depending on the extent of measures to be included. A broader framework for understanding trade facilitation and its impact on international commerce includes a number of interrelated factors, whereas trade facilitation, in a narrower sense, simply addresses the logistics of moving goods through ports or customs at national borders. Thus, the broader definition of trade facilitation might include streamlining regulatory requirements and harmonizing standards, as well as reform and the modernization of ports and customs.

The use of technology in services and business-to-business (B2B) e-commerce is a rapidly expanding area of trade that broadens markets while significantly reducing logistics and transactions costs. Based on a broader definition of trade facilitation, there are a variety of measurements proposed in the existing research on trade facilitation, such as the time needed for customs clearance, irregular payments at customs, shipping charges, or some indexed measures.

This paper combines a descriptive and quantitative evaluation of the performance of the limited trade expansion in South Asia, with a particular focus on those indicators related to trade facilitation. A demonstration of the potential trade gains from trade facilitation reform based on the gravity model estimation in Otsuki (2011), which updated Wilson et al. (2005), is then presented.

The rest of this paper is organized as follows. Section 2 presents the progress and challenges of trade facilitation in South Asia. Section 3 reviews the empirical literature on trade facilitation. Section 4 demonstrates the potential trade gains from trade facilitation capacity building in South Asia based on an econometric analysis. Section 5 provides policy prescriptions for South Asia in the area of trade facilitation and regional integration.

2. South Asia’s performance in trade and trade facilitation
The trade performance of South Asian countries over the past several 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 tenfold (Newfarmer and Pierola, 2006). South Asia’s share of total exports from developing countries has declined, due, in part, to its relatively slow export growth (Figure 1). This reflects South Asia’s limited trade integration both with the rest of the world (ROW) and within the region.
South Asia's intra-regional trade, as a percentage of its total trade volume, has remained around 2 percent since 1980. The trade volume for East Asia, by comparison, was approximately 15 percent (excluding Japan). On the other hand, trade with the ROW, relative to a predicted value of trade, was similar: 1.1 and 1.3 percent in South Asia and East Asia, respectively. South Asia has been engaged in trade with major industrialized countries, most importantly, with the EU, the USA, and Japan. In reality, however, the distances from these major markets impose significantly higher transportation costs for exporters in South Asia.

South Asia's poor trade performance might reflect both tariff and non-tariff barriers. Concerning the tariff barriers, however, South Asia has substantially reduced their tariff rates over the past few decades; 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), which began with the SAARC Preferential Trading Agreement (SAPTA). The SAARC member countries signed the South Asian Free Trade Area (SAFTA) pact in January 2006. Under SAFTA, India, Pakistan, and Sri Lanka were required to cut their import duties by 20 percent by 2007, and reduce tariffs to zero by the end of 2012. The least developed South Indian nations (Nepal, Bhutan, Bangladesh, Afghanistan, and Maldives) have an additional three years to reduce tariffs to zero.

The progress in tariff reduction has turned the member countries’ attention to non-tariff barriers and trade facilitation measures. Among other steps, this shift includes plans to integrate transport systems more closely and harmonize standards in the region. Some experts expect the SAFTA to be “a step towards better physical, industrial and communication infrastructure development in the region” (Nayar, 2004). However, others argue that SAFTA lacks any specific, actionable, or time-bound requirements with respect to trade facilitation, and as a result, represents little more than an understanding that non-tariff barriers will be subject to continuous negotiations (Roy and Banerjee, 2010).

**Figure 1.**
Exports from developing countries, 1980-2010

**Notes:** South Asia includes: Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka. East Asia Pacific includes: Cambodia, China, Fiji, Indonesia, Korea, Lao PDR, Malaysia, Mongolia, Myanmar, Papua New Guinea, Philippines

**Source:** Authors’ calculation based on United Nations COMTRADE data
The implementation of the SAFTA provisions is proceeding in line with the terms of the agreement. However, SAFTA is rapidly losing momentum, as its cautious approach is being overshadowed by bilateral processes and regional initiatives outside of SAFTA, such as the Asia Pacific Trade Agreement (APTA) and the implementation of an FTA under the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC).

