

Reducing Trading Costs in a New Era of Security

Security measures can drive up transport costs

In the wake of September 11 and worldwide worries about terrorism, governments everywhere have enacted security measures that could, if not managed properly, drive up trade costs and shut out exports from developing countries. This action has focused attention on the search for greater efficiency in international transportation, the need for cooperation in adopting collective measures to promote transport security, and the imperative of improving customs regimes, port facilities, and logistics management.

The cost of moving goods between destinations and across international borders is often as important as formal trade barriers in determining the cost of landed goods—and ultimately of market share. The costs of transport among many points are as significant as tariffs. Other delays are equally costly. One study estimates that every day spent in customs adds nearly 1 percent to the cost of goods. In developing countries, transit costs are routinely two to four times higher than in rich countries.

But they hold out the promise of facilitating and securing trade

A study of the trade effects of September 11 estimated that world welfare declined by \$75 billion per year for each 1 percent increase in costs to trade from programs to tighten border security. Developing countries are particularly

vulnerable to cost increases related to security threats. Limited budget resources, dependence on foreign trade and investment, and outdated infrastructure and technology present serious challenges for these countries.

Fortunately, new security protocols being deployed at ports, customs offices, and border posts around the world have the potential to streamline trade transactions as well as promote safety and security. However, a global framework must be established to ensure that the needs of developing countries are addressed as security regimes take shape. The G-8 and developing-country partners should take the lead in drafting such a framework.

Regulations hamper competition in international transport systems and raise costs

Anticompetitive regulations and private commercial practices inflate trade costs by restricting international air and maritime transport services to developing countries. The share of trade shipped by air has grown to 30 percent for U.S. imports in 1998, but international air transport is one of the service sectors that is most heavily shielded from international competition. By denying entry to efficient outside carriers, bilateral air service agreements increase export costs for developing countries. Though international airline alliances increase network efficiency, they can be harmful if they impede effective competition. City-pair routes

on which more than two passenger airlines or dedicated freight airlines operate can cut costs by an average of more than 10 percent.

Maritime transport is often subject to practices such as cargo reservation schemes and limitations on port services that protect inefficient service providers. Such competition-restricting practices among shipping lines and port operators can increase freight rates up to 25 percent on some routes. Rising concentration in the market for port terminal services has increased the risk that private firms may capture the benefits of government reforms. Abusive practices by private operators are of special concern in developing countries, where traffic volumes are lower and competitive forces inherently more limited.

Investments in improving ports, customs, and trade-related institutions can have a substantial payoff

Building capacity in trade-related services can provide the great gains in this new environment. If the countries now below the world average in trade-facilitation capacity could be raised halfway to the average, trade among 75 countries would increase by \$377 billion annually, according to new analyses outlined in this chapter. Facilitating trade to improve export-led growth therefore depends on policy reform, technical assistance, and modernization of infrastructure. All trading partners can benefit when barriers are removed and capacity is strengthened—with many of the benefits of reform and modernization flowing directly to developing countries.

Domestic policy reform is now even more important—

Domestic policy reform is needed to ensure that the benefits of modernized customs, port facilities, and related investments in information technology are realized. Streamlining regulations to remove technical barriers and liberalizing transport and telecommunications can promote domestic competition and significantly lower transport costs while expanding the availability and choice of services in many

developing countries. In particular, appropriate legal and regulatory frameworks are needed to ensure competition. Developing countries need to address such domestic reform to take advantage of the opportunities offered by a liberalized trading system.

—and new multilateral efforts could prove beneficial

Multilateral efforts to reduce transport restrictions could include revamping competition-restricting regulations in air and maritime transport. Such an effort might include revisiting antiquated exemptions of transport from OECD antitrust legislation. Involving developing countries more centrally in global security planning, together with a program of appropriate technical assistance, would help developing countries mitigate security-driven cost increases that would otherwise reduce their participation in the global market. A commitment to multilateral efforts on trade facilitation would also have a high payoff—the World Customs Organization (WCO), the multilateral development banks, bilateral donors, and private groups are all important players. The leadership of the G-8 should join multilateral and other development institutions in a plan to facilitate and expand trade, strengthen security, and promote domestic development.

Broad trade facilitation goals do not fit neatly into the disciplines of the World Trade Organization (WTO). In contrast to stroke-of-the-pen tariff reductions, improving ports, customs, and logistics involves a continuing process of institutional changes that move countries toward best practice. The lion's share of the agenda requires national action, supported by multilateral development agencies to promote—and in some cases finance—institutional changes. However, if the Doha Round propels the WTO into a supporting role in the broader trade-facilitation agenda, negotiations on simplified and harmonized trade procedures could advance best practice in administering fees and formalities in trade and in reducing the costs and uncertainty of transit trade, especially for land-locked countries.

Most importantly, obligations undertaken by developing countries should be carefully tailored to long-term implementation capacity. Any new agreement should include innovative procedures for settling disputes before they move toward WTO-sanctioned action.

Why transport, trade facilitation, and logistics matter

The costs of transporting developing-country exports to foreign markets are a much greater hindrance to trade than are tariffs. A comparison of countries' "transport cost incidence" (the share of international shipping costs in the value of trade) and their tariff incidence (the trade-weighted ad valorem duty actually paid) shows that for 168 out of 216 U.S. trading partners, transport cost barriers outweigh tariff barriers. For the majority of Sub-Saharan African countries, the tariff incidence was relatively insignificant, at less than 2 percent, while their transport cost incidence exceeded 10 percent (World Bank 2001). A doubling of shipping costs is associated with slowdowns in annual growth equivalent to more than one-half of a percentage point.

Trade-related transaction costs—freight charges as well as other logistical expenses—are a crucial determinant of a country's ability to participate in the global economy. Trans-

port costs determine potential access to foreign markets, which in turn explains up to 70 percent of the variance in countries' GDP per capita. Among the problems that add to the costs of trade are:

- Frequent reloading of goods
- Port congestion affecting turnaround time for feeder vessels
- Complicated customs-clearance procedures
- Complex and nontransparent administrative requirements, often pertaining to documentation
- Limited use of automation leading to high costs for processing information
- Uncertainty about the enforceability of legal trade documents such as bills of lading or letters of credit.

Policies to remove nontariff barriers and accelerate the flow of goods and services across borders—in short, to facilitate trade—are thus at the forefront of today's trade-policy debate.¹ Cross-country evidence suggests that high transport costs tax growth in countries with underdeveloped transport links (World Bank 2001). Inefficient internal transport systems can widen income inequalities within countries by separating the hinterland regions from the global marketplace.

Box 5.1 The evolving definition of trade facilitation

OECD: "Simplification and standardization of procedures and associated information flows required to move goods internationally from seller to buyer and to *pass payments* in the other direction."

UN/ECE: A "*comprehensive and integrated approach* to reducing the complexity and cost of the trade transactions process, and ensuring that all these activities can take place in an efficient, *transparent, and predictable manner*, based on internationally accepted norms, standards, and best practices."

APEC: "Trade facilitation generally refers to the simplification, harmonization, *use of new technologies*, and other measures to address procedural and administrative impediments to trade."

APEC: "The use of technologies and techniques which will help members to *build up expertise*, reduce costs and lead to better movement of goods and services."

Source: Wilson and others (2002), citing various institutional sources.

The new international security dimension in trade

The terror and tragedy of September 11, 2001, have emphasized the need for reforms in border and transport infrastructure. Terrorist attacks can seriously disrupt the passage of people, goods, and modes of transport across borders. Measures designed to stop terrorism can add certainty and stability to the global economy, raise investor confidence, and facilitate trade. Secure trade is now as important as free trade—and the two need not be mutually exclusive.²

Since the September 11 attacks, billions of dollars have been spent to enhance port security, install airport security equipment, strengthen customs authorities, and bolster border security. While much attention has been devoted to new security protocols in the United States, security plans in other parts of the world also have been revised and strengthened.³ The G-8 has committed itself to increasing security for all transport modes and to promoting policy coherence and coordination among international organizations such as the International Civil Aviation Organization (ICAO), International Maritime Organization (IMO), and WCO.

The bombing of the *VLCC Limburg* off the coast of Yemen in 2002 was a stark reminder of weaknesses in global maritime systems, which handle 95 percent of world trade. The event alarmed the shipping world and prompted sweeping new security proposals, several of which are outlined below.

The security of maritime transport has been strengthened, but the costs and benefits of the new security programs have yet to be assessed

A series of measures aimed at strengthening maritime security and suppressing acts of terrorism was adopted by the IMO at its diplomatic conference in December 2002. These included changes to the 1974 Safety of Life at Sea Convention (SOLAS), which covers 98 percent of the world's fleets. The International Ship and Port Facility Security Code, which

will go into force on July 1, 2004, for vessels in international trade, contains detailed security-related requirements for shipping companies, port authorities, and governments, together with guidelines on meeting the requirements. The new rules cover security plans, security of officers, and certain security equipment.

In the United States, the Maritime Transportation Security Act of 2002 (MTSA), signed by President Bush in November 2002, is intended to improve safeguards at the country's 361 sea and river ports and to improve intelligence on cargo and personnel entering U.S. ports. Many of the requirements imposed by the IMO protocol also are mandated by the MTSA. Port-security efforts have been extended with the introduction of the Anti-Terrorism and Port Security Act of 2003.

