Trade-Related Infrastructure and Services

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II.D Trade-Related Infrastructure and Services[1]

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This chapter considers the role that infrastructure and services sectors play in facilitating trade. Its focus is not on infrastructure upgrades or services sector reform in general, but rather on their specific potential to reduce trade costs in goods markets. It therefore highlights ways in which policymakers can approach reform of trade-related infrastructure and services sectors with a view to maximizing their positive impact on trade flows. This chapter therefore deals only with those aspects of infrastructure and services that are most directly related to international trade in goods.

The interplay between infrastructure and services sectors provides an important part of the context in which import and export transactions take place (Wilson et al., 2005). Efficient and effective reform in these areas can thus make a useful contribution to broader trade facilitation efforts. This is not to say that it is straightforward, however. While it is obvious that more efficient port facilities can help promote trade, the difficulty resides in identifying in particular cases the optimal combination of physical infrastructure upgrading and regulatory reform. The effects of service sector reforms undertaken without regard to the state of the underlying infrastructure, or of infrastructure upgrades pursued without an appropriate regulatory framework, are likely to be limited, and may in some cases even be perverse. To make clear the intimate links between these two types of interventions, they are sometimes referred to in the literature as dealing with "hard" (physical) and "soft" (regulatory) infrastructure.

Box 2.14: Infrastructure, Services, and Trade: Where are the Closest Links?

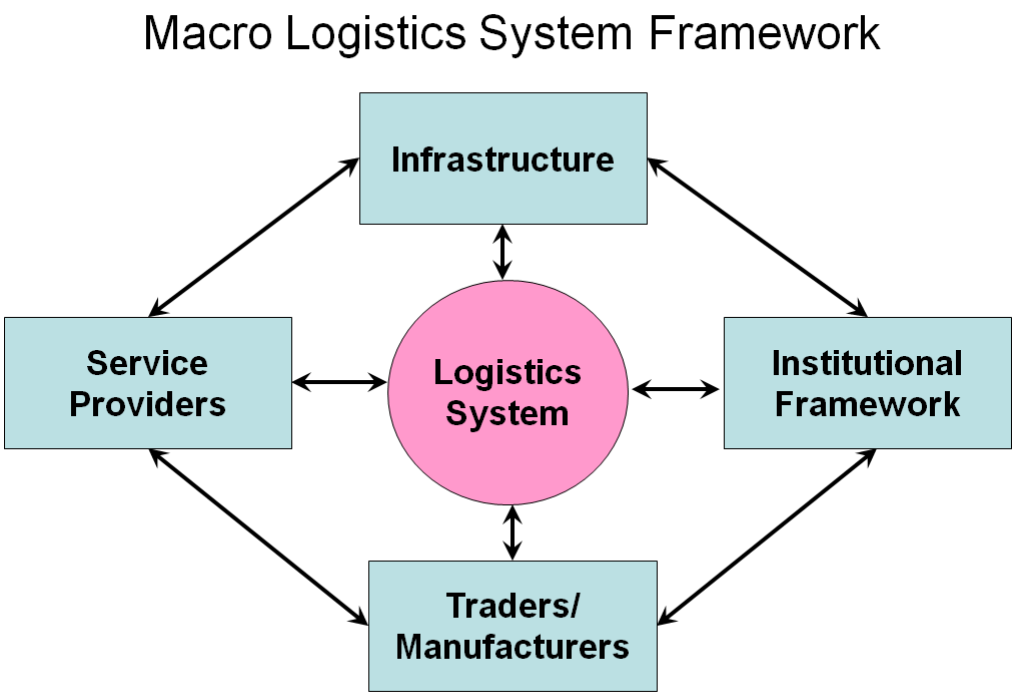
A number of services sectors, and a number of types of infrastructure, are so intimately connected to goods trade that they need to be considered as part of any comprehensive approach to trade facilitation. This chapter focuses on four sectors widely believed to have the closest links to trade:

