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Accelerating Regional Integration: Issues at the Border

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Abstract

The sharp decline in trade volume and value during the current economic crisis has contributed to lower transportation costs and reduced waiting times at border crossings, reducing the urgency of progress on trade facilitation. Meanwhile, greater trade is expected to play a key role in recovery, and in sustaining growth afterwards. The crisis offers an excellent opportunity to make progress on facilitating intra-Asian trade and boosting the region's contribution to global economic recovery.

This paper examines the status of, and challenges to, trade facilitation among the Asian Asia-Pacific Economic Cooperation members, and the roles of hard and soft infrastructure (including logistics) in improving that performance. Analysis with a computable general equilibrium framework indicates that even a relatively modest reduction in trade costs can yield significant gains. Gross domestic product in the region expands and countries move into a more diversified trading pattern. Of particular relevance for policy considerations is that the results vary considerably across bilateral trade routes and commodity categories.

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1. INTRODUCTION

While the impact of the global economic slowdown on trade has been very clear, its impact on progress in trade facilitation is less so. On the one hand, the sharp decline in trade volume and value has contributed to lower transportation costs and reduced waiting times at border crossings, lessening the pressure for improvements in facilitating trade flows. On the other, the urgency of boosting remaining trade flows to support recovery makes improvements in trade facilitation that much more pressing. The recent precipitous drop in world trade has been tied to many problems, not the least of which has been access to trade financing. Thus, in times of economic distress, trade facilitation is more important than ever. Among the hardest hit by the slowdown are Asian small and medium-sized enterprises (SMEs) that export or are trying to gain initial access to international markets.

Trade facilitation holds great potential for helping Asia to increase trade and experience more of the benefits of globalization when the global economy recovers. Francois and Wignaraja (2008) show that linking the three largest East Asian economies of the People's Republic of China (PRC), Japan, and the Republic of Korea (hereafter Korea) to the 10 nations of the Association of Southeast Asian Nations (ASEAN) in a free trade area will bring significant benefits to the participants, ranging from a 2.6% increase in national income to over 12%. Including the South Asian economies in a broader regional agreement increases these gains for both East Asia and South Asia. A pan-Asian regional agreement to link the different subregions is shown in the authors' analysis to cover enough countries and incorporate sufficient diversity in production and incomes to allow for regional gains (US$264 billion by 2017)[1] without substantive losses (about US$3 billion) to third parties. However, achieving the full potential of such an agreement would require considerable political will to avoid protectionist tendencies manifested through stringent rules of origin, nontariff barriers, and exclusionary lists of sensitive sectors. Thus while the potential is large, realizing it will necessitate substantial enhancement of trade facilitation to capitalize on potential complementarities.

Barriers to trade go beyond tariffs to include factors like high freight costs, delays in customs clearance, unofficial payments, slow port landing and handling, and poor governance. Institutional bottlenecks (e.g., administrative, legal, financial, regulatory, and other logistics infrastructure), information asymmetries, and discretionary powers that give rise to rent seeking activities by government officials at various steps of trade transactions also impose costs. These costs can be lowered through cooperation that facilitates trade logistics for merchandise and services in both inbound and outbound shipments.

There is also room for domestic policy reform to achieve broader benefits (the equivalent of unilateral trade liberalization) in areas such as transparency, competition policy, harmonization, and standardization. An export processing zone or similar sort of industrial enclave—with good infrastructure and policy support for trade facilitation allowing profitability to determine industrial restructuring and the balance between agglomeration and dispersion influences—can make a significant difference in a country with otherwise poor infrastructure or cumbersome procedures.

Broadly defined, trade facilitation includes measures taken by both public and private sectors, including reductions in nontariff barriers and improvements in physical facilities, to smooth the movement of goods and services by reducing time or transaction costs in transit. Thus, trade facilitation may encompass both hard and soft infrastructure that facilitates trade. Measures to facilitate trade are likely to have the greatest positive effects in expanding trade from developing countries, where such measures may increase the trade impacts of lowering remaining border barriers by a factor of two or more (Hoekman and Nicita 2008).

[1] US$ = United States dollar.

Trade transaction costs (TTCs) may be categorized into directly incurred costs and indirect costs. Empirical estimates of TTCs vary substantially, but direct and indirect costs have been shown to be between 1% and 15% of the value of traded goods (Walkenhorst and Yasui 2005). Direct costs (including customs fees, port charges, etc) tend to be relatively clear to traders. Indirect costs, on the other hand, tend to be less clear and may affect traders in terms of the cost of carrying inventory and market depreciation (Minor and Tsigas 2008). In additon, the inconsistency and lack of transparency associated with indirect costs increase perceptions of risk and reduce firms willingness to participate in these markets. Given these high risks and the information costs involved, it is the indirect costs that often act as a more signficant barrier for SMEs to enter new markets.

TTCs vary by trader-type, sector, and economy. Economies with higher per capita incomes tend to have more efficient border processes, though this is not always the case. Conversely, there are instances where relatively poor economies provide a relatively high quality of border services (Walkenhorst and Yasui 2005). The characteristics of traders can also determine the extent of TTCs, with smaller firms tending to conduct fewer international transactions, leading to larger per unit costs. These cost disadvantages may include having a limited customs track record as well as relatively few specialized personnel to deal with trade formalities, and weaker financial reserves to cope with problems including unforeseen stock delays (Walkenhorst and Yasui 2005).

Trade facilitation involves reducing trade costs, reducing risk or uncertainty in trade, or otherwise improving economic efficiency (perhaps through spillover effects). Trade costs can take the form of monetary costs (including the value of lost or deteriorated merchandise, and insuring against risk or uncertainties) or time costs. Trade costs play a central role in determining the amount of trade. A recent study (Jacks, Meissner, and Novy 2008) found that trade cost declines explain more than half of the (1870–1913) pre-World War I surge in trade and roughly a third of post-World War II trade growth, while a steep rise in trade costs explains the *entire* trade collapse in the inter-war period.

2. STATUS OF ASIAN TRADE

Supported by improvements in trade facilitation, Asia's trade has soared over the past two decades, with the PRC in particular recording explosive growth. The PRC's exports grew at an average of over 20% a year between 1987 and 2007, while the other eight emerging economies among Asia's top ten exporters notched up export growth of over 10% a year (Table 1). The PRC's imports increased by over 18% a year, while seven of the other eight emerging economies in the table also recorded double-digit import growth rates. In just 20 years, India's trade expanded 17 times, while the PRC's increased over 30 times. The PRC has become the largest trader in Asia, far surpassing Japan.

Table 1: Trade Growth in Asia's 10 Leading Exporters (1987–2007)

		Exports			Imports		
		US $ billion, 2000 constant prices		Average growth rate	US$ billion, 2000 constant prices		Average growth rate
		1987	**2007**	**1987–2007**	**1987**	**2007**	**1987–2007**
1	PRC	33.3	1464.0	20.8	37.2	1109.7	18.5
2	Japan	297.4	739.9	4.7	172.8	898.6	8.6
4	Hong Kong, China	40.9	420.0	12.3	41.7	429.6	12.4
3	Taipei,China	83.3	361.1	10.3	79.9	262.3	8.3
5	Rep. of Korea	51.6	289.5	10.1	27.9	421.6	16.3
6	Singapore	35.2	272.8	10.8	30.4	283.9	11.8
7	Malaysia	15.1	211.8	14.1	10.9	170.5	14.7
8	Thailand	9.8	184.6	15.8	11.2	166.9	14.5
9	India	10.2	175.4	15.3	14.8	253.8	15.3
10	Indonesia	14.5	137.2	11.9	10.6	86.4	11.0

PRC = People's Republic of China, US$ = United States dollar.

Source: United Nations COMTRADE database, available at: http://comtrade.un.org/db/.

Note: First year data for Rep. of Korea from 1989, and for Taipei,China from 1992.

Developing Asia now accounts for a much larger share of world trade, up from roughly 14% in 1990 to 24% in 2007. Asia's share of world trade has risen less significantly, from 22.7% to 29.2%, due to a drop in Japan's share of world trade (see Table 2). Excluding Japan, East Asia's[2] share of world trade soared by 9.2 percentage points between 1990 and 2007, from 13.0% to 22.2%, with the PRC's share more than quadrupling from 1.9% to 8.8% so that non-Japan East Asia now accounts for the lion's share of Asia's trade. Intraregional trade within non-Japan East Asia grew faster (15.2% a year) than the region's external trade (10.6%).[3]

East Asia's exports to the PRC now account for 3.7% of world exports. Whereas in 1990, the PRC accounted for 8.8% of East Asia exports, it accounted for over 32% in 2007. The rapid growth of intraregional trade in particular has benefited from trade facilitation while at the same time,spurring demand for greater trade facilitation efforts.

[2] East Asia here comprises 16 economies: Brunei Darussalam; Cambodia; PRC; Hong Kong, China; Indonesia; Republic of Korea; Lao People's Democratic Republic (PDR); Malaysia; Mongolia; Myanmar; Philippines; Singapore; Taipei,China; Thailand; Viet Nam; plus Japan.