In April 2002, the trade community and the U.S. Customs Service (USCS) launched the Customs-Trade Partnership Against Terrorism (C-TPAT) to improve security along the entire transport chain. The initiative encompasses manufacturers, warehouse operators, and shipping lines. Participation in the voluntary scheme is open to all importers, airfreight consolidators, carriers, and non-vessel-owning common carriers that agree to comply with the supply-chain security profile. Under the program, importers or carriers provide USCS with documentation relating to security measures at each step along the route of goods—from the factory to the warehouse, the port, and the ocean carrier.⁴

The United States has imposed new controls to increase the screening of freight containers arriving at and leaving ports with goods bound for the United States. Almost 90 percent of all freight is transported in containers, 244 million of which move annually among the world's seaports. The Container Security Initiative (CSI), introduced in January 2002 by the USCS, is designed to prevent terrorists from concealing personnel or weapons of mass destruction in U.S.-bound cargo. Participating countries agree to help the USCS identify and screen high-risk containers at the earliest stage. Beginning with the world's 20 busiest ports,

CSI initiative will be extended until 100 percent of containerized cargo is covered.⁵

The bilateral agreements that underpin the CSI may discriminate against ports not covered by CSI. The European Commission, concerned that the United States had approached only some large European ports, argued that the CSI could divert trade to Rotterdam, for example, and create competitive distortions among ports in the European Union—violating EU fair trade rules. Although the top nine northwest European ports handle 80–90 percent of Europe’s containerized cargo bound for the United States, the other 11 that also export to the United States would be affected. In a recent development, the European Union has given the European Commission the power to negotiate a maritime security agreement with the United States to replace the bilateral deals with eight EU countries. In return, the Commission has decided to drop legal action against EU members that signed deals with Washington.⁶

The CSI measure is especially important for countries that send a substantial share of their exports to the United States—for example, 20 percent of Malaysian exports are to the United States. By not joining the CSI, Malaysian goods could lose competitiveness in the global market—a risk not many nations are willing to take. Countries that do not implement the required procedures would have a competitive disadvantage because their shipments would undergo more complex examinations and thus be cleared more slowly.

The WCO passed a resolution on Security and Facilitation of the International Trade Supply Chain in June 2002 to enable ports in all 161 member nations to develop programs similar to the CSI and consider adopting stricter security measures. These measures are intended to enhance security and improve facilitation through a comprehensive reform of customs. With nations seeking reciprocal inspection rights, Japanese officers have been positioned at the ports of Los Angeles and Long Beach to screen high-risk cargo containers bound for Japan. Canadian customs inspectors also have been posted at Newark, New Jersey, and Seattle.

Under the USCS’s 24-Hour Advance Cargo Manifest Rule, which took effect on February 2, 2003, carriers must provide cargo manifests electronically via the Automated Manifest System (AMS) 24 hours before loading a container bound for a U.S. port. USCS will use the information to identify containers that pose a potential risk and determine whether containers can be cleared for loading. Ships unable to meet the requirements risk receiving “no load” orders and thus being detained at the port of origin. Failure by a shipper to comply with the notification requirement carries a fine and the possibility of seizure and forfeiture of the cargo. Even freight not bound for the United States—a shipment from Hong Kong to Canada via the United States, for example—must meet the requirements. Canada’s Customs and Revenue Agency adopted a similar manifest rule for marine cargo imports in April 2003.

The U.S. Food and Drug Administration (FDA) has proposed registration of an estimated 400,000 domestic and foreign food facilities to prevent a threat to the U.S. food supply as mandated by the Bioterrorism Act of 2002. Starting December 12, 2003, importers must file advance notice of food shipments with the FDA. Estimates by the FDA suggest that the U.S. food industry could lose as much as \$6.5 million in perishable imports if the rule for importers is adopted.⁷ Many agricultural commodities such as bananas and broccoli are still growing on the stalk, vine, or tree the day before loading, and in some cases as few as six hours before.⁸ Such cargo may spoil if shipments are held up because of documentation requirements. In the highly competitive market for agricultural commodities, this risk could prompt importers in other countries to move away from U.S. suppliers. The Bioterrorism Act may also be harmful to Indonesia’s small and medium enterprises, which are big exporters of food and agricultural products.

The USCS intends to extend the advance electronic cargo reporting requirement to imports and exports transported by air and on land. Final rules are expected by October 1, 2003. Since September 11, airlines have spent

\$43 billion on security measures—among them more thorough baggage checks, greater in-flight inspection, and new regulations for secure cockpit doors.⁹ A new passenger data collection system, the Advance Passenger Information System (APIS), was recently introduced by the United States; already it has raised ethical questions about a passenger's right to privacy.¹⁰ With regard to air cargo, new security proposals are expected this year from the U.S. Transport Security Administration. Road and rail transport operators also have also been the subject of new measures to forestall attacks.¹¹

Canada has tightened security at airports, ports, and border crossings to prevent shipments to the United States from being delayed. The Canadian government will spend \$112.7 million over the next five years to improve security at maritime borders. Canada's Customs Self-Assessment and Partners in Protection programs, like C-TPAT in the United States, are based on the hypothesis that if companies adopt secure practices, inspectors will be free to focus on shipments from companies whose practices are uncertain. With respect to air transport, the Canadian Air Transport Security Association has improved luggage screening by installing explosive-detection equipment at many large airports in Canada.¹² In May 2003, the EU adopted a brief that suggested high security standards on maritime transport to be applied across the member states, new requirements on passenger ships on domestic voyages, and heightened security of the entire maritime transport security chain.

Accounting for nearly 60 percent of world GDP and half of all trade, the 21 countries of the Asia Pacific Economic Cooperation group (APEC) have had to adopt new technologies to strengthen security without impeding trade. At a recent meeting in Bangkok, APEC adopted Secure Trade in the APEC Region (STAR)—a set of measures to protect cargo, ships making international voyages, international aviation, and people in transit. Ports in the APEC region now must upgrade security to meet STAR standards. At a meeting in February 2003 in Thailand, APEC announced its commitment to

protect cargo through programs of container security, container risk assessment, and advance electronic information on container content. The group also will endeavor to introduce more effective baggage screening in airports in the region, improve coordination among immigration officials, establish new cyber-security standards, develop an advanced passenger information system, and devise systems for tracking and monitoring potential threats. APEC's new counterterrorism task force will coordinate these activities.¹³

Developing countries may have a hard time meeting new security requirements

Balancing new security priorities with economic and trade objectives is complicated. Security proposals can affect global supply chains by requiring costly changes in business practices, process redesigns, and new equipment. Critics fear that developing nations could be squeezed out of the global trading system because of their limited capacity to implement the new international initiatives. High transport costs, poor infrastructure, and the high costs of border clearance already pose a large obstacle to their development. Customs services in many less-developed countries lack qualified personnel to operate advanced security equipment and the ability to execute the necessary reforms in their domestic administration. In response to new security demands, for example, shippers are adding extra cycle time to their supply chain rather than risk delays or fines.¹⁴

The USCS 24-hour rule has affected ports that accept cargo as few as six hours before departure, dealers in perishable commodities that are harvested and loaded within 24 hours, and shipments of emergency replacement parts and medical supplies. Holding additional inventories to hedge against delays and disruptions requires more storage space and more operating capital.

The 24-hour rule also has introduced extra costs for Indian exporters. Almost 35 percent of outbound trade from India is headed to the United States, including 600,000 containers. Exporters must now pay additional costs to local agencies that help them with documenta-

tion. While large manufacturers can provide detailed commodity descriptions, the small-scale and cottage industry units, which are big exporters, may be unable to provide the correct description that is required at a level consistent with the Harmonized Tariff Schedule (HTS) codes of USCS.

Descriptions such as “freight of all kinds” are no longer acceptable. If officials are uncertain about their contents, containers may miss their scheduled carrier sailing dates. Electronic filing and paperless clearance are additional challenges. Most transactions handled by ocean carriers are still conducted by fax or phone. Many shippers in India still use manual typewriters—obviously hindering their ability to provide data in electronic form. Many governments may be unaware of the potentially negative trade-related repercussions from inaction on security.

Despite limited finances and capacity to facilitate trade, some developing countries such as Sri Lanka have adopted cargo security measures that are on par with ports in many developed countries. The same applies to Bangladeshi facilities that boast advanced detection devices. These measures, however, are focused on imports into the country, emphasizing the need to enhance inspection of exports.

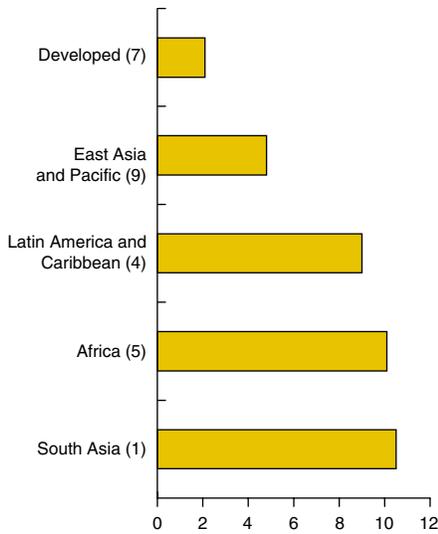
Airlines and airports throughout Asia are working toward the goal of screening all checked baggage. The Agency for Air Transport Security in Africa (ASECNA) is investing \$27 million to modernize member states’ airport security infrastructure.¹⁵

Security-driven improvements can benefit trade

New programs to combat terrorism and corruption clearly will involve investment in new technology and infrastructure—possibly raising the costs of trade in the short to medium term. At the same time, the prospect of reducing future threats through technology-intensive customs inspections should be viewed as an investment in greater trade efficiency.¹⁶ Automated technology—such as bar codes, wireless communications, radio frequency ID tags, tamper-proof seals for containers with global

Figure 5.1 Customs clearance takes longer in the developing world than in the OECD, lowering the competitiveness of developing-country trade

Average days required for customs clearance by sea, by region



Note: The number in parenthesis indicates the number of countries selected from each region to calculate the average. Developed includes France, Germany, Greece, Netherlands, Spain, Sweden, United States; East Asia and Pacific includes China, Hong Kong (China), Indonesia, Malaysia, Philippines, Singapore, Taiwan (China), Thailand, Vietnam; Latin America and Caribbean includes Argentina, Brazil, Chile, Mexico; Africa includes Mozambique, South Africa, Egypt, Guinea Bissau, Angola; South Asia includes India. *Source:* International Exhibition Logistics Associates (<http://www.iela.org>).

positioning technology, and other electronic measures—could accelerate global trade while improving security (Reddy 2002). Sharing information among terminal operators, shippers, and customs brokers can help expedite the movement of freight through terminals without any new physical investment. By reducing delays in container clearance through customs, the need for shippers to pay “tea money”¹⁷ to officials would be diminished—contributing to port efficiency (figure 5.1). In addition, simplification of customs procedures can increase the chances of detection of fraud and criminal activities.