1. **Transport**: The efficiency of ports, international transport links, and internal transport networks directly influences the level of trade costs in goods markets. For example, inefficient trucking services lead to longer dockside stand times and costly inventory accumulation, as well as reducing export volumes so that there are infrequent shipping services.
2. **Logistics**: Efficient freight forwarders, distributors, and other logistics service providers make it possible for importers and exporters to connect with each other at minimum cost and with minimum delay. Logistics costs represent a significant portion of final consumer prices: around 20% in developed countries, but at least double that figure in many landlocked developing countries.
3. **Telecommunications**: The performance of the telecommunications sector affects the transaction costs associated with trading, such as obtaining information on foreign market conditions, and concluding a deal with a foreign buyer or seller.
4. **Finance**: An efficient financial sector can reduce transaction costs for many import/export transactions which take place on a credit basis, and also provide vital inputs into the trading process through provision of credit for product adaptations to meet foreign standards. Access to reasonably efficient credit markets can be important for companies seeking to cover these costs, in particular for small and medium enterprises that may not be able to self-finance.

[1] Draft contribution to ADB/UNESCAP handbook on trade facilitation. Original draft by Ben Shepherd, revised with extensive input from Richard Pomfret, Shintaro Hamanaka, and ADB/UNESCAP staff. This version dated June 26, 2009.

It is appropriate to consider infrastructure and services reforms together because of the close inter-relationships between the two. Competition policy is one area in which this intersection is particularly important. Historically, monopoly arrangements have been pervasive in a number of the sectors that are of primary interest from a trade facilitation point of view, such as transport (air, maritime), and telecommunications. Indeed, restrictive arrangements persist to some extent even today in areas such as international liner shipping. From a trade facilitation point of view, it is important to recognize that one way of reducing trade costs in goods markets is to combine regulatory reform and infrastructure upgrading in affected sectors. As Figure 2.22 makes clear for the case of logistics, the interplay between infrastructure, regulations, service providers, and traders creates a complex situation that provides numerous challenges for policymakers. A thorough review of logistics in Australia, for instance, found that sectoral performance—and trade in goods—can be affected by factors such as access of private operators to infrastructure, cohesion of inter-modal transport transfer points, and the level of competition at all points in the supply chain.[2]

Figure 2.22: Macro Logistics System Framework



Source: ADB.

Against this background, this chapter first reviews a selection of cross-country data on trade-related infrastructure and services. It then summarizes the existing economic literature, focusing on quantitative analyses of the links between infrastructure (ports, roads, and rail) and services sectors (transport/logistics,

[2] De Sousa, Dariel; and Christopher Findlay (2007), "Relationship Between Liberalization in the Logistics Sector and Trade Facilitation", in ARTNET, 2007, Trade Facilitation Beyond the Multilateral Trade Negotiations: Regional Practices, Customs Valuation, and Other Emerging Issues, UN. Document ST/ESCAP/2466.

telecommunications, and finance) on the one hand, and trade in goods on the other. The third section of the chapter presents best practice guidelines based on general principles of effective and efficient regulation, and discusses sources of sector-specific best practices. The chapter concludes with two case studies. The first reports the results of a recent quantitative analysis of the costs and benefits of transport corridors in the Greater Mekong Subregion, and the second looks at liberalization of logistics services markets in ASEAN.

IID1. Efficiency of Trade-Related Infrastructure and Services: State of Play

Starting with trade-related infrastructure, there are many data sources dealing with crucial links such as ports, roads, and air transport. The World Bank's *World Development Indicators* provide statistical data on the length of national rail networks, and the length and quality (percentage paved) of road networks. The *Global Competitiveness Report* (see Box 2.1 above) asks company executives to rate the quality of sea ports and airport facilities on a scale of 1 to 7. Other indicators can be found in the World Bank's *Enterprise Survey*[3] on whether or not transportation is a major constraint (survey), and the percentage of shipments lost due to breakage or spoilage (direct measurement).

The GCR air and sea ports indicators are useful in giving an idea of broad, cross-country trends in performance, covering the state of physical infrastructure as well as some aspects of performance in the maritime services and air transport sectors. Figure 2.23 reproduces these data for 2006, covering air and sea ports in Asia and the Pacific economies. Performance across this group is very heterogeneous. Performance on airports is generally stronger than for maritime ports, although in the case of maritime ports Singapore is the leading performer globally. In the case of airports, Singapore is again the world leader, while Timor Leste has the second lowest score. In general, East Asia performs quite well on both of these measures, whereas parts of South and Central Asia appear to have considerable scope for improvements that would bring them into line with international best practice.