[3] Source: Calculated from United Nations Comtrade data (S2, items-total).

Table 2: Trade in Asian Subregions and Other World Regions, 1990–2007

	Total exports ($ billion)					Share of world trade %					Share of intraregional exports in total (%)					Annual growth (%)
	1990	1995	2000	2005	2007	1990	1995	2000	2005	2007	1990	1995	2000	2005	2007	1990–2007
East Asia (15)	417.80	870.40	1,193.90	2,136.60	3,075.30	13.0	17.9	19.2	21.7	22.2	100	100	100	100	100	12.5
Intraregional	136.1	344.7	456.4	901.7	1517.7	4.2	7.1	7.3	9.1	11.0	32.6	39.6	38.2	42.2	49.4	15.2
Extraregional	281.7	525.7	737.5	1,234.9	1,557.6	8.7	10.8	11.8	12.5	11.3	67.4	60.4	61.8	57.8	50.6	10.6
East Asia (16)	704.7	1313.3	1,673.1	2,731.5	3,789.5	21.9	27.1	26.8	27.7	27.4	100	100	100	100	100	10.4
Intraregional	284	646.2	797.8	1,389.50	1,853.40	8.8	13.3	12.8	14.1	13.4	40.3	49.2	47.7	50.9	48.9	11.7
Extraregional	420.7	667.1	875.3	1342	1,936.1	13.0	13.7	14.0	13.6	14.0	59.7	50.8	52.3	49.1	51.1	9.4
Central and West Asia (8)	-	5.6	14.9	34.7	62.2	-	0.2	0.3	0.6	0.4	-	100	100	100	100	22.2
Intra-regional	-	1.87	1.2	2.92	3.93	-	0.1	0.0	0.0	0.0	-	33.4	8.1	8.4	6.3	6.4
Extraregional	-	3.73	13.7	31.78	58.27	-	0.1	0.3	0.5	0.4	-	66.6	91.9	91.6	93.7	25.7
South Asia (7)	27.2	43.7	60.7	125.8	194.4	0.8	0.9	1	1.3	1.4	100	100	100	100	100	12.3
Intraregional	0.9	2.1	2.9	8.4	12.1	0.0	0.0	0.0	0.1	0.1	3.5	4.7	4.8	6.7	6.2	16.2
Extra-regional	26.3	41.6	57.8	117.4	182.3	0.8	0.9	0.9	1.2	1.3	96.5	95.3	95.2	93.3	93.8	12.1
EU (27)	1,521.6	2,010.8	2,424.3	4,054.3	5,316.8	47.2	41.4	38.9	41.1	38.4	100	100	100	100	100	7.6
Intraregional	1018.6	1,401.3	1,641.5	2,732.1	3,601.1	31.6	28.9	26.3	27.7	26.0	65.9	62.1	61.1	59.7	67.7	7.7
Extraregional	503.0	609.5	782.8	1,322.2	1,715.7	15.6	12.6	12.6	13.4	12.4	34.1	37.9	38.9	40.3	32.3	7.5
NAFTA (3)	546.1	853.6	1,223.6	1,478.7	1,834.6	16.9	17.6	19.6	15	13.3	100	100	100	100	100	7.4
Intraregional	225.8	392.9	681.6	824.4	930.8	7	8.1	10.9	8.4	6.7	41.3	46	55.7	55.8	50.7	8.7
Extraregional	320.4	460.7	542.1	654.3	903.8	9.9	9.5	8.7	6.6	6.5	58.7	54	44.3	44.2	49.3	6.3
MERCOSUR (5)	64.6	89.1	122.5	219.4	324.3	2.0	1.8	2.0	2.2	2.3	100	100	100	100	100	10.0
Intraregional	4.9	16.8	20	24.2	38.5	0.2	0.3	0.3	0.2	0.3	8.9	20.5	20.9	13.1	11.9	12.9
Extraregional	59.7	72.3	102.5	195.2	285.8	1.9	1.5	1.6	2.0	2.1	91.1	79.5	79.1	86.9	88.1	9.6
WORLD EXPORTS	3224.8	4853.9	6233.1	9859	13830	100	100	100	100	100	-	-	-	-	-	8.9
MEMO ITEM																
Japan	286.9	442.9	479.2	594.9	714.2	8.9	9.1	7.7	6	5.2	12.2	14.4	11.7	10.4	8.8	5
PRC	62.1	148.8	249.2	762	1218.1	1.9	3.1	4	7.7	8.8	5.8	6.2	6.9	11.0	12.2	18.2
United States	392.9	583	780.3	904.3	1162.2	12.2	12	12.5	9.2	8.4	14.8	13.1	11.4	7.7	7.1	5.7
EA(16) to PRC	34.4	110.1	151.0	383.1	509.8	1.1	2.3	2.4	3.9	3.7	12.1	17.0	18.9	27.6	27.5	17.2

Notes: 1. East Asia (15): Brunei Darussalam; Cambodia; People's Republic of China (PRC); Hong Kong, China; Indonesia; Korea; Lao People's Democratic Republic; Malaysia; Mongolia; Myanmar; Philippines; Singapore, Taipei,China; Thailand; Viet Nam.

2. East Asia (16): East Asia (15) plus Japan.

3. Central and West Asia (8): Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan.

4. South Asia (7): Afghanistan, Bangladesh, India, Maldives, Nepal, Pakistan, Sri Lanka.

5. EU (European Union) includes its 27 members: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom.

6. MERCOSUR (Mercado Comun del Sur) includes its four members and one prospective member: Argentina, Brazil, Paraguay, Uruguay, Venezuela.

7. NAFTA (North American Free Trade Agreement) includes its three members: Canada, Mexico, and the United States.

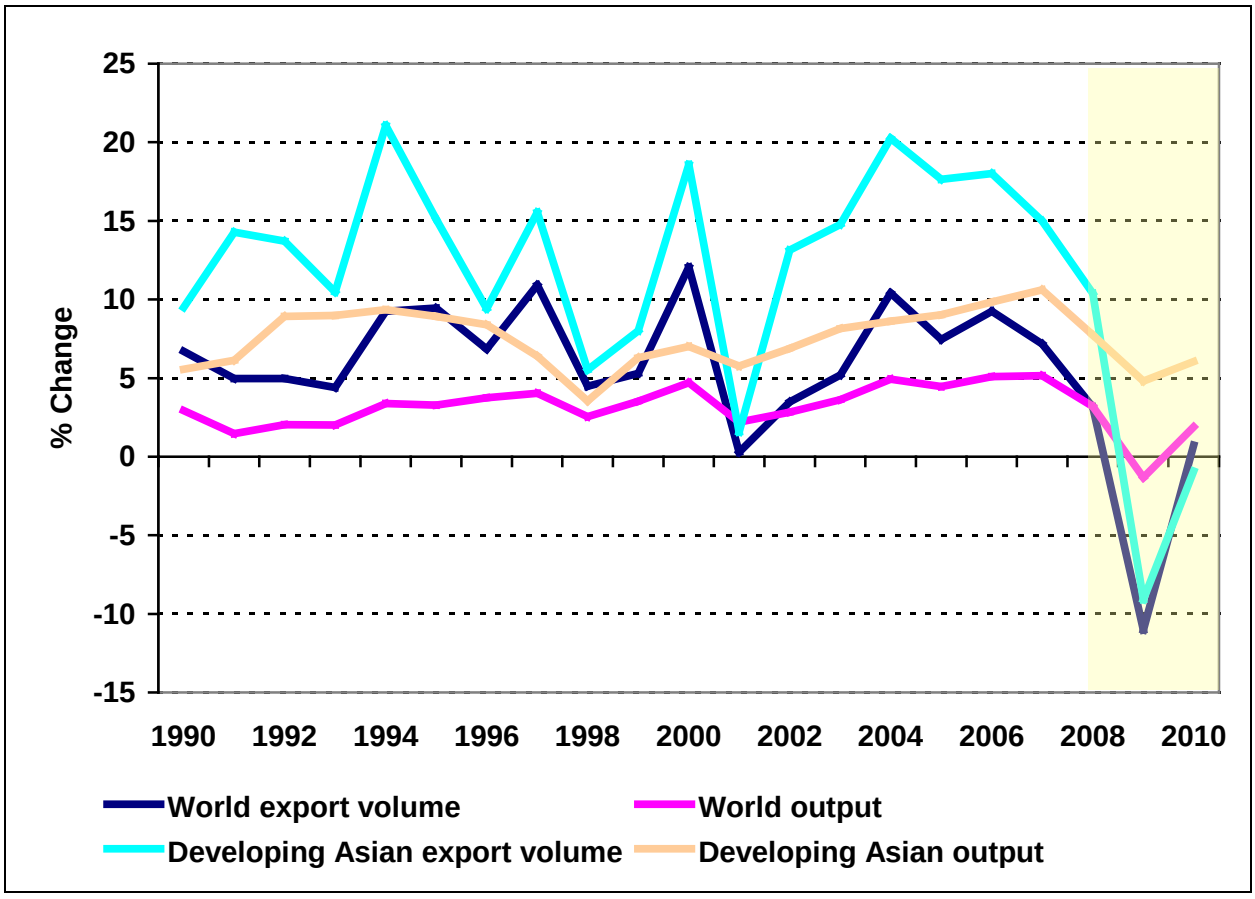
8. Japan, the PRC, and the United States share of intraregional exports in total is only intraregional exports (share of individual country's export to the region in total region exports).