Security-inspired modernization can bring about overdue improvements to ocean shipping. The USCS Automated Commercial Environment (ACE) project, which replaces paper documents with electronic methods of identifying high-risk containers, is expected to save U.S. importers \$22.2 billion and the U.S. government \$4.4 billion in administrative costs over 20 years. Hong Kong recently launched electronic filing for cargo manifests for all modes, which will enhance the efficiency and accuracy in submitting these documents. Pakistan has introduced electronic filing of a single shipping document at Port Qasim as part of an effort by its customs service to streamline clearance and reduce transaction costs. According to recent research, automated customs can lower the direct costs of customs clearance by the equivalent of 0.2 percent of the value of traded goods. By accounting for the indirect benefits of reduced delays, costs are reduced by 1 percent of merchandise value. (Hertel, Walmsley, and Ikatura 2001).

Implementation of these measures, which involve important changes throughout the supply chain, may prove a difficult task for many developing countries. But if the costs of complying with new security-inspired measures can be recovered later through greater efficiencies in the supply chain, the end result will be a global trading system that works better for everyone—securing trade and smoothening trade flows simultaneously.

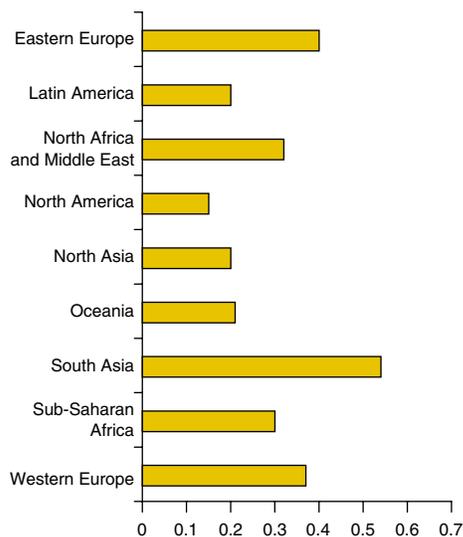
Can the impact of security measures be quantified?

The recent introduction of the new security protocols and their even more recent implementation make it difficult to quantify their impact on trade. Leonard (2001) estimated the new security-related costs at 1–3 percent of the value of traded goods, while analysis by the OECD (2002a, 2002b) suggests a more modest impact.¹⁸

Security-driven frictional costs of transport, handling, insurance, and customs can affect trade even in the medium and long run. Walkenhorst and Dihel's 2002 study of the ef-

Figure 5.2 Higher trade costs reduce global welfare

Overall welfare losses, by region, from a one-percentage-point ad valorem increase in trade costs



Note: The measure of welfare loss—"equivalent variation" divided by GDP—was devised by Walkenhorst and Dihel (2002). "High-risk" regions will suffer greater welfare losses than lower risk regions from an identical increase in frictional costs of trade. Similarly, some sectors are more sensitive than others to increases in frictional costs. Source: Walkenhorst and Dihel (2002).

fects of September 11 on international trade indicates that even countries not directly involved in a terrorist event may expect their income to decline by \$75 billion per year as a result of a 1 percent ad valorem increase in frictional costs to trade.¹⁹ While Western Europe and North America suffer the greatest loss in absolute terms, other regions, such as South Asia, North Africa, and the Middle East, are the main losers when income losses are related to the size of the economies (figure 5.2).²⁰ A one-percentage-point increase in trade costs would cost South Asia \$6 billion, more than one-half of one percentage point when expressed as a percentage of GDP. Regions with high trade-to-GDP ratios and sectors with elastic import demand incur the greatest trade and income losses in relative terms.

The threat of terrorism is not the only source of frictional costs. War and epidemic disease, too, call for extraordinary measures that often disrupt trade. The 2003 war in Iraq imposed significant costs on manufacturers, shippers, wholesalers, and retailers stemming from supply-chain disruptions, blockages of vital sea routes, and delays in shipments. This was especially true for manufactures linking factories in Asia with markets in North America and Europe. New protocols at seaports and airports have been implemented this year to prevent the spread of severe acute respiratory syndrome, or SARS, a virus that has swept large parts of Asia. The outbreak has sharply reduced passenger travel to, from, and within Asia, especially Hong Kong and China. Tourism has fallen sharply.²¹

A coordinated action plan on trade and security is clearly needed

Even though the costs of compliance could be large and disproportionate for smaller countries, all participants in the global trading system have an incentive to invest in counterterrorism efforts. As noted above, the initial costs of new security procedures will pay off in the long run through efficiency gains, better management of information, and greater use of electronic commerce. It is easy to square enhanced security with improved trade facilitation at a theoretical level, however; it may well be more difficult in practice.

The importance of *partnerships* at various levels in the global security campaign is clear. The IMO, ICAO, and other organizations should step up their technical cooperation activities to help developing countries improve their capacity to bolster security and trade. Assistance should be coordinated so as to ensure absorption and nonduplication of capacity-building initiatives provided by the developed world. The WCO has conducted a survey of members' capacity-building needs to ensure that security measures do not impede development. Initiated by the World Bank in 1999, the Global Facilitation Partnership for Transportation and Trade, which includes sev-

eral international, private, and professional organizations, has focused on facilitating trade—with security one of its themes.

Development institutions, in partnership with national governments, have a role to play in risk assessment, training, development of human capital, and improving customs administration and infrastructure in their client countries. They also can help track international initiatives and assess implications for developing countries.

Because containers travel by sea, road, and rail, their regulation is especially problematic. The container may be subject to IMO regulations when on ship, but on land national governments may impose a different set of legislations. The interdependence and linkages among different transport modes call for a *coordinated security approach* among sectors and modes. A ship may be owned by a company in one country, crewed by national of a second country, and carry the cargo of a third to a port of a fourth. Regional and bilateral partnerships among countries and stakeholders can strengthen information exchange, cooperation in training, and sharing of best practices, resulting in mutual enhancement of security efforts.²² The United Nations International Drug Control Program (UNDCP) container security project and the United Nations Economic Commission for Europe (UNECE) supply chain model are particularly promising in this regard.

The APEC STAR initiative has stressed greater cooperation between governments and private business to protect the global economy.²³ Sustained *dialogue* between governments and industry is needed to implement measures to protect supply chains against security threats. The private sector needs to be directly involved with governments in crafting the most efficient ways of complying with the requirements and to ensure the integrity of trade from the point of manufacture to the port of delivery. In October 2001, for example, a joint venture plan between Boeing and Israel's El Al airline was aimed at integrating airlines' security concerns into the early stages of the aircraft production process,

with a view to providing a higher level of security at a lower cost (OECD 2002a).

A *risk-assessment template* should be developed to ensure that high-risk areas are targeted for special security programs. The measures adopted should be those that distort trade the least and provide the greatest benefits, especially for exports from developing nations. Since it is impossible to screen and inspect all containers, procedures to identify high-risk containers—by detecting irregularities in shipping patterns—could be deployed. Emphasis on detecting corrupt practices such as bribery will be needed to prevent controls from being evaded.

A formula for *cost-sharing* that is optimal for all also must be developed. The Hong Kong Shippers Council (HKSC) and the ASEAN Federation of Forwarders Associations (AFFA) have urged USCS to subsidize the cost of its new requirements and U.S. importers to share with Asian exporters the burden of providing information.

Caution must be exercised to ensure that security barriers do not become trade barriers. One possible solution may be a new intergovernmental program with the mandate to plan coordinated and comprehensive trade-related security programs. Such a program could ensure the win-win outcome that is achievable in security and trade, while recognizing the special needs of developing countries. The G-8, in cooperation with developing countries, is one logical forum for development of a coordinated “Action Plan for Security and Trade.”

The anticompetitive effects of international transport regulations

Costs rise and fall with public policies and private practices. For a long time, many transport services came under the aegis of public monopolies, and state-owned enterprises exerted a powerful force in the transport sectors of many countries. Such public monopolies are becoming increasingly difficult to justify. Private entry and competitive market structures have

proved viable for almost all transport modes and generally have brought greater efficiency and lower prices for consumers. However, public and private barriers remain pervasive in air and maritime transport—restricting competition and increasing costs. In general, they should be replaced with systems that rely on private provision of services.

International air transport services are heavily protected

Efficient air transportation is an important determinant of an economy’s export competitiveness. This is especially true for high-value, non-bulky manufactures, perishable horticultural and agricultural products, and time-sensitive intermediate inputs traded within international production networks. Efficient air cargo services play a critical role in attracting investment—including foreign direct investment (FDI)—in these sectors, which can be an important source of employment and economic growth.