Recent work by the World Bank takes a broader view of the logistics sector. The *Logistics Performance Index* provides an overall "logistics friendliness" score for based on perception data (survey) and objective data (direct measurement or statistics). The LPI should be considered as an indicator of outcomes, reflecting sectoral performance based on underlying regulatory and physical infrastructure. Given the range of services that are included, the LPI captures important aspects of performance in sectors such as transport and distribution. (Box 2.14).

Box 2.14: What does the World Bank's LPI Measure?

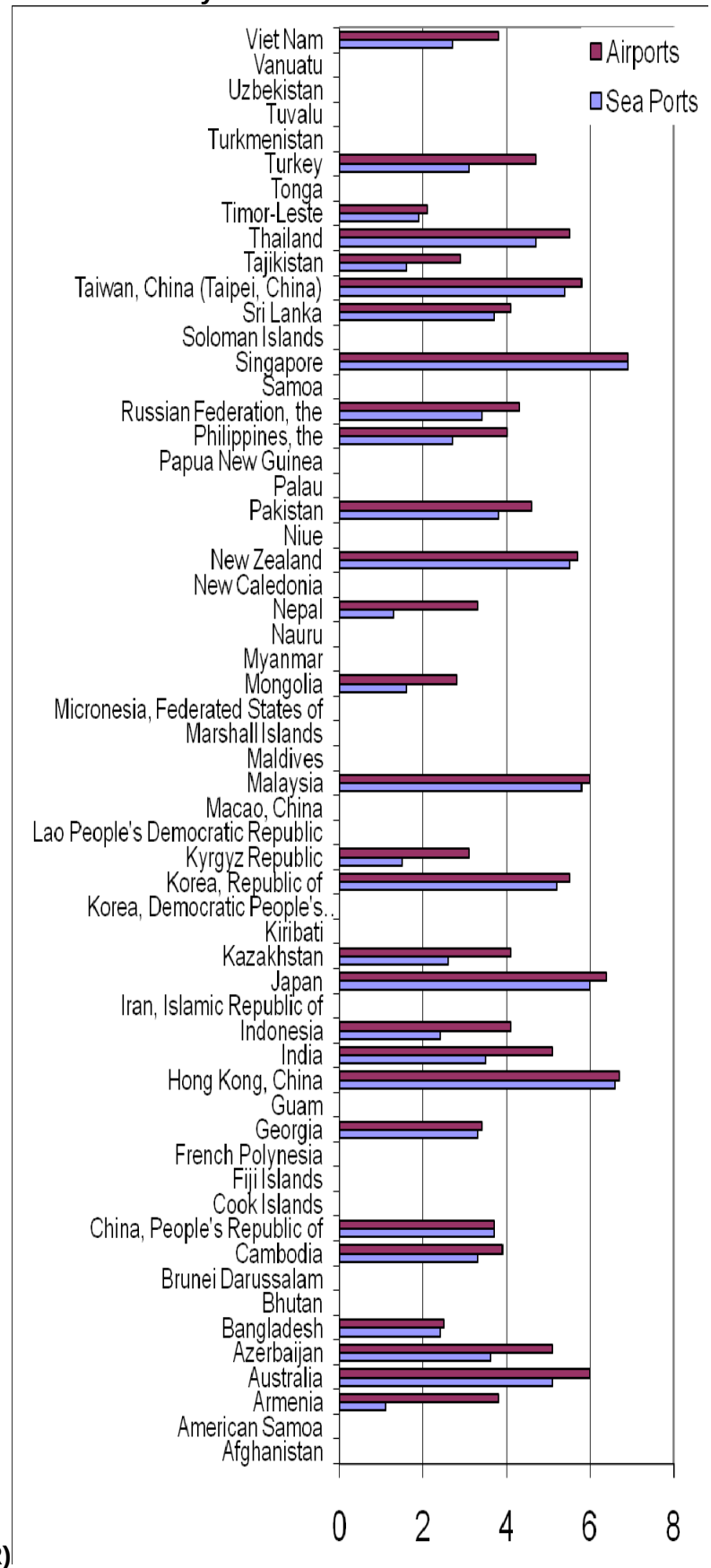
The Logistics Performance Index (LPI) is a global benchmarking tool designed to help countries identify the challenges and opportunities they face in terms of their trade logistics performance. The LPI is based on information from a web-based questionnaire completed by more than 800 logistics professionals (freight forwarders and express carriers) worldwide. Each respondent was asked to rate performance on a numerical scale in seven logistics areas for eight countries with which they conduct business. The seven areas of performance are: efficiency and effectiveness of customs and border procedures, quality of transport and information technology infrastructure for logistics, ease and affordability of arranging international shipments, competence of the local logistics industry, ability to track and trace international shipments, domestic logistics costs, and timeliness of shipments in reaching