BIMSTEC, for example, presently includes all SAARC countries except Afghanistan, Maldives, and Pakistan. With respect to bilateral developments, small South Asian countries are gaining access to the key Indian market at a far faster pace through bilateral agreements than through SAFTA (Weerakoon, 2010).

Roy and Banerjee (2010) point out that the historic lack of trust between India and Pakistan is the main stumbling block to SAFTA’s emergence as a dynamic driver of regional integration. They argue that “South Asia’s economic integration is too important a part of the regional development agenda to be held hostage to a bilateral dispute that excludes six of the region’s eight countries.” With this in mind, they claim that BIMSTEC could become an alternative vehicle for promoting South Asian integration.

Regardless of how integration is achieved, efficient trade logistics and facilitation policies are recognized as essential for economic growth and success in South Asia. South Asia continues to face critical constraints to trade. Hence, there is a clear need for coordinated programs to address common goals.

Subramanian and Arnold (2001) provided examples of continued impediments along a logistics chain in the South Asian sub-region, consisting of Bangladesh, Bhutan, Nepal, eastern India and some northeastern Indian states, based on the World Bank’s interview of entrepreneurs in South Asia in 1999.

A recent report by the Asian Development Bank (ADB) and UNCTAD quantified potential gains from cooperation on a number of identified regional projects. Gains from cooperation include the upgrading of the Kolkata-Petrapole/Benapole Corridor and Customs Facilities, the development of the Bagdora Airport as a gateway and hub, improvements in the railway from Lahore to Wagah, and the expansion of the Colombo Port. The report concludes that the projects have the potential to generate high-economic rates of return through trade-enhancement, and cost and time savings – both for the individual countries implementing the projects, as well as for the region as a whole.

In addition to infrastructure improvements, the ADB and UNCTAD report also underscores the importance of addressing regulatory and procedural issues, such as the harmonization of technical standards, customs documentation, and procedures which have, so far, acted as significant barriers to trade (Asian Development Bank/United Nations Conference on Trade and Development (ADB/UNCTAD), 2008).

Port infrastructure and efficiency
If we follow the broad definition of trade facilitation provided in Wilson et al. (2005), namely port efficiency, customs environment, regulatory environment, and service-sector infrastructure, South Asian countries are found to generally lag behind the global average in their performance in trade facilitation (Figures 2a and b). In addition, there has been no notable improvement from 2007 to 2010 in all the four categories of trade facilitation.

With respect to air and maritime ports, South Asia is generally considered less competitive than 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 two to three days for ports in Bangladesh to clear a vessel (Research and Information System for the Non-Aligned and Other Developing Countries (RIS), 2004). South Asia’s low port efficiency reflects a number of problems. More specifically, there is congestion in regional hub ports and regional seaports. In addition, the associated delays prevent exporters from guaranteeing “just in time” deliveries (Kumar and Mukherjee, 2006).

In contrast to transshipment hubs and regional hub ports, regional seaports do not operate on a fixed day-of-the-week schedule (Kumar and Mukherjee, 2006). This can cause delays and uncertainty in turn-around times at the ports. Rana and Dowling (2009) pointed out the importance of trade-related infrastructure to reduce trade costs in South Asia.

Figure 2. (a) Trade facilitation indicators in 2007; (b) Trade facilitation indicators in 2010

Source: Authors’ calculations based on Global Competitiveness Report, Global Information Technology Report, World Competitiveness Yearbook, and World Bank’s Governance Matters Indicators
Land transportation
The lack of cross-border transit points and land connections across South Asia are significant hindrances to intra-regional trade (World Bank, 2002, 2004b). For example, barriers to trade and commerce in Afghanistan are centered, in part, on problems in infrastructure, as well as cargo transshipment (World Bank, 2004b). Trade between India and Pakistan, which, by some estimates, could be as great as US$9 billion, was only US$2 billion in 2007, the majority of which had to be routed through Dubai (World Bank, 2007). The lack of integrated transport networks in the region clearly raise cargo shipping costs. This is a critical problem, particularly for landlocked countries such as Afghanistan, Bhutan, and Nepal. Because of these landlocked countries, all ports of entry in the region must handle goods to be transshipped, adding further cost and complexities (De et al., 2008). These constraints keep shippers from taking the most efficient route in terms of time and cost.