The share of world trade shipped by air has grown continuously over the past decades—for example, from 7 percent of U.S. imports in 1965 to 30 percent in 1998. In terms of ton-miles shipped worldwide, air cargo has grown by almost 10 percent annually from 1970 to 1996, while ocean shipping grew only 2.6 percent per year over the same period (World Bank 2001). More than 20 percent of African exports enter the United States by air, and, for a quarter of all product groups, the share of air-shipped exports exceeds 50 percent.²⁴

For many developing countries, the cost of air transportation often far exceeds the costs observed on developed-country routes. Amjadi and Yeats (1995) found, for example, that air transport costs made up between 10 and 50 percent of the value of African exports to the United States, a much higher proportion than for U.S. imports from non-African countries.

High air freight rates on developing-country routes are primarily due to two factors. First, the *cost* of serving developing countries may be higher. Developing countries are farther from

the world's economic centers, increasing the cost of operating aircraft. And overall trade volumes tend to be smaller on routes serving less-developed countries, preventing operators from reaping economics of scale and scope. Thin traffic densities also may adversely affect the *quality* of air transportation, as services may be offered less frequently. Second, different degrees of *competition* in the provision of air services may affect the markup that air cargo operators may be able to charge on a particular route. The extent of competition among cargo carriers again depends on traffic volumes—as economies of scale and scope limit the number of providers that can be sustained on a particular route. Competition also may be influenced by government policies—in particular, restrictive market-access agreements for the provision of air transport.

In an econometric investigation conducted for this report, we attempted to quantify the determinants of air transport costs using a sample of 139 randomly selected city-pair routes in the Western Hemisphere. Preliminary results suggest that distance is a key determinant of international air cargo freight rates—most likely due to the cost of fuel and the capital cost of operating aircraft. Across the sample, a one-percentage-point increase in city-pair distance leads to a 0.72 percent increase in prices—a higher distance elasticity than that typically found for maritime transport. Countries located far from economic centers are therefore at a disadvantage.

Moreover, the investigation confirms that there are sizeable *economies of scale* in the provision of air transport. On average, a 10 percent increase in city-pair traffic volumes leads to a drop of slightly more than 1 percent in the observed freight rate. In view of the wide variance in freight traffic volumes, the scale effect can be quite large—and in most cases it works against poorer nations. Finally, *competition* among airlines is found to exert downward pressure on freight rates. City-pair routes on which more than two passenger airlines or dedicated freight airlines operate enjoy, on average, 10.7 percent lower prices.

Liberalizing air services can help reduce costs—

What are the implications of these findings for public policy? First, there remain significant policy-induced barriers to competition in air cargo services. The complex system of air service agreements (ASAs) still governs the market for international air cargo services. ASAs are typically negotiated bilaterally, although recent years have seen the emergence of regional arrangements. Among other things, they designate the airlines allowed to operate on city-pair routes and the number and frequency of flights they can operate.

Over time, ASAs have become increasingly liberal. For example, the so-called Bermuda-type agreements do not regulate capacity on each route but allow the designated airlines to negotiate the number and frequency of flights. “Open skies” agreements are even less restrictive, allowing all airlines to fly on all routes between two countries without any *ex ante* controls on capacity.

More liberal ASAs can be a way of promoting competition and thus lowering air cargo freight rates. Moreover, greater freedom in designing air transport networks could allow air service operators to reap greater economies of scale and scope, offering additional cost savings. Indeed, it is thought that liberalization in protected air service markets may lead to consolidation among airlines, as operators seek to generate larger scale and network economies. Consolidation may not necessarily be associated with lessened competition, as fewer operators may compete on a larger number of routes. But it does suggest that liberalization needs to be accompanied by competition policies that ensure a review of mergers, acquisitions, and other forms of private cooperation on economic efficiency grounds (World Bank 2001).

—but important challenges remain

Notwithstanding the benefits of air-service liberalization, thin traffic densities and the associated lack of economies of scale are likely to remain a key obstacle to substantially lowering air cargo freight rates in the developing

world. Moreover, liberalization may lead airlines to foster the adoption of hub-and-spoke networks, which may lower prices on well-connected hub routes but could actually raise freight rates on thin spoke routes.

Overcoming these challenges may call for broader policy reforms. Countries have long recognized the need for universal service policies in a variety of service sectors to ensure that remote and poor regions are offered services at affordable prices. These policies include special service obligations imposed on operators, universal service funds, and various forms of subsidies. The universal service concept could be extended by international action to remote and poor countries within continents. The necessary action could come in the form of tax breaks offered by developed countries on air cargo service provided to certain developing country locations or through the establishment of an international fund for the provision of universal air services.

Regulations in maritime transport also restrict competition

Various trade barriers have been imposed on international maritime transport that protect inefficient service providers and hamper effective competition. Public policy restrictions include cargo reservation schemes that require part of the cargo carried in trade with other states to be transported only by ships carrying a national flag (or other ships deemed national

by other criteria). Cargo sharing with trading partners can be done unilaterally, or on the basis of bilateral and multilateral agreements. Although more and more countries have phased out such requirements, countries ranging from Benin to India still have in place reservation policies that at least nominally restrict the scope of trade.

Cooperative agreements among maritime carriers on technical or commercial matters are another type of practice that restrains competition. For example, liner conference agreements set uniform freight tariff rates and conditions of service, often employing exclusive contracts and other loyalty-inducing instruments to prevent the entry of outside shipping lines. Private cooperation can improve network coordination, generate economies of scope, and provide a wider range of services to consumers of shipping lines. But a recent study of the impact of price-fixing and cooperative working agreements on liner freight rates for U.S. imports, found that liberalization of certain port services would lead to an average price reduction of 8 percent and cost savings of up to \$850 million (Fink and others 2002a). Private practices continue to have a strong impact on liner freight rates; breaking up carrier agreements could cause prices to decline further by 20 percent, with additional cost savings of \$2 billion (table 5.1).

Seaport services have recently witnessed a trend toward increased private-sector partici-

Table 5.1 Elimination of anticompetitive private practices can cut costs drastically

| | Liberalization of port services | Breakup of cooperative working agreements | Breakup of price-fixing agreements | Cumulative effect of the breakup of private carrier agreements | Cumulative total effect |
|---|---------------------------------|---|------------------------------------|--|-------------------------|
| Average percentage price reduction | 8.3 | 5.3 | 15.7 | 20.0 | 26.4 |
| Projected total savings for all U.S. imports (in millions of dollars) | 850.4 | 544.1 | 1618.4 | 2063.0 | 2712.5 |

Note: The average percentage price reductions are computed from the sample of 59 countries included in the study, while the projected total savings apply to all U.S. trading partners. Given the functional form of the underlying regression equation, the individual effects do not sum to the cumulative effects. See Fink and others (2001) for additional explanatory notes.
Source: World Bank (2001).

pation and greater competition within and among ports. Different ownership and operation structures have emerged with respect to port management, provision of infrastructure, and the supply of services. With the emergence of large global port operators, there is now a greater risk of abuse of market power—abuse that could reduce the benefits gained from port liberalization. Creating regulatory capacity and strengthening institutions is necessary for the success of port reforms.

Trade facilitation

To be effective, trade-facilitation measures must include or be accompanied by improvements in domestic regulatory procedures and institutional structures. Above all, they must include development assistance to raise trade-related capacity—individual, institutional, and social—in developing nations. One example of the need for capacity building and technical assistance in the trade-facilitation agenda relates to the technology required for expediting cargo clearance. International commerce depends increasingly on information technology—most basically for the electronic transmission of trade information. Modern customs methods of profiling consignments or traders based on risk-assessment techniques can help expedite cargo clearance. Compiling a unique set of computerized information for each shipment enables data to be processed before cargo arrives, thus expediting clearance and speeding delivery.

Measures to speed the flow of goods and services across international borders have played a critical role in the expansion of global trade over the past decades. Cross-border trade in raw materials, components, and intermediate goods by multinationals with integrated production and distribution facilities now constitutes more than one-third of world trade. This expansion would not have been possible without precisely timed maritime container services, express door-to-door delivery of air freight, new information and communications technologies, and other services. All parties to a

transaction gain from fast, easy, and low-cost trading conditions.²⁵

High logistic costs affect competitiveness

Although the incidence of logistics costs varies, with some developing countries more efficient than others in providing trade services, a study by the United Nations Commission on Trade and Development (UNCTAD) estimates that average customs transactions in developing countries involve 20 to 30 parties; 40 documents; and 200 data elements, 30 of which had to be repeated at least 30 times. Subramanian and Arnold (2001) broke down the cost of international shipment into five categories: ocean freight, inland transport cost, and three indicators of logistics costs—custom inspection, cargo handling and transfer, and processing of trade documentation. Their analysis shows that logistics accounted for no less than a third of the cost of door-to-door shipment of containerized carpets from Nepal to Germany and teabags from India to the United Kingdom. Using a similar methodology, a World Bank (1997) study of the performance of Brazilian ports reported that per-container costs for administrative procedures and customs clearance could be reduced by more than 20 percent (from \$1,727 to \$1,320) if international best practices were followed.

For small economies, higher logistics costs translate directly into higher import and export prices. To remain competitive in industries where profit margins are thin, exporters must either pay lower wages to workers, accept lower returns on capital, or enhance productivity. The pressure on factory prices and productivity is even higher for countries exporting products that have a high import content, such as domestic export-oriented firms producing garments or electronic final goods using imported materials—as is the case with many developing countries. In these cases, where small differences in transaction costs can determine whether the export venture is commercially viable or not, logistical efficiency can mean greater retention of the value-added benefits of trade-led growth. Particularly in labor-intensive

Box 5.2 The logistics needs of a German car part manufacturer in Tunisia

As the subsidiary of a large German car part supplier, Leoni Tunisie S.A. produces cable and electronic components for Daimler Chrysler and other European car manufacturers. The just-in-time supply chains in the car industry put high demands in the logistics system. Leoni has outsourced all logistics needs to an international forwarder that has a legal subsidiary in Tunisia.