[3] Can be accessed at www.enterprisesurveys.org

destination. The LPI website reports data on each of these dimensions individually, as well as each country's global LPI score that reflects a weighted average of performance in all seven areas.

Source: www.worldbank.org/lpi. Arvis et al. (2007) describe methodology and data sources

Figure 2.23: Efficiency of Air and Sea Ports



(GCR)

As Figure 2.24 shows, there is a considerable spread in LPI scores across Asia and the Pacific. Singapore, for example, is the world leader in this area, while Japan and Hong Kong, China, are in the top ten. On average, performance in East Asia and the Pacific is very strong, but in South Asia it is much less so. Indeed, a number of regional economies have LPI scores towards the bottom of the table, such as Afghanistan (150), Timor Leste (149), and Myanmar (147).

The World Bank's *World Development Indicators* dataset provides statistical data on the number of telephone subscribers and internet users, as an indicator of the sophistication of the telecommunications sector[4]. Figure 2.25 presents 2007 WDI data on the number of internet users per hundred population in Asia and the Pacific economies. Once again, this grouping is notable for its heterogeneity: internet penetration rates range from some of the highest in the world (79% in New Zealand, 74% in Japan) to some of the lowest (0.1% in Myanmar and Timor-Leste). In terms of the regional average, East Asia and the Pacific and South Asia have approximately the same level of internet penetration (14%-15%), but both lag considerably behind the leaders (26% in Europe and Central Asia, 24% in Latin America and the Caribbean). Survey indicators for telecommunications include the *Global Competitiveness Report*[5], and the UN *E-Government Readiness Index*[6].

[4] Other data can be accessed from the *World Telecommunication/ICT Indicators Database* with detailed statistical data on network size and type, traffic, service quality, and some pricing information, http://www.itu.int/ITU-D/ict/publications/world/world.html

[5] Extent to which competition among a country's internet service providers is sufficient to ensure high quality, infrequent interruptions, and low prices

[6] Aggregates a variety of data sources that summarize the state's ability to leverage information and communication technologies in the context of its broader regulatory and governance activities. Can be accessed at http://www.unpan.org/egovernment.asp