Due to lack of infrastructure, poor technological capacity, and geographical disadvantages (such as frequent flooding in Bangladesh), railway transport is underdeveloped in South Asia, leaving inland roadways as a primary means for moving goods across the region. A number of road corridors in the region, however, are not well maintained and have limited capacity. Further, countries are known to impose load limits (Das and Pohit, 2004). Taken together, these factors prevent shippers from taking the most efficient routes, compounding delays, and making it expensive to move commodities across long distances.

Border crossings and customs
Border crossings and related customs facilities can be choke points. The streamlining of cross-border procedures, including customs procedures, such as delays in customs inspections, cargo handling and transfers, and the processing of documents, would reduce trade costs (Rana and Dowling, 2009). Border crossing infrastructure and facilities includes 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. 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 1,000 km from the customs facility at Birgunj, Nepal (Kumar and Mukherjee, 2006). Karmacharya (2002) reported an illustrative fact that, in the early 2000s, exporters had to pay additional fees for vehicle detention charges for weeks while waiting for test results. This not only raises the costs, it also clearly affects the quality of the export products.

Poor management at customs leads to costly delays in transactions at border crossings. Some of these delays are associated with the preparation of customs documents and inspections, due to a lack of standardized documents. Each country requires different documents, such as transit, export, and import declarations. Exporters must prepare separate documents for each side of the border. For example, the World Bank (2006) noted that the cumbersome customs and documentation procedures at customs had been a major factor in delaying border crossings in South Asia, particularly in India. Although the amount of paperwork varies by the port, the average number of documents needed for importing and exporting goods has remained constant from 2006 to 2012 at eight to nine documents, in South Asia based on the World Bank's World Development Indicators (WDI).
Non-transparent inspection procedures reduce efficiency and slow customs clearance times. As a result of these and other factors, customs clearance in South Asia requires dedicated improvements in administrative rules applied at the border (Subramanian and Arnold, 2001). The World Bank (2004a) indicated that, in the early 2000s, it took over eight days, on average, to clear customs by sea in South Asia, while it took less than six days in East Asia. Furthermore, the region uses different product classification systems for commodities; this contributes to unnecessary burdens in trade (Krueger et al., 2004).

Countries in the South Asian region have tackled the problems over the past decade to improve customs procedures, however. For example, India launched a modernization project in customs which includes leveraging electronic data interchange (EDI) technology, allowing for the exchanging of documents and forms electronically, to streamline clearances.

With assistance from the World Bank, Pakistan initiated reforms in the Central Board of Revenue, which includes their customs offices, aimed at increasing revenue (Rizvi, 2004). Pakistan has also introduced the electronic filing of a single shipping document at Port Qasim as part of an effort by its customs service to streamline clearance costs and reduce transaction costs (World Bank, 2004a). Since 2003, Nepal has undertaken reforms under a Three Year Customs Reform and Modernization Action Plan. Reforms include upgrading physical facilities and administrative structures, customs automation, and the simplification and harmonization of procedures.

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). India moved to adopt EDI systems in 1992 and the Confederation of Indian Industry has been promoting the implementation of EDI at all of their major customs points. In 1997, SAARC initiated the Customs Action Plan, specifying the need for adopting the EDI system among member countries. However, no additional country in South Asia has reported the adoption of EDI in the Customs Capabilities Reports of the Global Express Association. WDI provides evidence that addresses this point. The total time taken to import was 11 days, on average, in OECD countries. In East Asia and the Pacific it was 25 days. In South Asia, it took 42 days in 2005.

Standards and technical regulations

South Asia can realize opportunities for market expansion by establishing and adhering to standards and technical regulations. Based on data in the World Bank Technical Barriers to Trade (TBT) database for 2001, South Asian firms in India and Pakistan consider standards and technical regulations to be more important to export success than firms in other regions (Figure 3). Other examples across the region suggest that 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 their products, required eco-labels on the products (Shrestha and Shakya, 2002). Similarly, the Indian coffee industry has had difficulty meeting export market phytosanitary and national pollution standards intended to protect biodiversity (Saqib, 2003).