A full production and logistics cycle lasts about nine days. Raw materials and intermediate products are sourced from across Europe, Asia, and the United States. They are consolidated at Leoni's headquarters in Germany and shipped to about a dozen factories in various countries. Several trucks leave Germany for Tunisia each week. The trailers are cleared and sealed by German customs on the firm's premises, where they are picked up by the logistics provider. The forwarder drives the trailers to Genoa or Marseilles (2–2.5 days), places them without a driver on RoRo ferries (20–24 hours by sea), claims them at Rades's port, and delivers them to a factory in Sousse (2–3 hours by land). Once assembled, the finished components are cleared by a Tunisian customs officer on the premises before they are sent on

their return journey. Eight trucks carrying approximately 350 tons of finished parts leave Tunisia each week. The company considers the chain to be efficient and reliable.

Even so, the just-in-time demands of the industry are posing a threat to Tunisia as a production base—more and more clients require six-day cycles. Because internal production processes have been streamlined, further time savings depend on logistics efficiency. Leoni Tunisie recently lost an internal company competition for a new factory with a potential for 1,700 jobs to Leoni's Romanian subsidiary. The reasons cited for the loss were not wage competitiveness or the investment environment—the company regards Tunisia as very competitive—but Eastern Europe's logistics advantage. The land journey between Romania and Germany takes one day less in each direction. According to the CEO of Leoni Tunisie, Tunisia will need to economize on logistics costs (including better air cargo connections or high-speed ferries to Europe) if it is to retain its competitive advantage in time-sensitive industries.

Source: Mueller-Jentsch (2002).

industries in developing countries, high transport costs may preclude wage growth, thus affecting the standard of living of workers.

A study that examined the effect of higher shipping and port charges in the garment industry of Bangladesh estimated that exports could rise by 30 percent, raising hard-currency earnings by 125 percent, if port inefficiencies were reduced. One recent estimate, based on comparisons between air and ocean freight rates for U.S. imports, puts the per-day cost for shipping delays at 0.8 percent of the value of trade for manufactured goods—with only a small fraction attributable to the capital costs of the goods while on the ship (box 5.2).

Minimizing transit time is particularly important in modern commerce, given the trend toward just-in-time production systems that

enable firms to outsource stages of production to geographically dispersed locations. Research by Hummels (2001) showed that delivery times had a pronounced effect on imports of intermediate products, suggesting that rapid delivery of goods is crucial for the maintenance of multinational vertical product chains. Hummels found that each day saved in shipping time due to a faster transport mode and faster customs clearance was worth almost one percent, ad valorem, for manufactured goods. Uncertain order-to-delivery times impose implicit production costs as well. If logistics services are unreliable and infrequent, firms are likely to maintain higher inventory holdings at every stage of the production chain, requiring additional working capital. Forgone earnings can be significant for firms in countries with high

real interest rates. Gausch and Kogan (2001) found that inventory holdings in the manufacturing sector in many developing countries are two to five times higher than in the United States. Their estimates further show that developing countries could reduce the unit cost of production by as much as 20 percent by reducing inventory holdings by half.

Better measures of trade facilitation are yielding some positive results

With increased attention to the benefits of reducing nontransport barriers to trade, efforts have been made to assess the importance of trade facilitation. Because empirical measures of trade facilitation are lacking, however, progress has been limited.

Several recent studies quantify the benefits of improved trade facilitation, modeled as a reduction in the costs of international trade or as an improvement in the productivity of the international transportation sector. UNCTAD (2001) considers trade facilitation in the broader context of creating an environment conducive to developing e-commerce usage and applications. The results show that a reduction of one percentage point in the cost of maritime and air transport services could increase Asian GDP by \$3.3 billion.²⁶ If trade facilitation is expanded to include improvements in wholesale and retail trade services, an additional \$3.6 billion could be gained by a one-percentage-point improvement in the productivity of that sector. APEC (1999) found that the shock-derived reduction in trade costs ranged from 1 percent of import prices for industrial countries and the Republic of Korea, Taiwan, and Singapore, to 2 percent for developing countries.²⁷ The study estimated that APEC merchandise exports would increase by 3.3 percent from trade-facilitation efforts.

Empirical studies of the impact of enhanced e-commerce and telecommunication access, improved customs procedures, and harmonized or improved standards also demonstrate the benefits of trade facilitation in specific

fields. Freund and Weinhold (2000) found that a 10-percentage-point increase in the relative number of web hosts in one country would have increased trade flows by 1 percent in 1998 and 1999. Fink, Mattoo, and Neagu (2002b) found that a 10 percent decrease in the bilateral calling price was associated with an 8 percent increase in bilateral trade.

Moenius (2000) estimated the effect of bilaterally shared and country-specific standards on goods trade, finding that shared standards generally promoted trade. Hertel, Walmsley, and Itakura (2001) quantified the impact on trade of greater harmonization of e-business standards and of automating customs procedures between Japan and Singapore, concluding that such reforms would increase trade flows between these countries as well as with the rest of the world. In agricultural trade, Wilson and Otsuki (2003) find that the major exporters of nuts and cereals would gain \$38.8 billion if divergent national food-safety standards relating to aflatoxins were replaced by the Codex international standard.

Those results show clearly that when trade is facilitated, trade volumes rise

In their study of APEC manufacturing trade, Wilson, Mann, and Otsuki (2003a) incorporate indicators linked to multiple categories of trade facilitation into a single model, thus allowing a synthetic analysis that prioritizes areas for reform. The authors estimate the relationship among four indicators and trade flows using a gravity model.²⁸ Wilson, Mann, and Otsuki (2003b) expand the scope of the analysis to include 75 countries worldwide, including 52 developing countries. The indicators in the analysis are:

- Port efficiency (through measurements of port infrastructure)
- Customs environment (including nontariff fees)
- Regulatory environment (including transparency of government policy and control on corruption)

- Use of e-commerce by businesses, a proxy for the service-sector infrastructure necessary to implement e-business.

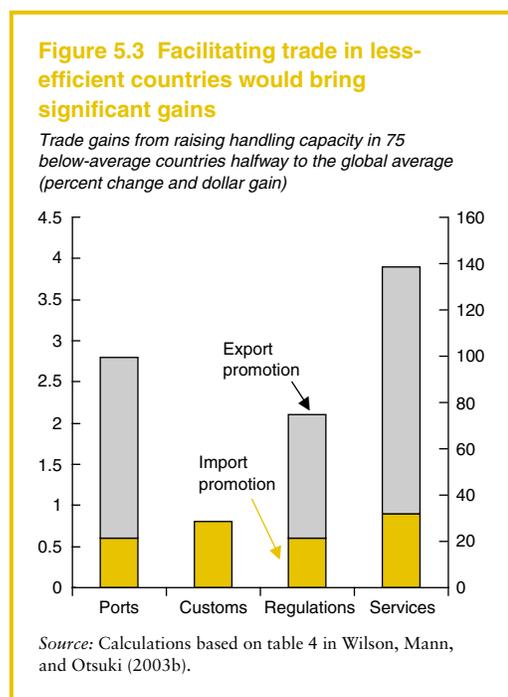
The study estimates the potential increase in trade following improvements in each trade-facilitation area. The authors examine a scenario in which trade-facilitation capacity in *below-average* countries is raised *halfway* to the average for the entire set of countries. This approach recognizes that in some countries trade is already being facilitated at levels approaching the global best, leaving little room for improvement, whereas in others a standardized improvement of, say, 10 percent in trade facilitation would be quite difficult, requiring additional capacity-building assistance. Figure 5.3 illustrates the projected gain, by trade-facilitation indicator, for the 75 countries examined.

Preliminary findings suggest that better trade facilitation would increase trade among the 75 countries by approximately \$377 billion dollars—an increase of about 9.7 percent. About \$33 billion (0.8 percent) of the gain

would come from improved customs regimes, and about \$107 billion (2.8 percent) from more efficient ports. But the largest gain—\$154 billion, or 4.0 percent—would come from enhancing infrastructure in the services sector (figure 5.3). Reforms and improvements affecting exports would have a greater effect on trade growth than would changes affecting imports, suggesting that the export-promotion effect of trade facilitation should not be underestimated in designing capacity-building efforts.

The impact of individual trade-facilitation measures differs significantly from region to region, but improvements in service-sector infrastructure would provide the largest gain in sum of imports and exports in all regions—particularly in South Asia (figure 5.4). The potential gains from improvements in port efficiency also are great—again, particularly in South Asia.

The gains to be expected from domestic reform alone (figure 5.5) show similar patterns to those projected for global reforms, implying that priority areas for domestic reform are consistent with reforms to raise capacity globally. In assigning priorities for capacity building, enhancing port efficiency and improving service-sector infrastructure appear to be most important for domestic and global action.