Figure 2.24; Logistics Performance

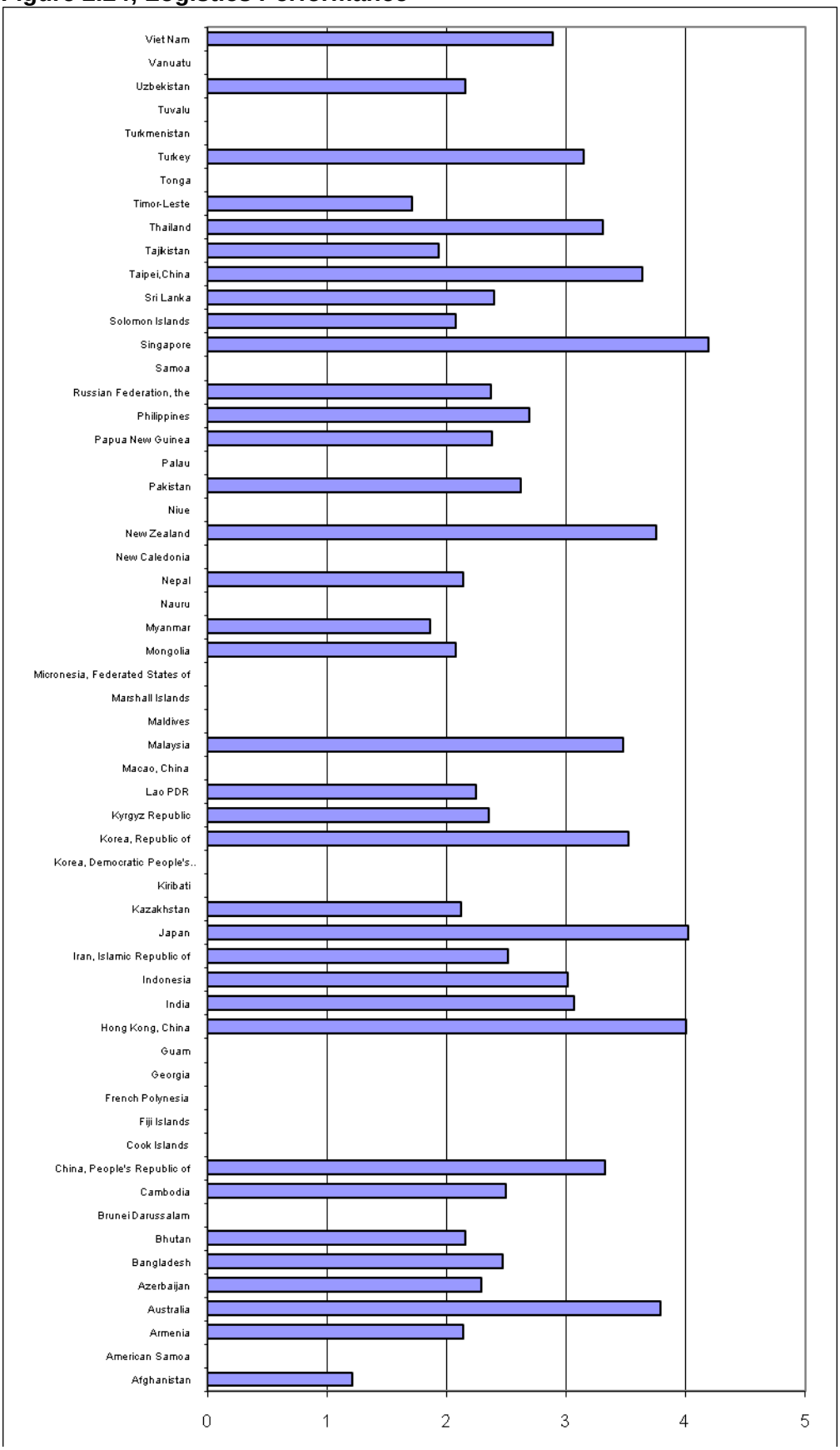