South Asian countries have recognized the importance of the 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 in the harmonization of SAARC standards (EUROPA, 2004). The Nepal Bureau of Standards and Metrology
tried to harmonize national standards with international standards, such as ISOs, and provide the Nepalese industries with quality assurance services, consignment inspections, and programs on environmental labeling for export industries (Shrestha and Shakya, 2002).

Information technology and service-sector infrastructure
The countries in the South Asian region have made progress over the past decade in relation to information technology and the application of technology in trade transactions. As noted previously, technology is being applied in customs and border clearance facilities for trade transactions, such as EDI systems and networks. India's performance in information technology production, in particular, the software sector, is widely recognized.

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 leaves room for expansion. The number of individuals with access to the internet, including those in the government and private sector engaged in trade transactions, also needs to be expanded. Overall, South Asian countries score significantly lower on the International Telecommunication Union's ICT Development Index (2010) than East Asian countries.

Recent trends
There is limited information available on South Asia trade updates, primarily due to the lack of follow-up assessments. However, there are signs of improvement in some areas of trade facilitation in recent years. For example, the time to import fell from 43 days to 33 days in South Asia in 2011, according to WDI. Trade facilitation indicators that are developed according to the methodology described in Section 4 of this paper also reveal a 45 percent improvement in port infrastructure and efficiency, and a 16 percent improvement in border crossing and customs efficiency in South Asia from
2004 to 2010. South Asia’s service-sector infrastructure indicator also shows a 74 percent improvement, but its regulatory environmental indicator, which measures regulatory transparency and the ability to control corruption, remains almost unchanged.

3. Related literature

Measuring trade facilitation

Based on a broader definition of trade facilitation, a variety of measures/measurement approaches have been proposed in the existing research. The class of direct measurements include time needed for customs clearance, irregular payments at customs, and shipping charges. These measurements are likely to be specific. Indirect measures include derived measures from the gap between the domestic and international prices of goods, such as the tariff equivalent of non-tariff barriers. Another class of measurements are indexed measurements; they are typically abstract and unit free, and sometimes, qualitative rather than quantitative.

The time needed for customs clearance is a frequently used measure of trade facilitation (World Bank, 2004a; Hummels, 2001). The World Bank’s Doing Business Reports present a variety of measures of trade facilitation based on cross-country firm surveys, such as days to clear customs, port and terminal handling, and number of inspections for imports.

Djankov et al. (2010) and Freund and Rocha (2010) make use of the data to assess the impact of time delays on trade. Fink et al. (2002) use the share of liner transport charges in import values of a particular good as the measure of maritime transport costs. In the World Bank TBT Survey, surveyed firms from developing countries were asked about product redesign costs and other costs required to comply with foreign standards.

Wilson et al. (2005) and Otsuki (2011) use indices to measure four areas of trade facilitation, namely port efficiency, customs environment, regulatory environment, and the service-sector infrastructure. In order to reduce econometric analysis multicollinearity that arises from having several trade facilitation variables that are highly correlated, Francois and Manchin (2007) and Portugal-Perez and Wilson (2009) applied principal component analysis and factor analysis, to create indices for trade facilitation.

The impact of trade facilitation

A critical question of direct relevance to trade facilitation in a development context is to what extent factors affecting trade transactions costs matter to trade flows, economic growth, or welfare. Research to quantify the impact of trade facilitation is rather scarce. Hence, there is room for improvement in the empirical methodologies. Commonly used methodologies to quantify the impact of the factors of interest on trade can be categorized into the econometric methods and the computable general equilibrium methods. Among the available econometric methods, gravity models are most popularly used, due to their intuitive specification and good econometric fit. General equilibrium methods are used to quantitatively estimate the impact of trade facilitation on trade flows, national income, returns to factor owners, and welfare. The crucial advantage of econometrics-based methods lies in its statistical foundation which enables us to examine the magnitude and significance of the effect.