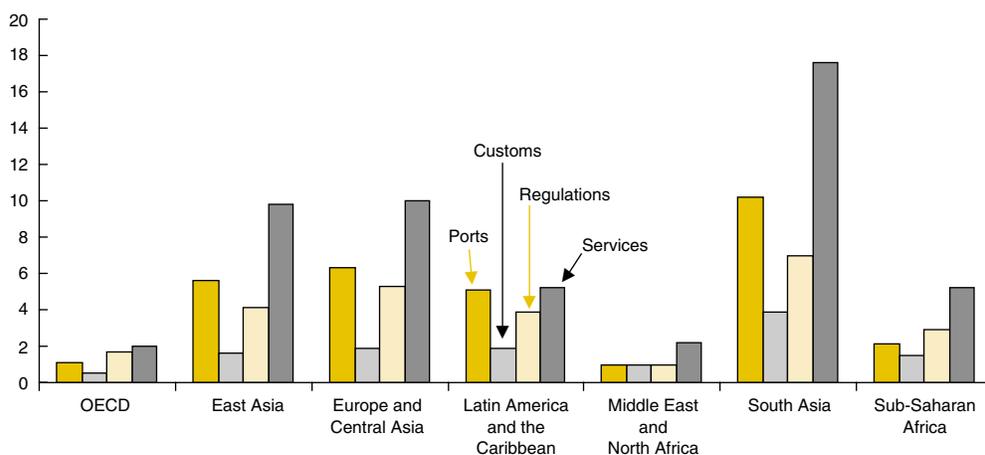


Reforming domestic policies is indispensable

The benefits from investment in modern customs, port facilities, and new technology, however, can only be realized if an appropriate regulatory framework is in place. In this regard, domestic reforms have an important role to play, by making better use of existing resources and improving the efficiency of services. Liberalization of transport and telecommunication networks can help encourage domestic competition and produce substantial cost reductions. Liberalization also offers the added advantage of widening the availability and choice of services in many developing countries. As discussed earlier, the prevalence of anticompetitive practices by transport service providers

Figure 5.4 The impact of individual trade-facilitation measures differs significantly from region to region

Trade gains (exports plus imports) under the “halfway to average” scenario; gains from domestic and partners’ reforms (percent change)



Source: Wilson, Mann, and Otsuki (2003b).

calls for the development of efficiency-oriented competition policies. Replacement of inefficient public monopolies in international transport systems with private operators can thus increase competition.

Cross-country comparisons provided in Wilson, Mann, and Otsuki (2003b) reveal significant difference in countries’ potential for gains from trade facilitation. Guatemala, for example, has great potential to reap trade gains by reforming its service-sector infrastructure. In contrast, the potential importance of regulatory reform predominates in Indonesia. In Nigeria, reform of the customs system would have the most productive outcome. In all countries, domestic reform would have greater impact on total trade than would reforms by trading partners.

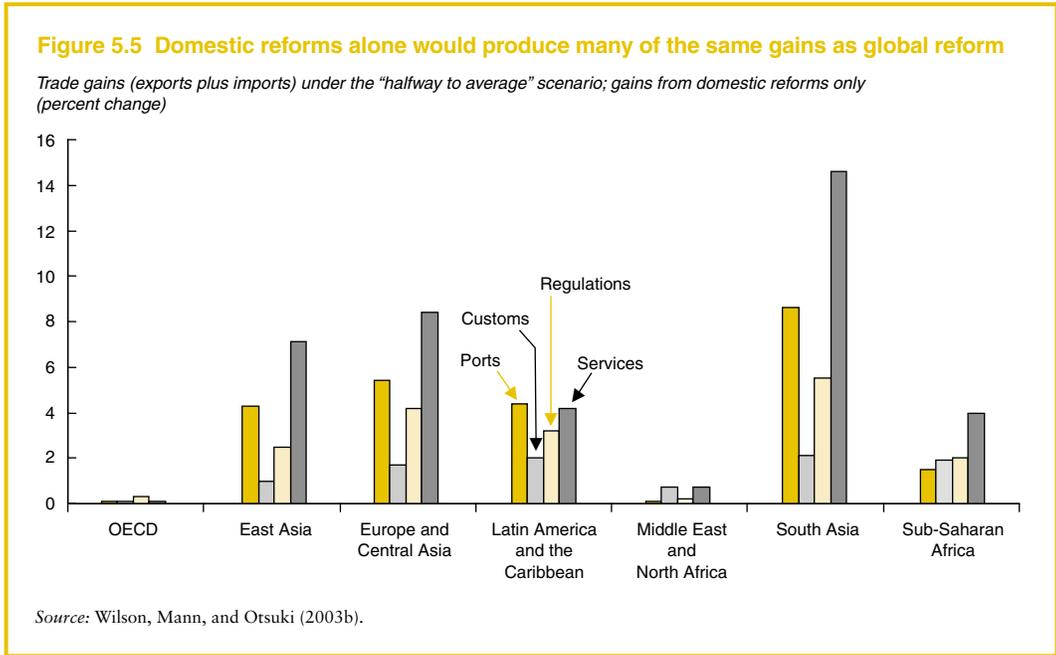
Trade facilitation and the WTO agenda

The Singapore Ministerial Declaration in 1996 empowered the WTO for the first time to look at trade facilitation in a compre-

hensive fashion.²⁹ Exploratory work on the trade-facilitation agenda centered on ways to simplify trade procedures, to harmonize them to conform to a rule-based multilateral framework, and to integrate the work of other international organizations involved in trade-facilitation into the WTO framework. But progress on trade facilitation at WTO’s next two ministerial conferences was limited.³⁰

The Doha Declaration raised the issue of negotiations on trade facilitation

The Doha ministerial raised the possibility of launching multilateral negotiations on trade facilitation at the Cancun ministerial meeting in September 2003.³¹ The “Doha agenda” on trade facilitation referenced simplifying trade procedures, enhancing technical assistance and capacity building, and recognizing limitations in capacity associated with a country’s level of development. The Doha ministerial declaration was explicit in recognizing the need to increase trade-related capacity in developing countries and address the issue of implementation costs associated with capacity building,



particularly in developing and least-developed countries.

Some proposals under discussion envisage either building new or strengthening existing rules and principles of transparency, simplification, efficiency, proportionality, nondiscrimination, and due process within the country for independent litigations involving trade disputes, as well as recourse to the WTO Dispute Settlement Undertaking, if need be, to ensure nondiscriminatory treatment of traders in member countries.

Not everyone agrees that trade facilitation measures should be on the agenda at Cancun. Proposals advanced by the proponents of a rules-based approach to trade facilitation focus on the role and importance of the WTO. Are national governments free, they ask, to follow the recommendations of the WCO's revised Kyoto convention on customs procedures? Are they likely to do so? Or should these recommendations be a reference point for WTO rules?³² The WTO has many more members than WCO, the proponents point out, and the revised recommendations of the Kyoto con-

vention have not been ratified by all WCO member countries. To the proponents, a binding framework would help establish effective compliance with the recommendations of the revised Kyoto convention.

The challenges to negotiations on trade facilitation center on two concerns. First, it is not clear that binding multilateral rules on customs and border-crossing procedures are actually needed; implementing institutional changes requires country ownership and voluntary actions. Second, it is not clear that any new rules could be enforced through conventional dispute-settlement proceedings and penalties, since violations of those rules often stem from the limited capacity of governments to meet their obligations. Rules alone are not likely to produce the desired reforms or modernizations. Those depend on capacity building, and capacity building depends on resources—financial and other.

Simplifying administrative and procedural requirements in customs and border-crossing procedures—unlike negotiations on tariff cuts, for example—depends directly on improve-

ments in physical infrastructure, institutional reform, and other complex development objectives that typically involve large commitments of resources for training and capital equipment. In an environment of constrained resources, expenditures on such improvements must be made in accordance with the priorities of the national development strategies.

The trade-facilitation agenda requires a broad multilateral effort

Trade facilitation necessarily involves both infrastructure investments and revisions in legal frameworks, technology training, and other measures. A little capacity building could go a long way. Expediting customs clearance procedures by providing transparent and clear guidelines, for example, reduces the discretionary power of customs officials, thereby reducing the scope for corruption by establishing a right of independent judicial appeal (box 5.3). Assistance to modernize customs procedures by upgrading information technology and applying risk-based criteria in reviews of documentation and cargo, allowing for self-assessment and audit-based (as opposed to transactions-based) release of goods can also have high payoffs (box 5.4).

Because behind-the-border policies affect cross-border trade, trade-related capacity

building must have a broad scope. The procedural and administrative burdens on traders are often aggravated by overlapping and duplicative informational requirements from several ministries, departments, or agencies. New ways of minimizing such requirements include the single-window concept: official controls are administered by a single agency. This and other innovations often require coordination of several government agencies, as well as changes in domestic regulatory procedures and institutional structures.

Multilateral agreement on standards of transparency and acceptable fees as well as new ways to publish and disseminate applicable trade laws, rules, fees, and schedules—perhaps through a new information clearinghouse or inquiry center for WTO members—could help countries facilitate trade. Discussions also could include development of harmonized and quantifiable measures of “timely release of goods.” Consideration of wider use of the “supplier’s declaration of conformity” with technical regulations for low-risk goods—along with a parallel program to expand information technology systems and databases—could decrease and simplify documentation requirements. Strengthening the provisions of GATT Article V (Freedom of Transit) could be particularly beneficial to land-locked countries.

Box 5.3 Tackling corruption in customs: Peru

Eliminating customs corruption in Peru required changes in laws, regulations, and human-resources policy.

After firing corrupt employees, the Peruvian customs service established a uniform code of conduct and contracted with a university to develop tests of employee competence. Continued employment was contingent on passing the tests. Although substantial pressure was exerted on the customs service to rehire discharged employees, it was able to resist the pressure with support from government allies. As a result of these efforts, employee corruption decreased, while competence levels improved. Salaries of

retained personnel were increased by nearly 10 times the previous salaries.