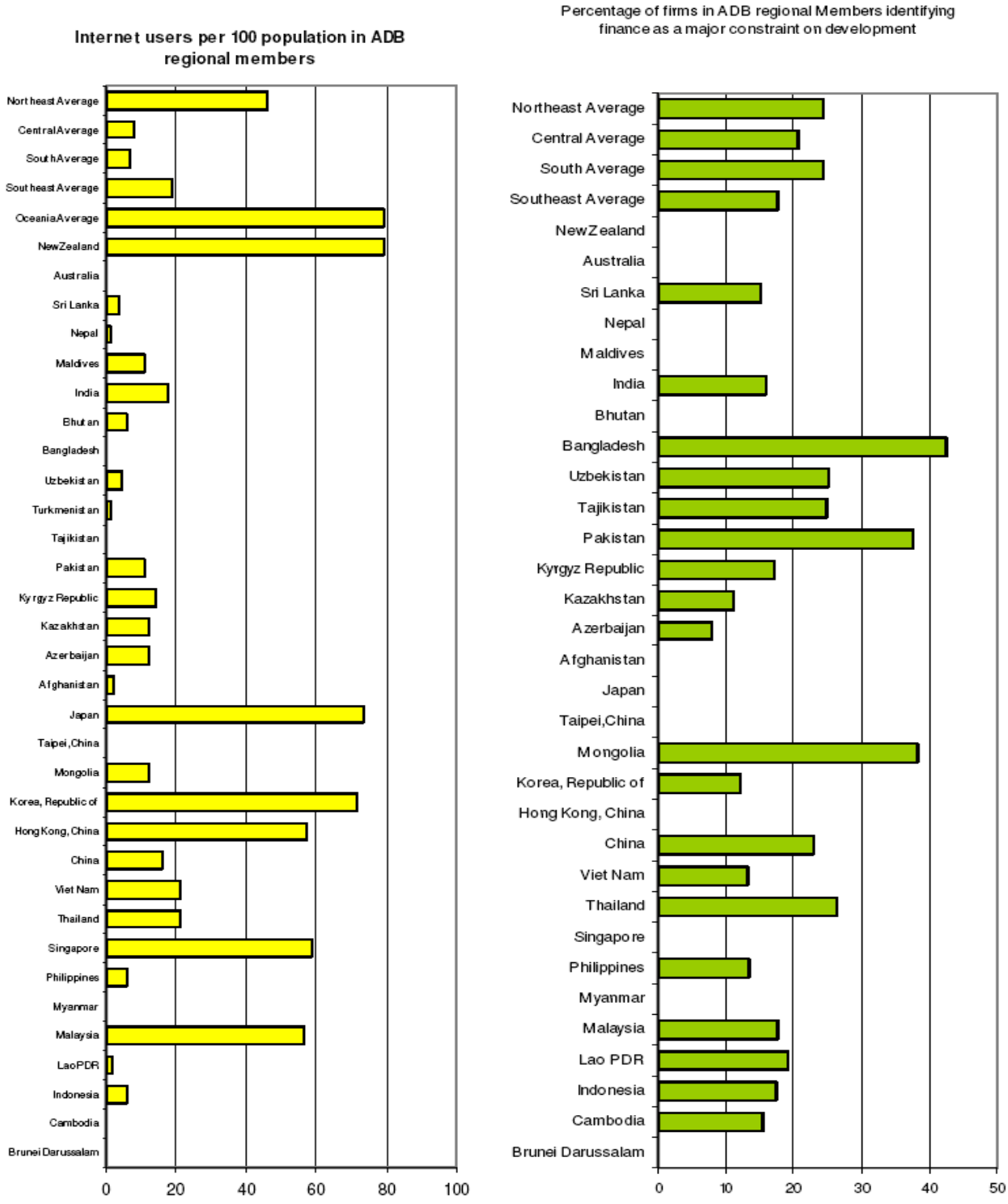