McCallum (1995) estimated border costs in US-Canada trade; this study began the trend of the gravity model application for the estimation of trade (transactions) costs. Theoretical foundations for estimating gravity equations were enhanced in Anderson
and van Wincoop (2003, 2004), and more recently, in Helpman et al. (2008). These studies have led to the proliferation of the empirical implementations of their models.

Variations and elaborations of this application can be found in many studies. Those studies largely try to isolate the trade costs that are unaccounted for by distance as a proxy for transportation costs. Wilson et al. (2005) used a simple log-linear gravity model to account for the trade costs by the previously mentioned four trade facilitation indices. Other regional studies have suggested the importance of infrastructure and institutional indicators for trade facilitation.

Njinkeu et al. (2008) analyzed the impact of reforms in port efficiency, the customs environment, the regulatory environment, and service infrastructure. Iwanow and Kirkpatrick (2008) constructed aggregated indicators of trade facilitation (in the on-the-border sense) and infrastructure, for 2003 and 2004, by applying a simple average to the primary indicators collected from Doing Business and WDI. They estimated a standard gravity model augmented with these indicators and found a positive impact of the three indicators on exports. Francois and Manchin (2007) used principal components to construct two indicators on infrastructure and two indicators on institutional quality from various primary measurements. Portugal-Perez and Wilson (2009) used factor analysis and found that trade facilitation reforms could improve the export performance of developing countries at the extensive and intensive margin.

Several studies have attempted to associate trade costs with time. Djankov et al. (2010) examined how time delays affected trade in 126 countries. Their findings suggest that each additional day that a product is delayed prior to being shipped reduces trade by at least 1 percent, on average. Each day is equivalent to a country distancing itself from its trade partners by 85 km, on average. Delays have an even greater impact on developing country exports and the exports of time-sensitive goods, such as perishable agricultural products. In particular, a day's delay reduces a country's relative exports of time-sensitive to time-insensitive agricultural goods by 7 percent.

Hummels (2001) showed that each day saved in shipping time, in part due to a faster customs clearance time, is worth a 0.5 percent reduction of the ad-valorem tariff. In order to analyze the significance of border delays in measuring the welfare impacts of trade liberalization, Fink et al. (2002) estimated the impact of anticompetitive practices in port services on unit shipping cost. They found that the introduction of competition in port services, together with the removal of restrictive trade policies, would lead to an average of one-third lower liner transport.

A number of other empirical studies have addressed specific policy changes related to trade facilitation. Studies by Otsuki et al. (2001a, b) evaluated trade gains to trade facilitation related to harmonized regulations and standards. Moenius (2004), Portugal-Perez et al. (2009), and Mangelsdorf et al. (2011) also found evidence of the importance of standard harmonization for enhancing trade flows among countries. Anderson and Marcouiller (2002) found that corruption and imperfect contract enforcement dramatically reduced international trade. These authors estimated the reduction in trade flows using a structural model of import demand in which insecurity acts as a hidden tax on trade and found that inadequate institutions constrained trade as much as tariffs.

While most of the previous studies focused on specific aspects of trade facilitation, Wilson et al. (2005) adopted an approach which included a considerably wider range of aspects of trade facilitation by including four indices, port efficiency, the customs environment, the regulatory environment, and service-sector infrastructure, for both
importers and exporters. These authors found that the enhanced capacity in global trade facilitation would increase the world trade of manufactured goods by approximately US$377 billion – an increase of about 9.7 percent. This is based on a scenario in which capacity building is raised halfway to the global average across 75 countries. They found that the improvement in the customs environment results in about a $107 billion (0.8 percent) trade gain. The trade gain from the improvement in the regulatory environment is $83 billion. The largest trade gain comes from improvements in service-sector infrastructure and e-business usage ($154 billion or 4.0 percent).

Otsuki (2011) updated the data to include the more recent years of 2004-2008 and revised Wilson et al’s (2005) gravity analysis using a panel data estimation.