9. Annual growth of Central and West Asia is for 1995–2005.

Source: Calculated from United Nations COMTRADE database (S2, items-total), available at: http://comtrade.un.org/db/; and International Monetary Fund Direction of Trade Statistics 2008, available at http://www2.imfstatistics.org/DOT/.

The economic crisis has reduced output and trade both globally and in developing Asia. While Asia's growth may not have been as severely affected as the world average, the impact on the region's trade has been more drastic (Figure 1). Note that the declines in exports in this crisis (as in the 2001 recession) are much sharper than the concurrent output declines, reflecting a combination of income-elastic demand for imports, inventory effects, trade finance constraints, and increased production fragmentation leading to the multiple counting of value added in merchandise trade.

Figure 1: Growth in Output and Trade



Shaded areas indicate forecasts.

Source: International Monetary Fund, *World Economic Outlook* April 2009.

3. THE CHANGING NATURE OF ASIAN TRADE

As Asia's trade has grown rapidly, its nature is also changing—and with it the efficiency of international transactions. Asia's trade is becoming lighter, shifting from bulky goods towards lighter, often higher-value goods and weightless services. In particular, the information and communication technology (ICT) revolution have generated increased trade in ICT products and outsourced services, as well as greater migration of highly skilled professionals. More generally, the weight-to-value ratio of Asia's trade is declining (Hummels 2009). This has important implications for the choice of transport mode, the distance and destination of trade flows, the location and fragmentation of production processes, harmonization and standardization of customs classifications and inspections, and the demand for supporting infrastructure.

Changes in transport technology, notably improvements in air freight and containerization, have amplified these trends, particularly for time-sensitive goods. Standardized containers facilitate cost savings by allowing goods to be packed once and moved over long distances via a combination of transport modes—for example, truck, rail, ocean liner, rail, then truck again—without being unpacked, reinspected, and repacked. Air cargo shipments have grown rapidly and air cargo involving Asian countries has grown much faster than in the world as a whole, with international flights within Asia experiencing particularly rapid growth. Multimodal shipping and improvements in logistics services have made it possible to trade with more destinations in less time and often at lower cost (Brooks and Hummels 2009). When trade facilitation lowers the marginal cost of trade, exports tend to expand in two ways: new products are exported to new destinations, typically through small shipments from small firms, and existing trade flows deepen.

As these trade patterns have evolved, production networks have fragmented internationally and much of the growth of Asia's trade has been in parts and components for these fragmented global value chains. This trend (particularly in electronics and auto parts sectors) has been an important avenue for Asia's SMEs to benefit from globalization. For all East Asian countries, the share of components in exports and imports within the region has increased much faster than in trade with the rest of the world (Athukorala 2008). In 2005–2006, exports within the region accounted for 60% of total component exports; for component imports, the share was even higher. The increase in component intensity has been particularly noticeable in Southeast Asia's trade with the other developing East Asian economies, most notably the PRC. Korea and Taipei,China are also involved in substantial component trade with other countries in the region.

The combination of increased trade in parts and components within Asia and greater long-distance air shipments is generating many more (mostly small) new shipments, which benefits SMEs, while the biggest existing shipments are getting even larger. Thus, in the case of the PRC's exports, the mean shipment is getting bigger, while the median is falling. The pattern in other Asian countries is similar (in some cases, both mean and median are falling, but medians are falling faster) (Hummels 2009).

The diversity of Asian economies, combined with lowering of trade costs, has helped the region to capitalize on global patterns of production fragmentation, expanding intraregional trade, and expansion of development opportunities. The impacts of new investments in trade-related infrastructure are now being leveraged by coordination across borders in a wide variety of trade facilitating institutional architectures and trade agreements. In this evolving international context, the role of harmonizing and strengthening soft infrastructure stands out as an essential complement for enhanced physical infrastructure. Supported by a conducive policy environment and internalizing regional spillover effects through cooperative arrangements, trade facilitation is reducing trade costs and facilitating trade expansion, regional integration, and economic growth and development.

Wilson, Mann, and Otsuki (2003) found that enhanced port efficiency or reduced regulatory barriers have large and positive effects on trade, and improvements in customs and greater electronic business usage also significantly expands trade, but less than port or regulatory reform. They found that intra-APEC trade could increase by US$254 billion (about 21%) if those APEC members below average in these areas improve their capacity just halfway to the average.

Empirical evidence based on disaggregated trade flows by Martinez-Zarzoso and Marquez-Ramos (2008) indicates that lowering the number of days and documents required to conduct trade increases trade flows to a higher extent in trade of differentiated goods, and that improvements in service infrastructure foster international trade in all sectors. The authors found that, on average, a decrease of US$1 in the cost to export one TEU[4] yields an

[4] TEU stands for twenty-foot equivalent unit, a standard measure of shipping container size.

increase in exports of almost US$11,000 and a one-day reduction in the average number of days required to export a good yields an increase in exports of 0.22%. The facilitating effect on trade flows of a reduction in both the number of days and documents required differs between exports and imports, and across sectors and countries, suggesting that priorities in trade facilitation policy recommendations should take account of different countries' individual industrial and trade structures.

4. IMPROVING ACCESS

Congestion has been a growing problem, counteracting advances in trade facilitation. In the case of the PRC, Ma and Zhang (2009) found that in Shanghai, inefficiencies from overloading the physical infrastructure are compounded by a lack of collaboration among stakeholders. Trade facilitation and administrative procedures at customs are unreliable, and the customs transit system needs to be rationalized in order to reduce inspection times and simplify declarations and the documentation process. Shanghai's congestion is reducing its competitiveness in the region, thus endangering its status as a hub and gateway to international markets and suppliers. In recent years, the number of transshipped containers from Shanghai via Hong Kong, China has accounted for as much as 20% of Shanghai's total container throughput. On the other hand, Suzhou Park in the PRC includes free-trade zones with streamlined customs procedures and dedicated transport routes to ports, and has thereby reduced both costs and waiting times (Hausman, Lee, and Subramanian 2005).

In the case of Indonesia, Patunru, Nurridzki, and Rivayani (2009) found that soft infrastructure plays a vital role in constraining port efficiency, more so than hard infrastructure, although the two are interlinked. Sea port competitiveness may suffer from poor physical infrastructure such as inadequate channel depth, shortage of berths, and limited cargo handling equipment, and storage and transit areas, but it may also suffer from limitations in soft infrastructure, such as labor skills, regulation, bureaucracy, and other institutional factors affecting port capacity utilization. Lack of direct competition between ports controlled by the same government authority is also a critical factor. Yet port performance is crucial to the Indonesian archipelago.[5]

Increasing port efficiency enables countries to reap large economies of scale, reducing the average time shipments spend at sea and in ports. Shipping also tends to become more frequent, facilitating timely delivery. In addition, a densely traded route enables an effective use of hub and spoke arrangements, in which small container vessels feed shipments into a hub where containers are aggregated into much larger and faster container ships for longer hauls. Indeed, a recent study found that given transport costs constitute roughly 20% ad valorem tax-equivalent on import prices in East Asia, a 10% increase in port capacity has the effect of a 0.3% to 0.5% across the board tariff cut (Abe and Wilson 2009)

Trade growth along a particular shipping route also encourages entry—and where permitted, new competition tends to drive down shipping margins, particularly when complemented by an effective competition policy that constrains monopoly power and removes barriers to entry (Brooks 2005). Hummels, Lugovsky, and Skiba (2007) found that ocean liners charge much higher freight rates for goods whose import demand is relatively inelastic, indicating that shipping firms are most likely exercising market power. In 2006, one in six importer-exporter pairs was served by a single liner service; over half were served by three or fewer.

To raise competitiveness and efficiency, ICT is an increasingly productive complement to physical infrastructure. ICT helps to reduce the costs of finding suppliers, agreeing on

[5] In the Indonesian archipelago, where around 90% of external trade (and much of domestic trade) passes through ports, exporters seeking to distribute raw materials tend to follow the "trade follows the ships" principle: they are attracted to ports with shipping routes that best reach the desired markets (Patunru, Nurridzki, and Rivayani 2009). Regions where service-sector exports are more important tend to follow the "ships follow the trade" principle, whereby ships are routed to serve the desired regions.

contracts, monitoring their implementation, and tracking the location and status of shipments. Fink, Matoo, and Neagu (2002) found that higher telecommunications costs dampen bilateral trade flows, especially for differentiated (rather than homogeneous) products. In particular, as smaller shipments of a wider variety of higher value-added products proliferate, the demand for ICT services rises. The same is true as the growth of trade in services outpaces that in manufactures. Trade in services such as banking and business services, or communications, are highly dependent on well-developed ICT infrastructure in both exporting and importing countries. While the private sector is especially adept in the ICT sector, the need for mutually interfacing logistics services at both ends of a trade route is an area where regional cooperation could help users to share information, learn from best practices, and coordinate capacity building to enhance trade.