Figure 2.25: Internet Users per Hundred Population in Asia and the Pacific Economies (2007).

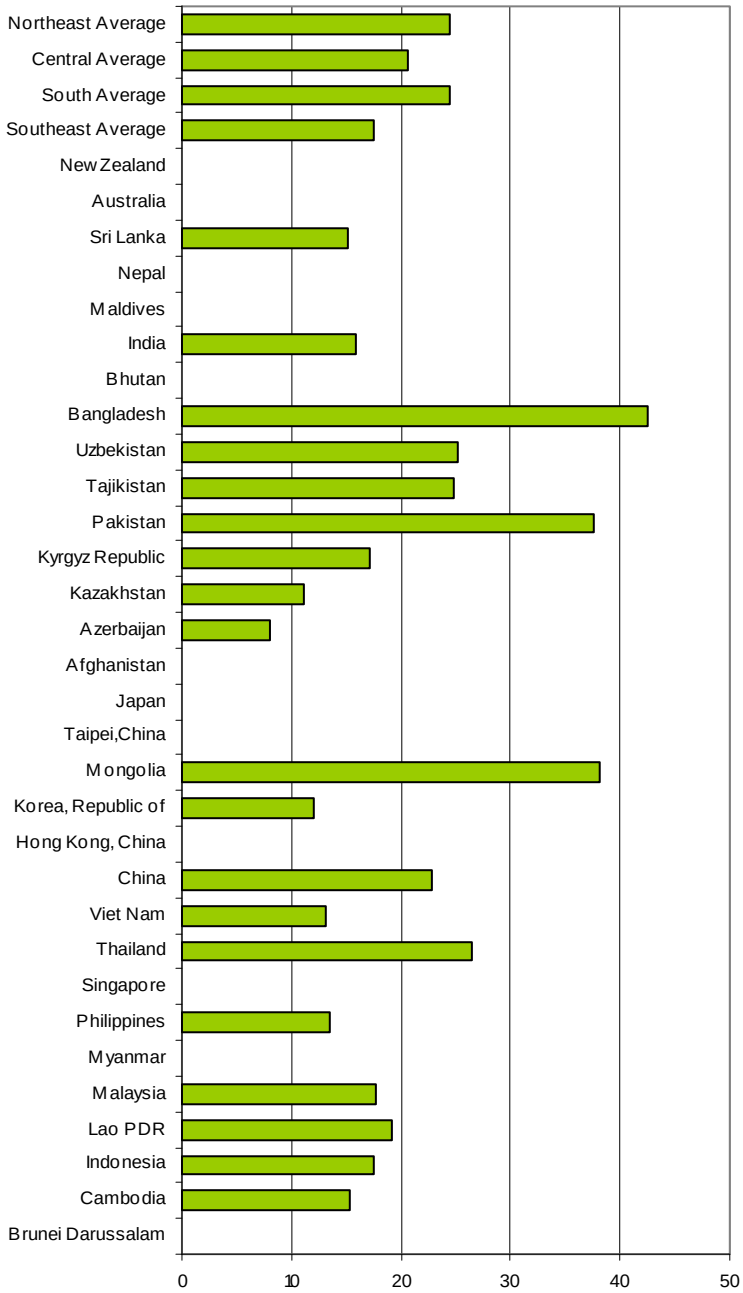


There are no finance indicators related specifically to trade. Nonetheless, general financial sector indicators provide useful cross-country information on the structure of the sector

across countries.[7] The World Bank's *Enterprise Survey* dataset provides direct measurement data covering the proportion of firms with access to various types of financial services, and the type of financing used for investment, as well as survey data in the form of the percentage of firms identifying access to finance as a major constraint. Figure 2.26 presents data from the World Bank's *Enterprise Survey* dataset, namely the percentage of surveyed firms in particular Asia and the Pacific economies identifying access to finance as a major constraint. A number of countries stand out for the apparent prevalence of financial constraints: over a third of firms in Bangladesh, Georgia, Mongolia, and Pakistan consider it a major issue. By contrast, only 15% of firms in the only OECD country in which such a survey has been conducted (Germany) held this view.

[7] General measures of financial sector development, such as the size and structure of the banking sector, are available from the International Monetary Fund's *International Financial Statistics* database.

Figure 2.26 Percentage of Firms in Selected Asia and the Pacific Economies identifying Finance as a Major Constraint to Development



Source: WBES

A final set of indicators in relation to services covers policy restrictiveness with regard to the regulatory framework. These indicators are based on a mix of direct measurement (regulatory review), and expert surveys[8]. The OECD's *Product Market Regulation* database[9]

[8] An ongoing World Bank (forthcoming) project will supplement these measures with detailed information on applied market access and national treatment restrictions in a variety of countries and sectors, based on expert input from international legal and consulting

provides general information on the extent of government involvement in the economy, with specific data on sectors of interest here such as telecommunications and transport. The main dimensions of policy restrictiveness in the air sector are captured in the *Air Liberalization Index* produced by WTO.[10]

IID2. Impact of Efficiency in Infrastructure and Services on Trade

At its most basic, the idea that better infrastructure can boost international trade has obvious intuitive appeal: more efficient infrastructure reduces the level of trade costs facing importers and exporters, and should therefore tend to increase trade flows. A well-known study by Limao and Venables (2001) shows that deficiencies in overall infrastructure explain a substantial portion of Africa's relatively low levels of internal and external trade. Improving infrastructure quality from the 75th to the 25th percentile of their aggregate infrastructure index would result in a 50% increase in baseline trade. Later studies have focused on particular types of infrastructure, but with similar results, e.g. a 10% increase in port efficiency is associated with a 3% increase in bilateral trade (Blonigen and Wilson, 2008).[11] Poverty reduction effects of basic infrastructure can also be important. An economic analysis of Lao PDR road infrastructure demonstrates that constructing new dry season-only roads has a poverty reducing effect that is 17 times stronger than upgrading old dry season-only roads to all season roads (Menon and Warr, 2008). The implication here is that provision of basic infrastructure should be based on an appropriate compromise between quality and performance, taking into account the overall effects on social welfare.