To increase the competence of customs officers, hiring for professional positions was limited to university graduates. The service established a training academy, offering up to one year of training to new and incumbent employees. In addition to these efforts, customs embarked on a program to bring new skills and knowledge to the organization through external recruitment of mid-career professionals—economists, auditors, statisticians, and information technology experts.

Source: Wilson et. al (2002).

Box 5.4 Customs reform in Lebanon

Lebanon's ongoing customs reform project is part of a fiscal reform project under the sponsorship of the United Nations Development Programme and the World Bank. An inefficient customs service has long been a major logistical bottleneck in Lebanon. Procedures were nontransparent and time-consuming. Most of the 7–12 days needed for container delivery were due to customs delays. Such deficiencies not only imposed unnecessary economic costs but also bred corruption.

Under the reform project, customs clearance was reduced from 13 to 5 basic steps—entry and acceptance of declaration, inspection of goods for verification of declared information, assessment of information, automatic calculation of taxes, and payment of taxes. Clearance procedures were then aligned with international procedures, with UN and EU standards translated into Arabic for the first time. A one-page administrative document replaced 26 complex and outdated forms. These reforms enabled the clearance process to be computerized, with a new software

program monitoring the days required for clearance. The computerization process was accompanied by staff training and a restructuring of work procedures. Clearance operations were set up on the shop floors of some of the main importers and exporters, with inspectors using risk-assessment criteria to conduct selective inspections. To inform users of their rights and responsibilities and to further streamline the inspection process, the customs service published a summary of its border regulations.

Preliminary results of the ongoing reform indicate that although the percentage of consignments cleared without inspection had quadrupled between 1997 and 1999 (from 10 to 40 percent) and the average days needed for clearance had declined from six to four as a result of more selective testing, the average rate of tariff collection remained constant.

Source: Mueller-Jentsch (2002).

Any negotiation on trade-facilitation measures, however, must carefully consider how the WTO's dispute-settlement provisions could be tailored to ensure that the capacity constraints of developing countries are taken into account when enforcing commitments undertaken by governments. Important capacity-building work done by several institutions outside the WTO framework provides a model for a future multilateral agenda to raise trade-facilitation capacity in developing countries. It is difficult to see how this level of institutional change and assistance coordination could be "enforced" through dispute settlement mechanisms.

Lowering transport costs, increasing security, and facilitating trade

The costs of moving goods across international borders are a crucial determinant of a country's export competitiveness. Every day spent in customs adds almost 1 percent to the

costs of goods. High costs also result from regulations and practices that impede effective competition in international transport systems.

Open skies and universal service can lower international transport costs for developing countries

Improving competition in air transport will require revisions in air service agreements to reduce barriers to entry into markets. Moving progressively toward "open skies" agreements would allow all airlines to fly on all routes between two countries without any *ex ante* controls on capacity. This would lower air cargo freight rates and could allow air service operators to obtain greater economies of scale and scope, offering additional cost savings. It may well be that liberalization in protected air service markets may lead to consolidation among airlines, as operators seek to generate larger scale and network economies. (Consolidation may not necessarily reduce competition, however, as fewer operators may compete on a

larger number of routes.) Even with open entry, thin traffic densities and the associated lack of economies of scale are likely to remain key obstacles to lowering air freight rates in the developing world. If liberalization leads airlines to adopt hub-and-spoke networks, prices could fall on well-connected hub routes, while rising on some spoke routes. To reduce this risk by cross-subsidizing transport to remote and poor areas within continents, the concept of universal service should be embraced internationally. Rich countries could offer tax breaks on air cargo service provided to certain developing country locations. Alternatively, an international fund for the provision of universal air services could be established.

For maritime transport, one avenue to improvement would be to subject the industry to MFN treatment in routes as part of the larger GATS discussion on services. Doing so would undermine the competition-restricting liner codes that prevent new entries in designated shipping routes. Another avenue would be to review exemptions in U.S. and EU antitrust law for maritime transport.

Security can be increased without jeopardizing trade flows from developing countries

Even though the costs of compliance with new security measures could be large and disproportionate for smaller countries, all participants in the global trading system have an incentive to invest in counterterrorism. Such investments are likely to pay off in the long run through efficiency gains, better management of information, and greater use of electronic commerce. To ensure that they do, several steps must be taken.

First, technical assistance must be increased. The IMO, ICAO, and other organizations should step up their technical cooperation efforts to provide more training in risk assessment, customs administration, and infrastructure planning in their client countries.

Second, nations must coordinate trade-related actions not only with other countries, but also with their own private sectors. The inter-

dependence and linkages among different transport modes call for a coordinated approach to security among sectors and modes. Regional and bilateral partnerships among countries can strengthen channels for information exchange and cooperation in training and sharing of best practices, resulting in mutual enhancement of security efforts. Other regions could follow APEC's lead by looking for ways to design collaborative programs with the private sector to implement security measures.

Third, a risk-assessment template would ensure that high-risk areas are targeted for special security programs. The measures adopted should be those that distort trade the least and provide the greatest benefits, especially for exports from developing nations.

Fourth, a formula for cost-sharing must be developed. The Hong Kong Shippers Council (HKSC) and the ASEAN Federation of Forwarders Associations (AFFA) have urged the USCS to subsidize the cost of its new requirements and U.S. importers to share with Asian exporters the burden of providing information.

Trade facilitation depends on capacity building and development assistance

Capacity building and development assistance are necessary if countries are to make the most of trade-facilitation measures—whether those measures stem from security imperatives or multilateral trade talks. Attempts to build trade capacity may require several elements—from building basic transport infrastructure to making legislative changes and training regulators. Some developing countries may require only technical assistance to expedite cargo clearance through electronic trade documentation. Others will need much more help. No single package will meet the needs of all countries.

Whether or not trade facilitation becomes part of multilateral trade negotiations, measures that lower transport costs, remove barriers to goods and services moving across borders, and build capacity in trade facilitation must be pursued. Success will depend first on governments and the private sector in devel-

oping countries, but also on the G-8, UN agencies, the WCO, the World Bank, and other international development institutions. Multilateral efforts to support domestic policy reform and institutional improvements in developing countries are particularly important if investments in trade facilitation are to yield their full potential—a potential that is great indeed.

Notes

1. These sections draw on Wilson and others (2002), among other sources.

2. A study of the effect of security on private investment and growth by Poirson (1998) spanning 53 developing countries from 1984–95 indicates that enhanced security fosters private investment and growth in developing economies. Private investment in the short run increased by 0.5 to 1 percentage point of GDP, in relatively insecure countries that adopted security measures to the levels in “best practice” regions. Moreover, economic growth received a boost by 0.5 to 1.25 percentage points per year in the long term.

3. The newly created Department of Homeland Security includes Customs, Immigration and Naturalization Services (INS), Border Patrol, and the federal Agricultural Inspection Service. The Department provided \$170 million in port security grants in June 2003. Under discussion is a plan that would include an additional \$1 billion for the Transportation Security Administration, \$200 million to \$700 million more for the Coast Guard, and an increase in federal grants to local police and fire departments for counterterrorism training.

4. Some overseas suppliers are covered under the C-TPAT because they are subsidiaries of U.S. companies enrolled in the initiative.

5. The Swedish port of Goteborg has become the twelfth to join the Container Security Initiative (as of May 2003). Those already participating include: Rotterdam, LeHavre, Bremerhaven, Hamburg, and Antwerp in Europe; Singapore, Hong Kong, and Yokohama in Asia; and Vancouver, Montreal, and Halifax in Canada. These ports are at different stages of implementation of the CSI framework. CSI is now moving into its second phase, which will include Turkey, Dubai, and about 20 other nations in Asia, Latin America, Europe, and Africa.

6. On a related note, Europe’s largest air cargo carriers, which are calling for a level playing field among the United States, Europe, and the rest of the world as

far as security and its costs are concerned, criticized U.S. government aid of \$10 billion to its airlines to conform to increased security measures. European carriers believe that the aid has helped U.S. carriers slash rates on very competitive North Atlantic routes.

7. Another proposal under consideration is the filing of a bill of lading by U.S. Agricultural exporters 24 hours before loading the containerized freight.

8. The Agricultural Ocean Transport Coalition has urged Customs to require no more than 12 hours advance notice for agricultural products and 6 hours for perishable products.

9. U.S. VISIT, a new entry-exit system to be installed in U.S. airports and seaports by January 1, 2004, will be based on visas that include biometric features such as fingerprints and photographs to identify foreign visitors. The EU has also earmarked Euro 140 million to fund biometric identification technology for visas.

10. A U.S.-EU dilemma arose over reservation records demanded by the United States that violated EU’s data privacy rules. An interim agreement was reached, after the United States assured the European airlines of “appropriate handling” of the records, which include not only names but also the passenger’s itinerary, contact phone number, and other details, such as credit card numbers.

11. The United States has initiated “smart border” programs with Canada and Mexico, that use modern technology to enhance security and expedite movement across borders.

12. Canada levied a C\$24 (US\$15) Air Traveller’s Security Charge on all round-trip tickets in April 2002, to finance the increased airport security measures. The tax—the highest security tax in the world—contributed to a 10.2 percent decline in passenger traffic across Canada since the beginning of 2002, and resulted in a steep fall of 50 percent on some short routes.

13. Recognizing the lack of resources to buy new technology, the United States intends to provide financing to developing countries with transportation security projects. Two security experts from the United States have arrived in Indonesia to assist in upgrading cargo security and assess the implementation of security measures at the country’s seaports and airports. The United States announced a joint initiative with Thailand to transform Laem Chabang port into a safe transportation port.