To ensure that some areas are not left behind, improved trade facilitation is vital for connecting remote areas and landlocked countries with regional and global markets. Asia's 12 landlocked countries[6]—Afghanistan, Armenia, Azerbaijan, Bhutan, Kazakhstan, Kyrgyz Republic, Lao People's Democratic Republic (PDR), Mongolia, Nepal, Tajikistan, Turkmenistan, and Uzbekistan—are especially disadvantaged. Most are 700–1,000 km from the nearest port; four (Kazakhstan, Kyrgyz Republic, Tajikistan, and Uzbekistan) are over 3,000 km from the sea (United Nations Economic and Social Commission for Asia and the Pacific [UNESCAP] 2006). These countries struggle with poor physical infrastructure, small domestic markets that are remote from world markets, and a high vulnerability to external shocks. Unless transported by air at high cost, traded goods from these countries must transit through at least one neighboring state. The impacts of customs and transport inefficiencies hamper access to global markets, deter foreign direct investment (FDI), and raise the cost of imports, compounding components of trade cost margins severely for these economies.[7]

In small and less-developed economies, such as Cambodia, Lao PDR, Mongolia, and Viet Nam, border procedures are often cumbersome and time consuming. Inland transport is particularly slow and expensive in South Asia where, unsurprisingly, intra-regional trade is low. These costs account for around 88% of total trade transport costs in the subregion (De 2009). Land border crossings are overcrowded and complex requirements expand possibilities for corruption and encourage informal trade. Greater policy attention to efficiency concerns could easily reduce delays and monetary costs. There is therefore a strong case for subregional cooperation to facilitate trade so as to raise exporters' competitiveness in this subregion.

At the international level, cooperation through preferential trade and investment agreements that strengthen structural reforms and increase the attractiveness of a location for foreign investment can leverage domestic policy actions and their impacts on growth, equity, and efficiency, and may help to reduce corruption. Cross-border cooperation in building and maintaining soft infrastructure can therefore lead synergistically to a reduction in trade costs and stimulate further investment in physical infrastructure, trade, production and employment, and growth, facilitating further trade expansion.

[6] Landlocked countries are those that do not have access to an open sea. Some landlocked countries, such as Azerbaijan, Kazakhstan, or Turkmenistan have access to an inland sea, such as the Caspian.

[7] United Nations Conference on Trade and Development (UNCTAD) (2008) suggests that a multidimensional approach is needed to tackle these problems. This involves developing adequate national transport networks and efficient transit systems, promoting regional or subregional economic integration, and encouraging FDI in economic activities that are not distance-sensitive. For example, in 1995, the United Nations General Assembly endorsed the Global Framework for Transit Transport Cooperation between Land-locked and Transit Developing Countries and the Donor Community with a view to enhancing transit systems and enabling Land-locked and Developing Countries to reduce their marginalization from world markets.

While regional integration can help less developed countries and regions to access new markets, suppliers, technologies, and opportunities, and can help to internalize negative spillover effects and capitalize on economies of scale, progress has not been even across subregions. East and Southeast Asia are generally ahead of other Asian subregions in terms of trade and regional integration. It is no coincidence that trade-related infrastructure services are generally more available and of higher quality in East and Southeast Asia. In South Asia infrastructure performance and logistics services are lower, and so is intraregional and interregional trade. Pacific island countries face particular trade challenges for integration, since shipping distances are large and shipments are generally small and of relatively low value added, raising the ad valorem shipping margins. In Central Asia, the transition to independence was accompanied by a need to reorient trade flows to new destinations and originating from new sources, while fiscal difficulties have severely limited expenditures for infrastructure maintenance, operation, and expansion.

5. TRADE FACILITATION, SOFT INFRASTRUCTURE, AND LOGISTICS

The importance of high-quality logistics varies by commodity depending on three factors (Arnold 2009). First is the value of the commodity per shipment unit, for example, per metric ton or TEU. Second is the shelf life of the commodity, reflecting physical deterioration or volatility of demand. The third factor is importers' scheduling requirements; timeliness is particularly important to just-in-time manufacturers—in sectors such as fashion clothing or auto parts—and retailers with coordinated national sales programs. Given its diversity, Asian trade is affected by each of these factors, particularly the supply chain implications. Although increasingly, logistics concerns related to higher value-added products are raised.

In addition to the commodity-based aspects of trade facilitation, other forms of soft infrastructure influence international trade. These include availability of adequate credit and foreign exchange at reasonable rates, a reliable system of legal recourse, effective competition policy, and the capacity of existing human capital to process exchanges. Indeed, soft infrastructure may often be more important than physical infrastructure for increasing trade and its profitability.

Inefficient or burdensome institutional structures, bureaucracy and policy may lead to reduced or foregone gains from international trade. During 2006–2007, most developing Asian countries were actively reforming their trade policies, with India being a top reformer. On average, producers in the region require about one month to export whereas exporting takes only 10 days for their Organisation for Economic Co-operation and Development (OECD) counterparts. By subregion, Central and West Asia is still costlier than the rest of Asia (Table 3) although some countries such as Armenia are continuously reforming to make trading across borders easier. The pattern is similar for importing, with time and cost to import being slightly higher than exporting in the region.

Table 3: Costs of Exporting, by region, 2006–2007

Region	Documents for Export (number)	Time for Export (days)	Cost to Export (US$ per container)
Developing Asia and the Pacific	8	33	1202
East Asia (16)	7	23	789
East Asia (15)	7	24	773
Central and West	9	59	2252
The Pacific	7	25	1018
South Asia	9	33	1180
Other developing	7	28	1325
OECD[1]	5	10	908
World[2]	7	27	1239

OECD = Organisation for Economic Co-operation and Development, US$ = United States dollar.

Notes:

1 Czech Republic, Hungary, Mexico, Poland, Slovak Republic, Turkey and Republic of Korea are not included in OECD average as they are grouped into developing countries. Other 23 OECD economies are included.

2 The world aggregates were estimated based available data from 179 countries.

3.. East Asia (15): Brunei Darussalam; Cambodia; People's Republic of China; Hong Kong, China; Indonesia; Korea; Lao People's Democratic Republic; Malaysia; Mongolia; Myanmar; Philippines; Singapore, Taipei,China; Thailand; Viet Nam.

4. East Asia (16): East Asia (15) plus Japan.

5. Central and West Asia (8): Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan.

6. South Asia (7): Afghanistan, Bangladesh, India, Maldives, Nepal, Pakistan, Sri Lanka.

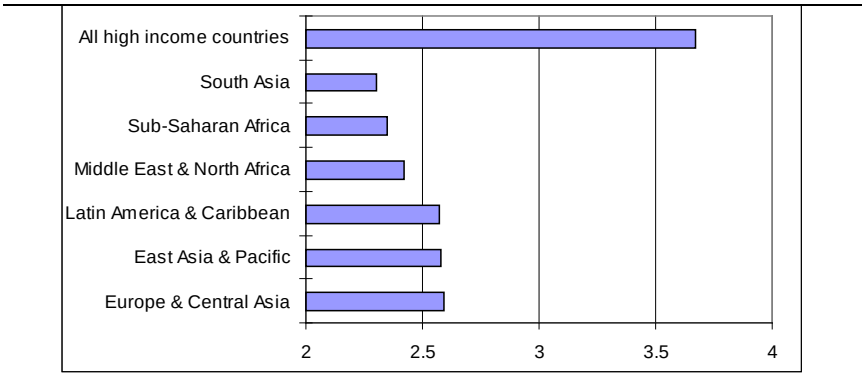
Source: World Bank, "Doing Business Database" http://www.doingbusiness.org (10/07/2008)

Exploiting complementarity of hard and soft infrastructure raises overall trade and economic performance. This is especially noticeable in the case of networks. Many communication and infrastructure services that are important for economic development and trade expansion exhibit network externalities. Infrastructure networks exhibiting service externalities include telephones, railways, and water supply systems. In the presence of such externalities, the maximum amount that consumers are willing to pay for a good or service depends in part on the number of other consumers who also purchase the item in question. This interrelationship calls for consideration of these network systems' governance in competition policy.

Logistics services are a vital component of Asia's global competitiveness. Supply chains that span the region rely on them, and the location of FDI within the region is shaped by them. Improvements in trade facilitation from raising infrastructure service efficiency can lead to cost savings equivalent to moving production to locations thousands of kilometers closer to trading partners. Economies such as the PRC; Hong Kong, China; Korea; Malaysia; Singapore; Taipei,China; and Thailand have so far built well-developed logistics systems to facilitate international trade.