4. Estimating the trade gains from capacity building in South Asia

We now demonstrate the impact of trade facilitation in South Asia based on multifaceted capacity building. We draw upon Otsuki (2011), who updated the indicators developed by Wilson et al. (2005) for 75 countries in trade facilitation. These indicators included port efficiency, the customs environment, the regulatory environment, and service-sector infrastructure. These indicators are calculated from Global Competitiveness Reports (GCR), Global Information Technology Report (GITR), World Competitiveness Yearbook (WCY), and World Bank Governance Indicators (WBGI).

Following Wilson et al. (2005) and Otsuki (2011), “port efficiency” in our analysis, is designed to measure the quality of the infrastructure of maritime and air ports, taking the average of the efficiency of port facilities and inland waterways (GCR) and air transport (GCR). The “customs environment” is designed to measure direct customs costs, as well as the administrative transparency of customs and border crossings from hidden barriers (GCR). The “regulatory Environment” is designed to measure the economy’s approach to regulations, taking the average of the transparency of government policy (WCY) and control of corruption (WBGI). “Service-sector Infrastructures” indicate 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 activities from “effect of internet on business” (GITR).

We normalize each input into the range of 1 (lowest quality) to 7 (highest quality). We update the gravity model in Otsuki (2011) by augmenting the data set with more recent data up to the year 2010. We estimate the following gravity model by the random effects model of panel data estimation for 101 countries worldwide for the period of 2004-2010:

\[
\ln(V_{jt}) = -28.09 + 0.137 \ln(PE_t) + 0.255 \ln(RE_t) \\
+ 0.521 \ln(RE_t) + 0.256 \ln(CE_t) \\
+ 0.0529 \ln(CE_t) + 0.0839 \ln(SI_t) \\
+ 0.301 \ln(SI_t) + 0.307 \ln(SI_t) + \beta Z + \epsilon_{jt}
\]

where the estimated coefficients are reported with the standard error underneath. The dependent variable \(\ln(V_{jt})\) is the logarithm of the value of exports from country \(J\) to
country $I$. The explanatory variables about trade facilitation include the port efficiency ($PE$), regulatory environment ($RE$), customs environment ($CE$), and service-sector infrastructure ($SI$) in logarithms. The vector $Z$ contains the gravity variables, such as real GNP and real per capita GNP of countries $I$ and $J$, the geographical distance between them, common languages, adjacency status, free trade areas, and year dummies. The error term is denoted by $\hat{\epsilon}_{Ijt} = u_{IJt} + v_{IJt}$, where $u_{IJ}$ is the time invariant group effect and $v_{IJt}$ is a random noise. The random effects model has the advantage of controlling for the time invariant group effect ($u_{IJ}$) that is specific to each importer-exporter pair.

Trade facilitation indicators were available for Bangladesh, India, Nepal, Pakistan, and Sri Lanka, among the countries in South Asia. These indicators were not available for Afghanistan, Bhutan, and Maldives. The first country group represents the South Asia region well. These countries represent approximately 97 percent of the region’s GDP during the period of 2004-2010.

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 (ROW).

### Intra-regional trade

We estimate trade gains from regional integration with a focus on collective programs in capacity building within South Asia according to the simulation method used in Otsuki (2011). This simulation method predicts trade gains to the region as a whole, as well as gains to each country by projecting the assumed change in trade facilitation indices to trade gains based on the estimated parameters. The trade gains to a country can be decomposed into the trade gains from improvements by the country alone (unilateral action) and trade gains from improvements by trading partners (partners’ action). In this sense, it can be said that the total trade gains come from collective actions by a country and its trading partners.