14. Given that a ship carries thousands of containers at any time, inspection of the cargo could cause delays. While the scanning process is quite fast, the problem lies with the turnaround time of the containers targeted for scanning. It would take time to transport the container to and from the scanning area, and con-

tainers that are late for loading would tie up hauling equipment and reduce stowage efficiency.

15. In other developments:

- The Japanese Ministry of Land, Infrastructure, and Transport (MLIT) is set to introduce anti-terrorist legislation that will prevent foreign ships from entering Japanese ports unless they have a security crew on board and can provide identification.
- Hong Kong's customs authorities have created a terrorist response system, acquiring mobile x-ray machines and a radiation detector to scan cargo and beefing up its intelligence capabilities with more staff and equipment.
- The ICAO has adopted resolutions designed to assure the safety of passengers, ground crew personnel, and the public. Its Regulated Agent Regime requires parties in the flight chain to implement measures to strengthen air-cargo security.
- The Australian government's Aviation Transport Security Bill aims to provide screening of all baggage checked on international flights. A \$100 million federal plan to protect the nation's maritime gateways also has been enacted.
- The New Zealand government will be allocating \$5.9 million next year and \$1.9 million in future years to the Ministry of Foreign Affairs and Trade, for security.

16. A recent online survey by BDP International indicated by a three to two margin that exporters believed the implementation of the 24-hour rule would enhance security. About 23 percent of those surveyed said that the impact was extreme, 30 percent reported moderate to significant costs of compliance, half did not know how to recover costs, and 42 percent plan to absorb expenses. With respect to implementation of the advance manifest filing rule, USCS has issued less than 400 "No-Load" directives for violations of cargo description requirements in its first three months of enforcement.

17. Tea money refers to the use of illegal or unfair means, such as bribery to gain an advantage in business. Ports and airports all over the world are places where tea money comes in handy to expedite deliveries and shipments.

18. Estimates by Leonard were made soon after the events and could reflect the major disruptions faced during the period.

19. This figure is comparable to the estimates of \$30–58 billion losses for the insurance industry by the OECD (2002b).

20. The authors employ four alternative scenarios to quantify the trade and welfare impacts, in which all frictional costs are increased by 1 percent ad valorem.

However, assumptions are made regarding such increases as varying across regions and sectors according to exposure to terrorism risks following the September 11 attacks. For example, high-risk regions (North America, Middle East, North Africa) are assumed to experience increases in frictional costs that are two and a half times as high as cost increases in low risk regions. The figure shows only the uniform increase in frictional costs to trade.

21. Since a large part of the airfreight is transported in the bellies of passenger planes, a cutback in passenger flights has an impact on cargo.

22. Australia and New Zealand are strengthening their Pacific regions border control relationship by co-operating and exchanging information regarding smuggling, air and sea cargo security approaches, SARS, and general border protection issues.

23. In its "Cargo Security White Paper," the National Customs Brokers and Forwarders Association of America (NCBFAA) has outlined ways for the trading industry to assess risks, build information links to help government officials, and use technology to improve cargo security. It recommends building a "chain of custody dataset" to verify people connected to a shipment and assess cargo security throughout the supply chain.

24. See Amjadi and Yeats (1995).

25. This part draws extensively from the WTO (1999).

26. See UNCTAD 2001, table 8, page 33.

27. APEC (1999).

28. See Global Competitiveness Report 2001–2002, World Competitiveness Yearbook 2001–2002, and Kaufmann, Kraay, and Zoido-Lobaton (2002), for the list of countries in the dataset.

29. The ICC, a nongovernmental organization that has long advocated trade facilitation, promoted the subject on the WTO agenda at the Singapore ministerial meeting.

30. The Ministerial conference in Geneva (1998) concentrated on the perceived threat to the global economy due to the ensuing Asian financial crisis. Although there were several proposals in favor of and against launching trade negotiations in the period prior to the Singapore ministerial meeting in 1999, trade facilitation was overshadowed by other events at the Seattle ministerial (Woo 2002).

31. The Doha declaration states: "Recognizing the case for further expediting the movement, release, and clearance of goods, including goods in transit, and the need for enhanced technical assistance and capacity building in this area, we agree that negotiations will take place after the fifth session of the ministerial on the basis of a decision to be taken, by explicit consen-

sus, at the session on the modalities of the negotiations. In the period until the fifth session, the Council for Trade in Goods shall review and, as appropriate, clarify and improve relevant aspects of Articles V, VIII, and X of the GATT 1994 and identify the trade-facilitation needs and priorities of members, in particular developing and least-developed economies. We commit ourselves to ensuring adequate technical assistance and support capacity building in this area." WTO (2001).

32. See WTO (2002) and Messerlin and Zarrouk (2000).

References

- Amjadi and Yeats. 1995. "Have Transportation Costs Contributed to the Relative Decline of Sub-Saharan African Exports? Some Preliminary Evidence." World Bank Working Paper 1559.
- APEC (Asia Pacific Economic Cooperation). 1999. "Assessing APEC Trade Liberalization and Facilitation." Update, Economic Committee. September.
- Fink, Carsten, Aaditya Mattoo, and Ileana Cristina Neagu. 2002a. "Trade in International Maritime Services: How Much Does Policy Matter?" *World Bank Economic Review* 16(1): 81–108.
- . 2002b. "Assessing the Impact of Communication Cost on International Trade." World Bank Working Paper 2929.
- Freund and Weinhold. 2000. "On the Effect of the Internet on International Trade." Board of Governors of the Federal Reserve System International Discussion Paper 693.
- Gausch and Kogan. 2001. "Inventories in Developing Countries: Levels and Determinants, a Red Flag on Competitiveness and Growth." World Bank Working Paper 2552.
- Hertel, T., T. Walmsley, and K. Ikatura. 2001. "Dynamic Effects of the 'New Age' Free Trade Agreement between Japan and Singapore." *Journal of Economic Integration* 24: 1019–49.
- Hummels, D. 2001. "Time as a Trade Barrier." Unpublished. Department of Economics, Purdue University, West Lafayette, Ind.
- Kaufmann, Kraay, and Zoido-Lobaton. 2002. "Governance Matters II: Updated Indicators for 2000–01." World Bank Working Paper 2772.
- Leonard, J. 2001. "Impact of the September 11, 2001, Terrorist Attacks on North American Trade Flows." E – Alert, Manufacturers Alliance, Arlington, Virginia.
- Messerlin, Patrick A., and Jamel Zarrouk. 2000. "Trade Facilitation: Technical Regulations and Customs Procedures." *The World Economy* 23 (4): 577–593.
- Mueller-Jentsch, Daniel. 2002. *Transport Policies for the Euro-Mediterranean Free-Trade Area. An Agenda for Multi-modal Transport Reform in the Southern Mediterranean*. World Bank Technical Paper 527. Washington, D.C.
- Moenius, Johannes. 2000. "Three Essays on Trade Barriers and Trade Volumes." Ph.D. dissertation. University of California, San Diego.
- OECD (Organisation for Economic Development and Co-operation). 2002a. "The Impact of the Terrorist Attacks of 11 September 2001 on International Trading and Transport Activities." Unclassified Document TD/TC/WP (2002)9/Final. Paris.
- . 2002b. "Economic Consequences of Terrorism." *OECD Economic Outlook* 71: 117–40. Paris.
- Poirson. 1998. "Economic Security, Private Investment and Growth in Developing Countries." IMF Working Paper WP/98/04.
- Reddy, R. 2002. "Friction over Security Gaps," *Intelligent Enterprise*. October 8 (Available at <http://www.intelligententerprise.com/021008/516infosc1-1.shtml>)
- Subramanian U., and J. Arnold. 2001. *Forging Subregional Links in Transportation and Logistics in South Asia*. World Bank, Washington, D.C.
- UNCTAD (United Nations Commission on Trade and Development). 2001. *E-Commerce and Development Report*.
- Walkenhorst, Peter, and Nora Dihel. 2002. "Trade Impacts of the Terrorist Attacks of 11 September 2001: A Quantitative Assessment." Paper prepared for the Workshop on The Economic Consequences of Global Terrorism. Berlin, June 12–13.
- Wilson, John S., and Tsunehiro Otsuki. 2003. "Food Safety and Trade: Winners and Losers in a Non-harmonized World." *Journal of Economic Integration* 18 (2): 266–87.
- Wilson, John S., Catherine L. Mann, and Tsunehiro Otsuki. 2003a. "Trade Facilitation and Economic Development: Measuring the Impact." Working Paper 2933. World Bank, Washington, D.C.
- . 2003b. "Trade Facilitation and Capacity Building: Global Perspective." Unpublished. World Bank, Washington, D.C.
- Wilson, John S., Catherine L. Mann, Yuen Pau Woo, Nizar Assanie, and Inbom Choi. 2002. *Trade Facilitation: A Development Perspective in the Asia-Pacific Region*. Singapore: APEC Secretariat.
- Woo, Yuen Pau. 2002. "Trade Facilitation in the WTO: Singapore to Doha and Beyond." In Will Martin and Mari Pangestu, eds., *Options for the Next Trade Round: View from East Asia*. Cambridge, U.K.: Cambridge University Press.

- World Bank. 1997. "Multilateral Freight Transport: Selected Regulatory Issues." Report 16361-BR.
- . 2001. *Global Economic Prospects 2002: Making Trade Work for the World's Poor*. Washington, D.C.
- WTO (World Trade Organization). 1999. "Development Aspects of Trade Facilitation." WT/COMTD/W/57. Geneva.
- . 2001. "Doha WTO Ministerial Declaration." WT/MIN(01)/DEC/1. Geneva. November.
- . 2002. "Compendium of WCO Capacity Building Tools." G/C/W/445. Geneva.