An international comparison of logistics performance finds that East Asia performs relatively well compared with other developing regions, notably South Asia, but still lags well behind high-income countries (Figure 2).

Figure 2: International Logistics Performance Index (LPI)



Note: International LPI mainly reflects infrastructure, customs, international shipments, logistics competence, tracking and tracing, domestic logistics costs, timeliness, etc.

Source: Arvis et al 2007.

The challenges of providing efficient logistical support rise as countries move into progressively more complex and higher value manufacturing, and as production processes become increasingly fragmented. Already, there is a premium on timeliness and reliability of delivery, care and security in handling and transporting, and certification and standardization of product quality. Delays have particularly adverse impacts on time-sensitive goods. Goods that are perishable, such as cut flowers and some food products, deteriorate rapidly and tend to face relatively high costs from delays. Fashion and high-technology items may also be vulnerable, with delays also tending to be particularly costly for these products (Minor and Tsigas 2008). Furthermore, delays in transit times abroad may have particularly adverse impacts on landlocked countries (Djankov, Freund, and Pham 2008), such as Lao PDR. Both the quantity and quality of logistics services in cross-border trade create competitiveness and value added. Fortunately, competition among private sector providers of logistics services is continually stimulating efficiency improvements.

6. TRADE FACILITATION AND LOCATION OF FOREIGN DIRECT INVESTMENT

Amiti and Javorcik (2008) found that access to markets and access to suppliers are the most important factors affecting entry decisions by foreign investors. The influence of market and supplier access on FDI location decisions was four times greater than that of production costs. Trade, investment, and production patterns in production chains are also partly determined by agglomeration and dispersion effects across countries and commodities. Kimura, Takahashi, and Hayakawa (2007) found that geographical distance reduces trade in machinery parts and components much less in East Asia than in Europe. This implies that the service link costs associated with international production fragmentation are substantially lower in East Asia than in Europe, contributing to large differences in the development of international production and distribution networks.

Trade facilitation has an indirect impact on FDI inflows by lowering the cost of spreading production across several countries in order to take advantage of their comparative advantages. Increased FDI, in turn, can further boost regional trade, adding to the direct effect of improvements in trade facilitation across borders. If the advantages of scattering

production across economies in a region outweigh those from concentrating it together, trade facilitation makes FDI complementary to trade. For instance, in Southeast Asia's electronics industry, where components are generally small and light (relative to value added) with relatively lower transport costs, cross-border production networks proliferated in the 1990s. This can create a virtuous cycle of trade facilitation, trade, and investment that fosters increased trade and economic growth.

To compete for larger shares of regional supply chains, countries have striven to improve their trade services. In Malaysia, for instance, the government has actively promoted infrastructure development in order to strengthen its competitive and comparative advantage. Since the mid-1980s, Malaysia has pursued an FDI-led, export-oriented development strategy, with FDI contributing to the economy's integration in global production networks. Malaysia has enhanced its geographical attractiveness to foreign firms as a key link in global supply chains through infrastructure development and the resulting high-quality production and trade services.

7. EMPIRICAL ANALYSIS

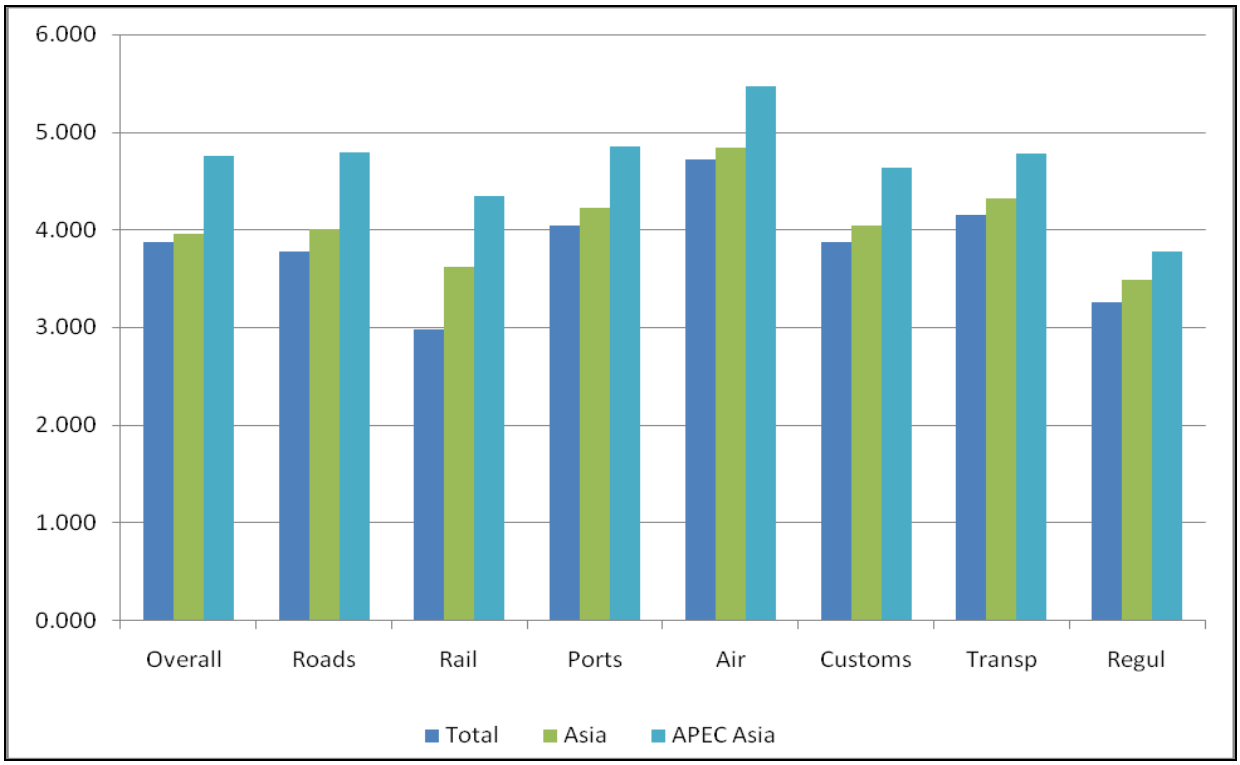
The above discussion outlines the necessity of investing in regional infrastructure projects and the importance of trade facilitation in growth. Along with the physical structures that are needed to improve the flow of goods, services, and workers, there is a substantial need for investment in administrative procedures including regulation, customs processes, and practices to facilitate the growth and expansion of regional business opportunities. Given that these costs tend to be a higher percentage of operating costs for SMEs, the investment in trade facilitation is even more important in support of the growth in these enterprises.

Figure 3 presents a comparison of competitive measures in trade facilitation across a sample of 134 major and emerging economies (Total), for Asia as a whole (Asia) and finally for APEC Asia.[8] The average rankings are shown for overall infrastructure as well as individual modes of roads, rail, ports, and air facilities. Finally, three measures of administrative costs are given covering the burden of customs procedures (customs), the transparency of government regulation (transp), and the burden of government regulation (regul). As seen in Panel A, APEC Asia performs, on average, better than both the world sample and overall Asia. This superior performance is consistent across all measures and is, in large part, due to the consistently top performance of Singapore and Hong Kong, China.

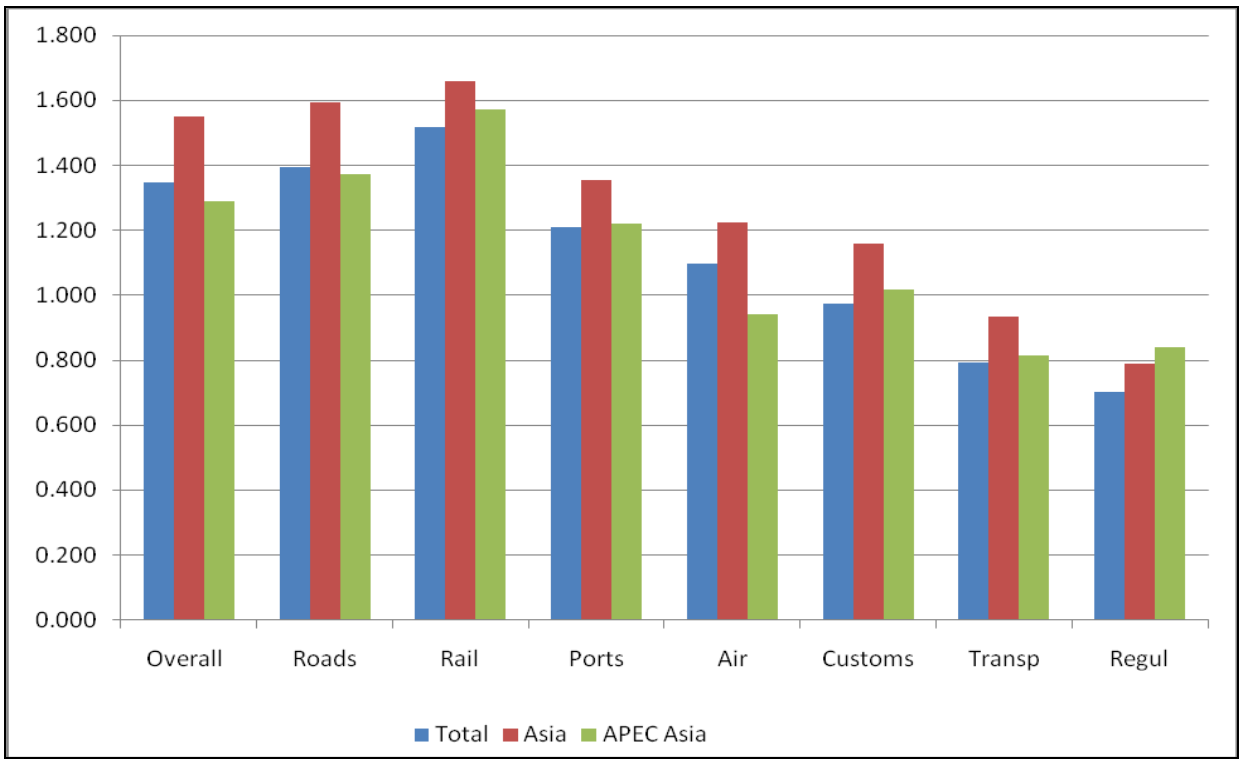
[8] We define APEC Asia as including Singapore; Malaysia; Indonesia; Hong Kong, China; Taipei,China; Japan; Korea; Philippines; PRC; Thailand; and Viet Nam.