The average performance of the entire world is set as a goal for the South Asia region. We will set the target level at half the global average. Table I indicates that the

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<th>Customs</th>
<th>Service</th>
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<td>Sri Lanka</td>
<td>3.5</td>
<td>18.6</td>
<td>0.8</td>
<td>1.4</td>
<td>24.3</td>
</tr>
<tr>
<td>South Asia</td>
<td>92.5</td>
<td>1,136.2</td>
<td>36.1</td>
<td>210.3</td>
<td>1,475.0</td>
</tr>
</tbody>
</table>

**Note:** Simulation was not done for Nepal in 2007 and Bangladesh in 2010 due to missing trade records.

**Source:** Authors’ calculation
total estimated trade gains from capacity building in all four categories of trade facilitation are approximately $1,079 million in 2007 and $1,475 million in 2010; this is almost a 21 and 17 percent rise in total intra-regional trade in South Asia, respectively. The projected trade gains from both unilateral and partners’ capacity building are significant. The country with the largest projected trade gains in South Asia is India and is $726 million. Capacity building in the regulatory environment contributes the most to those gains. Sri Lanka gains the most from other South Asian countries’ capacity building relative to gains from its own actions. This is because Sri Lanka has relatively high scores in the indicators, which suggests more limited improvement needed to reach global levels.

Among the four trade facilitation indicators, results suggest that capacity building in the regulatory environment would lead to the greatest trade gains to intra-regional trade ($690 million in 2007 and $1,136 million in 2010). Capacity building in service infrastructures would achieve the second largest trade gains. This suggests that the South Asia region is currently more underdeveloped in their administrative or regulatory aspects of trade facilitation at the border than areas related to information technology infrastructure. It is important to note that these results should be considered an indication of where priorities may be most important. Consequently, priority should be given to improve the regulatory environment by making regulations more consistent and transparent and by curbing corruption.

Global trade and South Asia

It is possible to demonstrate South Asia’s gains in extra-regional trade flows. We assume collective action in capacity building between the South Asia region as one group and the ROW as another group. As shown in Table II, if South Asia and the ROW upgrade their capacity in trade facilitation simultaneously (collective action), world total trade gains would be $31 billion in 2007 and $26 billion in 2010. Note that in estimating total trade gains we do not count the increase in intra-regional trade flows in South Asia.

The total trade gains to South Asia from unilateral action in the region are estimated at approximately $25 billion in 2007 and $18 billion in 2010. The gains from ROW’s improvement are estimated at approximately $6 billion in 2007 and $9 billion in 2010. The former represents about 7-8 percent of the region’s extra-regional trade. It is important to note that 80 percent (in 2007) and 67 percent (in 2010) of the total trade gains to South Asia are generated from its own improvement. The most promising area for focus appears to be the regulatory environment, as approximately a $24 billion (in 2007) and $19 billion (in 2010) increase is anticipated.

One might consider a different target level than the global average for South Asia, because it may be difficult for low-income countries to reach the global average. Thus, we also consider the ASEAN average, as its member countries are largely more developed than South Asian countries, whereas their trade facilitation status is not as good as the global average, which also reflects the performance of industrialized countries. In this way, trade between ASEAN and South Asia has recently been increasing, partly due to their geographical proximity.

When the target is set at half the ASEAN average, instead of half the global average, based on the indicators in 2010, South Asia gains $13 billion overall, which is 38 percent lower than in the latter case. This confirms that the ASEAN-based target provides an intermediate goal for South Asia to achieve before aiming for the global target. However, the itemized gains among the indicators are quite heterogeneous.
Gains from improvements in port efficiency and the regulatory environment are considerably lower under the ASEAN-based target than under the global target. On the other hand, gains are only 6 percent greater when we focus on the customs environment and almost double that in the case of the service-sector infrastructure. This result reflects the fact that the ASEAN average of port efficiency and service-sector infrastructure was higher than the global average in 2010. Thus, capacity building should be carefully designed relative to the segment of trade facilitation.

We also examined the effect on trade gains of the partnership between South Asia and ASEAN (that is, improvements by both South Asia and the ASEAN countries). The total trade gains are greater for South Asia ($1.3 billion) than for ASEAN ($0.9 billion). Still, these figures illustrate that both South Asia and ASEAN will benefit from this collective action. Gains differ across indicators and scenarios. Consequently, let us focus on the “half the ASEAN average” scenario for simplicity.

The relative size of gains among indicators is largely unchanged in South Asia. Gains to ASEAN are largest from the improvements in port efficiency (first) and the regulatory environment (second). This dominance of the effects of the port environment contributes more to the higher port efficiency indices in South Asia than in ASEAN. A large part of the gains seems to come from the improvements in the below-average ASEAN countries. This exercise also illustrates the need for a careful
design of target setting by considering the relative advantages of these groups of countries.