Figure 3: Ranking for Trade Facilitation Measures

Panel A- Average



Panel B – Standard Deviation



Source: World Economic Forum (2008).

However, if we look at panel B, we see that the performance across all of APEC Asia is far from consistent. While in most instances (the exception being regulation), performance is less varied than for Asia as a whole, it is often more disparate than for the entire sample. This is observed for all measures of administrative facilitation, and, as already noted, APEC Asia has the most inconsistent government regulation performance. Thus, while on average APEC Asia performs well, it appears there are rather substantial gaps in performance across the region.

To examine trade facilitation at the border, we focus here on how individual pairs of countries interact.[9] The measures presented support what has been suggested by the graphs presented above; depending on which two countries are involved, the process could be very advanced and efficient, or extremely slow. Thus important insights can be gained by examining the issue from this bilateral flow perspective.

In addition to distinguishing trade costs by partner, the importance of differentiating trade costs by product has also been highlighted in the literature. Christ and Ferrantino (2009) showed how this plays out in Sub-Saharan Africa. The combination of high land transport costs for agricultural products and relatively low costs for metals and high-value products diminishes the ability of Sub-Saharan African countries to participate in exports involving vertically integrated products. They show the diversity of factors influencing transport costs, including weak infrastructure, imperfect information, and of course, the landlocked nature of countries involved.

There is no shortage of empirical work on trade facilitation. The World Bank has been particularly prolific on this subject. If one puts the words “trade facilitation” into the World Bank search engine, it yields over 1,700 citations. The methods most commonly applied are some form of the gravity model and, more recently, a computable general equilibrium (CGE) approach. Francois and Wignaraja (2008) provide a list of CGE papers that measure the impact of free trade agreements (FTAs) in Asia, a few of which apply some sort of trade facilitation scenario. The particular plight of landlocked countries has been of interest given their disproportionate dependence on trade facilitation as well as more general issues of market access. Estimates of increased costs for landlocked countries, such as those provided by Limão and Venables (2001), are as high as 70%. Given the large number of landlocked countries in the region, this is of great importance for trade promotion in Asia. As stated above, the growth of production fragmentation and subsequent trade expansion throughout the region means that cooperation and consistency in trade facilities among countries needs to remain a high priority for growth achievement.

As stated above, this paper attempts to expand the existing body of empirical research by examining the role trade cost reductions can play in bilateral relationships by sector. We used version 7 of the global trade analysis project (GTAP) database,[10] covering 113 countries or regions and 57 sectors, with a base year of 2004. The GTAP 7 database was aggregated to cover 15 countries and regions, including all APEC Asia countries. The 57 sectors were aggregated to maintain coverage of sectors of key importance to the region, as shown in Table 4.

[9] In all but a few instances, border facilitation involves two countries.

[10] Released August 2008 (see https://www.gtap.agecon.purdue.edu/databases/v7/default.asp). See also Hertel (1997) for a complete description of the GTAP model.

Table 4: Commodity Aggregation

Sector Modeled	Detailed Description
Rice	Paddy and processed rice
VegFruit	Vegetables and fruit
OthCrops	Other crops
Animals	Live animals
AnimProds	Animal products
OthFoods	Other processed foods
Forestry	Forestry
Fishery	Fisheries
OthMinerals	Coal and other minerals
Textiles	Textiles
Apparel	Wearing Apparel
Leather	Leather products
WoodPaper	Wood and paper products
Electronics	Electronic equipment & machinery
OthManfcs	Other manufactures
Vehicles	Transportation vehicles

We applied a fairly straightforward experiment on enhancing regional trade facilitation within APEC Asia. We kept the experiment simple in order to examine the details of the outcome at the sectoral and bilateral trade levels. The estimates of trade costs by sector are based on Strutt, Stone, and Minor (2008) and include customs delays, document processing, administration procedures, etc., to determine time costs for trade. Table 5 shows the estimates for the time costs of exports from APEC Asia for selected sectors.

Table 5: Time Costs of Exports in APEC Asia

	Singapore	Malaysia	Thailand	Viet Nam	Indonesia	PRC	Japan	Korea	HKT[a]	Philippines
Rice	4.3	7.3	7.8	11.6	7.3	6.8	6.8	6.8	8.6	7.3
Veg/Fruit	54.2	180.7	166.6	197.6	180.7	59	88.1	88.1	108.5	180.7
Other Crops	15.5	32.9	3.3	16.1	32.9	14.8	15.7	15.7	31	32.9
Animals	49.7	96.6	47.5	99.7	96.6	74.8	49.6	49.6	99.4	96.6
Animinal Prods	5.6	11.3	9.5	24.9	11.3	13.4	13.3	13.3	11.1	11.3
Other Food	88.7	74.2	135.7	119.2	74.2	122.8	141.2	141.2	177.3	74.2
Forestry	14	6.3	53.3	15	6.3	31.8	33.8	33.8	28	6.3
Fisheries	20.4	44.2	23.5	52.5	44.2	80.5	78.6	78.6	40.8	44.2
Other Minerals	47.2	6.7	47.7	51.7	6.7	22.1	37.3	37.3	94.5	6.7
Textiles	66.2	85	107.7	106.4	85	79.9	135.7	135.7	132.4	85
Apparel	66.8	103.9	107.3	163.8	103.9	98.3	107	107	133.6	103.9
Leather	39.6	54.2	54.8	90	54.2	54.9	58.8	58.8	79.2	54.2
Wood/Paper	78.9	128.8	157.1	118.2	128.8	90.7	229.3	229.3	157.7	128.8
Electronic	44.3	77.5	91.4	147.8	77.5	89.5	99.1	99.1	88.6	77.5
Other Manfcs	105.7	138.5	174.7	220.8	138.5	132.5	158.4	158.4	211.5	138.5
Vehicles	85	125	154.5	300.6	125	153	173.9	173.9	169.9	125

Source: Initial estimates taken from Minor, Strutt, and Stone (2008) and recalculated for the regional aggregation shown.

[a] HKT = Hong Kong, China and Taipei,China.

In order to determine the impact of these time costs on economic performance, we converted these estimates to tariff equivalents. We assumed that the ad valorem equivalent tariff for time delays in exporting or importing is equal to the per day value (Hummels, Lugovsky, and Skiba 2007), combined with the average time delay for that country (World Bank 2008). The original time costs were applied to a subset of sectors and countries of interest in this paper.[11] What is most apparent in table 5 is the variation in costs across both sectors and economies.

For example, the costs of transporting fruits and vegetables are high across all economies examined but are even more so for countries in Southeast Asia. This observation is consistent with the literature as noted above. Again, as described above, differences across countries based on products and level of development are observed. For example, the time costs of trade for fruits and vegetables in Viet Nam are more than three times those in Singapore. On the other hand, the costs of forestry products in Indonesia are less than half of those in Singapore. It is clear from the table that the impacts of improved trade facilitation will vary a great deal, depending on the sector and economy involved.

We have based our estimated reductions in trade costs on several recent studies of transport enhancements in the Asia and Pacific region (see Stone and Strutt 2009 for a review of these studies.) These studies examined the potential impact of reforms (either in process or already underway) in trade facilitation. For example, full implementation of the Cross Border Transport Agreement in the Greater Mekong Subregion is expected to reduce trade costs by as much as 45% (Banomyong 2008). From this review, we have applied a 25% reduction in the cost of transport across the APEC Asian region. We believe that this gives a reasonable estimate of the types of cost reductions that can be achieved through enhanced trade facilitation in the APEC Asian region.

8. RESULTS

Table 6 presents the macro level results of lowering trade costs within the APEC Asian region by 25%. As expected, GDP expands across the region, as does welfare. Increases in welfare, as measured by equivalent variation income (Hertel 1997), range from US$1.25 billion in the Philippines to US$12.4 billion in the PRC. The PRC gains the most in absolute terms, given the initial size of current trade activity. However, as a percentage of GDP, the biggest winner is Viet Nam. Given that Viet Nam's time costs were consistently among the highest (Table 6) it has much to gain from their reduction. Other economies such as Malaysia and the Philippines also experience significant gains.

[11] The trade cost values determined in Strutt, Stone, and Minor (2008) were mapped to the regional breakdown examined in this paper. Details of the mapping are available from the authors upon request.

Table 6: Impacts of Trade Cost Reduction of 25%

	Change in GDP (US$ Mil)	Change in GDP (%)	Change in Welfare (US$ Mil)	Change in Exports (US$ Mil)	Change in Exports (%)
Singapore	1,301	1.22	1,988	1388	0.83
Malaysia	2,137	1.86	2,643	1543	1.00
Thailand	1,629	1.01	3,023	-4086	-3.37
Viet Nam	1,409	3.27	1,558	-247	-0.76
Indonesia	1,744	0.68	1,889	1323	1.51
PRC	13,355	0.80	12,394	15673	2.26
Japan	4,767	0.10	7,374	5946	0.91
Korea	2,652	0.39	4,563	3421	1.11
HKT[a]	2,951	0.63	3,980	3243	0.91
Philippines	1,038	1.23	1,249	-134	-0.26

Source: Authors' estimates.

[a] Hong Kong, China and Taipei,China.

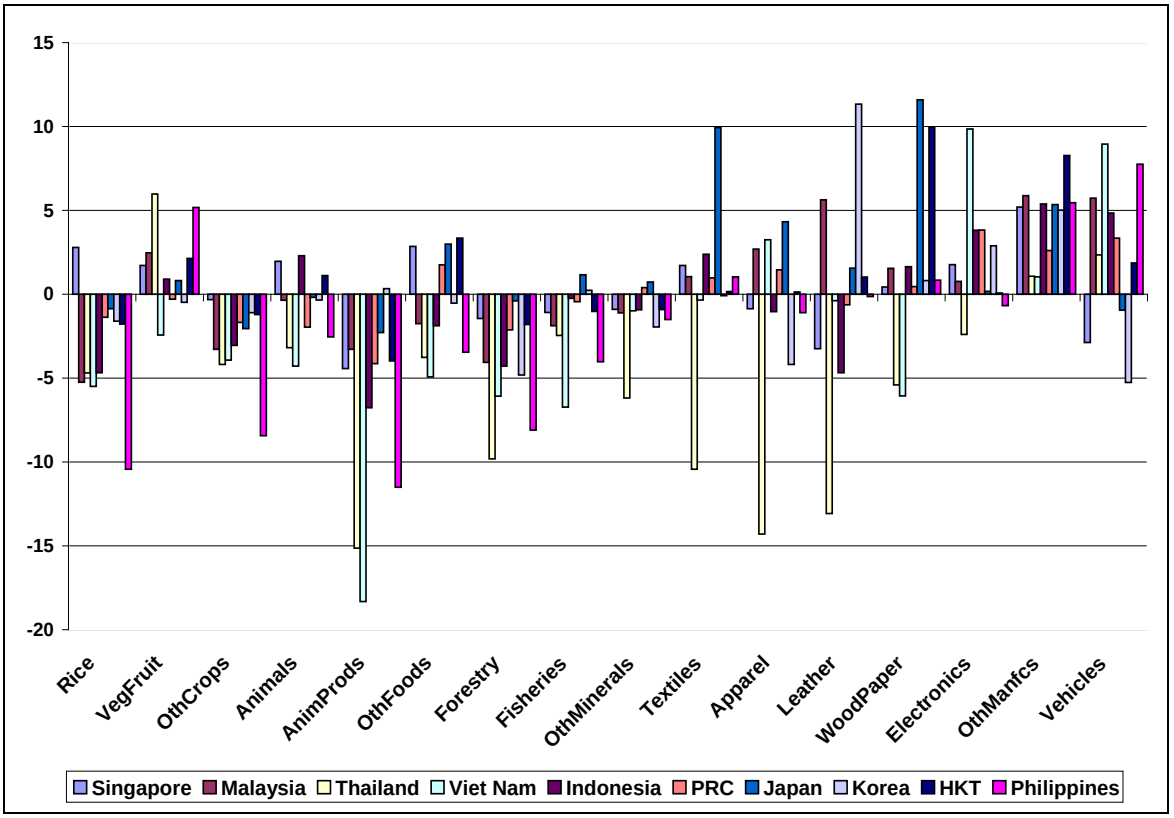
In terms of welfare gains, incomes across developed APEC Asia (i.e., Japan; Korea; Hong Kong, China; and Taipei,China) record strong increases, although again the larger dollar values reflecting the relatively larger starting points for these economies. Among the developing region, Malaysia and Thailand show substantial welfare gains. The pattern of gains reflects the relative size of trade costs for each economy, but also depends on sectors traded and relevant trade partners. So those countries within APEC Asia with predominantly intra-regional trade flows and high trade cost sectors will gain the most from the reductions applied.

For the majority of economies examined, exports expand, the notable exception being Thailand, and to a lesser extent, Viet Nam and the Philippines. In percentage terms, Thailand's exports decline the most. The details of these changes will be explored below when we examine changes in bilateral trade movements.

8.1 Trade Impacts

Examining the change in exports by sector, a general pattern of increases in manufactures and processed goods accompanied by a general trend of decreases in primary goods or more traditional exports, is apparent (Figure 4). For example, Viet Nam and Thailand show significant decreases in animal product exports while Viet Nam's exports of electronics increases strongly and Thailand expands its export of vehicles. This pattern of reductions in trade costs leading to new patterns of export growth is consistent with results reported elsewhere. Dennis and Shepherd (2007) suggest that improvements in trade facilitation often lead to a diversification in a country's export base. Indeed, Strutt, Stone, and Minor (2008) found evidence of this effect in the Greater Mekong Subregion. Conversely, in the case of Sub-Saharan Africa, long delays in exporting result in decreased exports of higher value-added manufactures and increased dependence on basic commodities (Minor and Tsigas 2008).

Figure 4: Changes in Exports by Sector



Source: Authors' calculations.

We now turn to an analysis of bilateral trade patterns. Table 7 presents three panels identifying the resulting changes in the bilateral exports of three representative sectors. The columns indicate the exporter and the rows show the destination. First is the fruit and vegetable sector. In addition to being an important traded sector for many economies in the region, this sector has high time costs and thus benefits relatively more when these costs are reduced. The second sector represents a traditional manufacturing sector: textiles. Most of the economies in APEC Asia have significant levels of trade in textiles: it thus represents an important sector in their economies. Finally, we examine changes in exports for the electronics sector. This is an important sector in high income economies in the region and a potential growth area for others.

Table 7: Changes in Bilateral Exports

Fruits and Vegetables										
	Sing	Malay	Thail	VtNm	Indon	PRC	Japan	Korea	HKT	Philip
Singapore	0	4.0	-6.2	-4.3	4.1	-0.3	-1.1	-3.9	-1.6	-0.8
Malaysia	3.9	0	0.3	3.2	2.0	-0.1	2.7	2.9	3.5	-2.3
Thailand	6.9	3.1	0	-3.2	3.4	2.8	5.4	4.3	6.5	-3.0
Viet Nam	12.2	-0.6	7.1	0	0.4	2	18.8	12.3	11.6	-4.9
Indonesia	5.6	3.2	1.5	4.6	0	1.4	4.3	4.5	5.0	-2.4
PRC	-9.8	15.5	18	7.4	16.3	0	-9.1	-10.8	-10.1	10.6
Japan	7.3	15.1	11.8	37.6	16.0	2.9	0	1.4	6.9	10.8
Korea	1.1	8.1	4.8	31.3	10.0	-2.8	2.3	0	0.8	4.4
HKT	2.7	7.8	-1.7	-1.0	8.4	3.4	2.9	0.1	2.5	3.2
Philippines	8.9	5.7	4.1	8.0	6.5	4.7	7.7	7.9	8.5	0
ANZ	-0.9	-4.2	-4.6	-7.2	-3.3	-2.2	-1.0	-0.6	-1.3	-7.9
RestAPEC	-1.6	-5	-5.6	-7.8	-4.2	-2.9	-1.6	-1.3	-1.9	-8.6
EU15	-1.6	-4.6	-5.2	-7.7	-4.1	-2.9	-1.8	-1.4	-2.2	-8.9
RestAsia	-1.4	-4.5	-6.1	-6.6	-4.0	-2.6	-1.6	-1.3	-1.9	-9.0
ROW	-1.6	-4.7	-5.5	-7.4	-3.9	-2.8	-1.8	-1.3	-2.2	-8.6