Thus, raising the capacity in trade facilitation in South Asian countries could significantly contribute to the expansion of intra- and extra-regional trade. As Figures 2a and b indicate, South Asian countries lag behind the global average in all the index categories in 2007, although they surpassed the global average in port efficiency and the customs environment in 2010. This generally implies substantial room for trade gains from capacity building.

In order to advance their reform, South Asia can learn from the experiences of East Asia. One such example is the Philippines’ modernization of customs (Parayno, 2004). 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 multiple copies of ten separate documents, including over 90 steps and over 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 2003, Shanghai customs implemented a seven-day schedule to reduce congestion and accelerate trade (Shanghai WTO Affairs Consultation Center, 2003). Together with the application of information technology, the administrative reform contributed to Shanghai’s high-efficiency rating among Chinese customs clearance posts.

5. Conclusions and policy implications

The South Asia region has a significant opportunity to accelerate economic growth and reduce poverty through concrete actions in facilitating trade. This includes taking steps to realize the promise of collective trade gains through platforms which advance regional integration. The drive to implement the SAFTA and initiatives of the SAARC offers such opportunities.

Based on the analysis in this note, there are significant potential gains to trade for South Asia associated with collective action to raise the capacity in trade facilitation. This includes specifically improving regulatory transparency and consistency and reducing corruption.

Rana (2012) illustrated the importance of improving governance and furthering regulatory reforms in most South Asian countries in order for these countries to realize their potential for economic growth. In the area of technical standards, it is recommended that countries expand their efforts to raise their capacity to adopt international standards, such as the ISO.

As was suggested by Anderson and Marcouiller (2002), reducing corruption could also enhance trade. Results from our analysis also show that steps to reduce barriers to trade logistics in the region promise expanded trade opportunities with the ROW. In this regard, collective action under regional initiatives is particularly important.

When considering intra-regional trade, if countries in South Asia raise their capacity halfway to the global average, trade is estimated to rise by $1,079-1,475 million. This is approximately 17-21 percent of the total intra-regional trade in South Asia. The category of trade facilitation that will produce the greatest trade gains is the regulatory environment ($689-1,136 million), followed by efficiency in the service infrastructure ($210-211 million).

South Asia also has a stake in the success of efforts to promote capacity building outside its borders. If South Asia and the “ROW” raised levels of trade facilitation halfway to the global average, trade gains to the region are estimated at $26-31 billion.
Out of these gains, about 67-80 percent of the total gains to South Asia will be generated from South Asia’s own efforts (leaving the ROW unchanged). The important role of India in advancing reform should also be noted. India represents 80 percent of the total GDP in South Asia and can act as a catalyst along with their 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 involve complementary investments in policy areas beyond those related to barriers which affect trade logistics costs. Reducing barriers to foreign direct investment, lowering tariff rates of protection, and eliminating other non-tariff barriers which slow productivity and block private sector growth, are also important. Macroeconomic policy stability and many other factors will also affect any reform agenda. The bilateral relationship between India and Pakistan, among others in the region, will also shape progress ahead. 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.

The results of the South Asia descriptive study and the review of the literature suggest that the benefits of trade facilitation can differ by the initial performance, partners’ performance, industrial sector, type of enterprise, and aspect of trade facilitation. We can generally conclude that a country with poor initial performance would gain greatly. Furthermore, collaborative capacity building within the region would accelerate trade expansion. Therefore, regions with low intra-regional trade, such as South Asia and Sub-Saharan Africa, should make binding commitments, although such commitments should be fair and feasible.

We have seen substantial progress in the research to measure the impact of trade facilitation; both general equilibrium and econometric methods would need further sophistication in order to reflect real world constraints, such as the government’s budget constraint and the overall decreasing returns to scale of trade facilitation. While incorporating the costs of capacity building is challenging, a number of case studies of this kind can help provide ideas about the cost effectiveness of capacity building programs.

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