Textiles										
	Sing	Malay	Thail	VtNm	Indon	PRC	Japan	Korea	HKT	Philip
Singapore	0	5.5	-5.2	9.4	7.1	3.3	8.8	2.3	1.1	5.8
Malaysia	6.8	0	-2.5	-2.8	7.9	4.4	17.4	7.8	4.6	6.6
Thailand	6.6	5.7	0	6.5	7.2	7.8	14.2	4.5	4.4	5.9
Viet Nam	-0.3	-2.1	-6.8	0	-0.6	5.4	11.1	5.5	-2.5	-1.8
Indonesia	6.8	6.3	-2.4	-2.9	0	4.4	17.3	7.7	4.5	6.6
PRC	6.2	3.8	-3.4	-2.1	5.4	0	16.8	9.2	3.9	4.1
Japan	0.3	2.7	-7.1	5.3	4.2	3.5	0	4.0	-1.8	2.9
Korea	1.0	3.3	-6.5	6.0	4.8	4.2	12.6	0	-1.2	3.6
HKT	3.6	5.8	-4.7	9.7	7.4	3.6	9.1	2.6	1.4	6.1
Philippines	2.8	2.4	-6.2	-6.5	3.9	0.5	13	3.7	0.6	0
ANZ	-1.5	-0.3	-12.8	-2.5	1.1	-0.5	-1.7	-6.0	-3.6	-0.1
RestAPEC	-1.7	-0.5	-13.1	-2.7	1.0	-0.7	-1.8	-6.2	-3.8	-0.2
EU15	-20	-0.8	-13.4	-3.0	0.7	-1.0	-2.1	-6.5	-4.1	-0.5
RestAsia	-0.9	0.3	-12.2	-1.9	1.8	0.2	-1	-5.4	-3	0.6
ROW	-1.6	-0.4	-12.9	-2.6	1.1	-0.6	-1.8	-6.1	-3.7	-0.2

Electronics										
	Sing	Malay	Thail	VtNm	Indon	PRC	Japan	Korea	HKT	Philip
Singapore	0	2.5	-1.8	19.2	4.8	8.1	1.6	7.0	-0.6	-0.2
Malaysia	3.6	0	2.2	9.9	6.2	10.5	4.7	10.9	1.8	1.1
Thailand	4.7	6.8	0	6.2	9.2	11.4	6.4	9.5	2.9	4.0
Viet Nam	9.8	2.8	1.9	0	5.1	12.8	13	16.9	8	0.1
Indonesia	1.6	1.9	0.4	7.9	0	8.4	2.8	8.9	-0.1	-0.7
PRC	2.9	1.8	0.2	20.6	4.1	0	5.3	13.9	1.1	-0.9
Japan	3.5	7.3	3.4	13.0	9.7	11.8	0	9.5	1.7	4.5
Korea	4.3	8.1	4.1	13.8	10.6	12.7	5.2	0	2.5	5.3
HKT	-0.1	1.2	-3	17.8	3.6	6.8	0.4	5.7	-1.9	-1.4

Philippines	0.9	1.2	-0.5	7.1	3.5	7.7	2.0	8.0	-0.8	0
ANZ	0.4	-1.6	-6.3	0.6	0.7	1.3	-3.9	-5.9	-1.3	-4.1
RestAPEC	0.2	-1.7	-6.5	0.5	0.5	1.2	-4	-6.1	-1.5	-4.3
EU15	0.1	-1.9	-6.6	0.3	0.4	1	-4.2	-6.2	-1.6	-4.4
RestAsia	0.4	-1.5	-6.2	0.7	0.7	1.4	-3.8	-5.9	-1.3	-4.1
ROW	0	-1.9	-6.6	0.3	0.3	1.0	-4.2	-6.2	-1.7	-4.5

ANZ = Australia and New Zealand; European Union (15) = Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom. HKT = Hong Kong, China and Taipei,China; Indon = Indonesia; Malay = Malaysia; Philip = the Philippines; Sing = Singapore; RestAPEC = Chile, Peru, Canada, Mexico, and United States; RestAsia =Bangladesh, India, Pakistan, Sri Lanka, Cambodia, and Lao PDR; ROW = rest of world; Thail = Thailand; VtNm = Viet Nam.

Source: Authors' estimates.

The pattern for fruits and vegetables shows an almost universal regional expansion at the expense of those countries outside APEC Asia. Singapore increases the fruits and vegetables exported to the close economies of Malaysia and Indonesia. Those countries with the highest trade costs—Viet Nam, Indonesia, Malaysia, and Philippines—experience the greatest expansion, especially to the high income economies of Korea and Japan, and the fast growing PRC. Japan and Korea show significant increases in their exports as well, but these are from a relatively low base. The same pattern is observed in textiles with developing APEC Asia economies increasing their exports of textiles to high-income Asia across the board, with the notable exception of Thailand. Thailand loses market share across all markets, both those within the region and those outside. It is this loss in market share that is driving the overall decline in Thailand's exports. However, the expansion of other export markets for Thailand in combination with declining import prices leads to a rise in GDP as well as income for the country (Table 6). Indeed, Thailand's GDP growth is one of the highest for the countries examined.

Indonesia, on the other hand, expands its textile exports across the board at a robust rate. Indeed, the highest export growth is within the region, specifically to Malaysia and Thailand, but Indonesia also expands its exports to the rest of Asia, EU15,[12] and the rest of APEC.[13] The large relative increase in textile exports of Japan, and to a lesser extent Korea, are again off a fairly low export base.

A more diverse pattern is observed in the electronic sector. Again, intra-APEC Asian exports are expanding, but there is also growth in markets outside the region. Viet Nam and Indonesia are shown to have the greatest growth across the board with both countries expanding electronic exports in all markets. Malaysia, already a significant exporter of electronics, expands regional markets at the expense of those in the EU15 and the rest of world.

9. TOWARD GREATER TRADE

Asia's trade facilitation has greatly improved, but it must continue to do so in order to sustain economic growth and regional integration. Asia's international trade is growing in value and shrinking in weight per unit value. Exports are diversifying across new markets with smaller flows, and intraregional trade in parts and components for regional production networks accounts for a growing share of total trade. These trends underscore the need for speed, flexibility, and information. Cross-border improvements that facilitate the expansion of trade

[12] EU15 = Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, United Kingdom.

[13] The Rest of APEC here consists of the Chile, Peru, Canada, Mexico, and the United States. Australia and New Zealand, also members of APEC are included in their own category while Russia is included in the rest of the world (ROW).

along these lines will boost a country's export competitiveness and its efficient integration into the global economy.

The sequencing and complementarity of cross-border trade facilitation efforts are important, particularly as transport corridors develop into more diversified economic corridors. Once physical infrastructure has been built, developing complementary soft or ICT infrastructure, and enhancing trade facilitation at the border may be more important for trade than further investments in physical infrastructure. For example, once a two-lane highway has been built, streamlining customs facilities may boost trade more than widening it to four lanes.

As production becomes increasingly fragmented and traded internationally, cooperation among economies participating in production networks is becoming more important. The competitiveness of each country's production depends on that of the other countries in a production network as well as on the efficiency of the trading links among them. They thus have a strong incentive to cooperate with each other, particularly on reducing the costs of trading among them.

Flexibility, as well as timeliness, will become more valuable as greater trade implies greater potential vulnerability to external shocks such as financial turmoil or sharp fluctuations in fuel prices. An extended economic downturn in export markets would diminish export prices, potentially raising ad valorem trade costs and altering the prices of traded goods relative to those of nontradables. In general, one would expect the direct price effect to dominate, favoring trade in goods that are smaller, lighter, and of higher unit value. Trade finance may also be negatively affected, reducing the ability of trade to contribute to economic recovery in a region where it has been highly important in the past.

Factors such as delays in customs clearance, unofficial payments, and poor governance are particularly damaging because they impede this flexibility. They are also barriers to trade that need to be addressed through regional cooperation on trade facilitation measures. Improvements that reduce the costs of international trade are crucial for the region to realize the full gains from recent and prospective trade policy liberalization. This should be a priority in negotiations on bilateral and regional trade agreements, which can provide an added incentive and commitment to reform.

The empirical analysis presented here shows the significant gains from a reduction—even a relatively modest reduction—of trade costs. GDP in the region expands and countries move into a more diversified trading pattern. An examination of individual trends shows that when trade costs are lowered, it allows countries to move into new areas of trade. Some economies, such as Thailand in the scenario presented here, may experience an initial decline in overall exports as the economy moves out of traditional markets and into higher value-added sectors. However, such temporary adjustments are not long lived and policymakers need to be aware of this transition process and develop appropriate measures to manage the process effectively. We also see that some markets expand regionally while for others, trade facilitates trade with economies outside the region as well. However, regional market gains dominate and for those markets outside the region, the changes are not large relative to the gains between APEC Asian partners. The analysis highlights the importance of considering the direction of individual trade flows and the goods involved when planning trade facilitation policy measures and developing policies to handle the inevitable adjustment costs to a more diversified sectoral base.

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