One aspect that requires closer investigation, however, is the balance of costs and benefits from infrastructure upgrading. This is because improving facilities such as ports, roads, rail links, or airports, can be highly intensive in technical skill and financial resources. The constraints in developing countries can in some cases be daunting, and it is thus important to have as much information as possible on both the costs and benefits of infrastructure upgrading before proceeding. Recent work examining particular types of infrastructure upgrading has generally found that even once the upfront costs are netted out, the benefits remain strongly positive.[12]

Inappropriate service sector regulations can create opportunities for private actors to capture economic rents or engage in anti-competitive conduct, affecting sectoral prices and, thus, trade costs in goods as well as productivity in goods sectors (Francois and Wooton, 2001). One important empirical finding by economists is that improving services sector performance is one way of helping less productive enterprises enter international markets.[13] On airline regulations, the existence of an Open Skies Agreement reduces air transport costs to the US by 9% and increases the share of imports arriving by air by 7% for US trade.[14] Recent work generally suggests that the provisions of bilateral air services agreements appear to have a significant impact on trade in air transport services.[15] Geloso-Grosso (2008a) estimates that APEC member economies could increase passenger traffic by at least 5%-7% through

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firms. At this stage, the data are expected to cover 50 developing countries in the finance, telecom, retail, transport, and professional services sectors

[9] Can be accessed at www.oecd.org/eco/pmr

[10] Air Services Agreements are available in its QUASAR database.

[11] For other examples see, Buys et al. (2006) and Shepherd and Wilson (2007) on roads; Donaldson (2009) on railways; and Freund and Weinhold (2004) on internet hosts.

[12] Examples include Buys et al. (2006), Shepherd and Wilson (2007), and Edmonds and Fujimura (2008).

[13] Arnold et al. (2006, 2007, 2008)

[14] Micco and Serebrisky (2006). The impact is significant for high and upper-middle income countries, but there is only a small impact for other countries.

[15] Piermartini and Rousova (2008) and Geloso-Grosso (2008a, 2008b)

incremental relaxation of current policy restrictions. For maritime shipping services, competition law exemptions that have traditionally allowed price fixing and cooperative working arrangements also lead to higher shipping prices. The effects are large: removing regulatory restrictions would reduce maritime transport costs affecting US imports across all partners and sectors by over $800m, while eliminating anti-competitive arrangements would save an additional $2 billion. Evidence shows that there can be undue exercise of market power in shipping services that leads to possible charging of higher rates on goods with inelastic demand.[16] Auxiliary maritime services such as cargo reservation, handling services, and mandatory port services, also exert a significant effect on pricing in international maritime (liner) transport (Fink et al., 2002).

High quality logistics are the lifeblood of air and maritime transport and distribution networks in exporting and importing countries, and thus logistics performance also matters for international trade in goods. For example, the wide variation in logistics costs among the Middle Eastern and North African countries can greatly influence shipping costs.[17] One recent study suggests that improvements in logistics could increase the trade impacts of lowering remaining border barriers by a factor of two or more (Hoekman and Nicita, 2008).

A competitive telecommunications sector, in particular internet services, can have significant implications for trade facilitation. Freund and Weinhold (2004) show that growth in internet connections contributed to a one percentage point increase in annual export growth over the period 1997-1999. Another study concludes that the trade impact of the internet might be as large or larger than that of other infrastructure such as ports: enhancing the speed and cost of internet access can increase trade by 4%, which is more than the 2.8% increase achieved by improving port efficiency.[18]

Trade finance has obvious links to trade performance in goods. There is evidence suggesting that public provision of export credits can indeed boost trade (Egger and Url, 2006), but the lack of generally available data on bilateral trade credit provision makes empirical work in this area difficult Jinjarak (2007). Generally speaking, firm level studies suggest that an environment of strong financial sector development can also be important based on the need for external financing in order to cover the costs of exporting (Manova, 2008). Securing financing can also be important if exporters need to adapt production processes to meet the requirements of foreign product standards (Czubala et al., forthcoming).

IID3. Governing Principles for Trade-Related Infrastructure and Services

It is extremely difficult to identify generally applicable principles in an area as vast as trade related infrastructure and services. Sector- and country-specificity are important characteristics of reform, as is the necessity to combine investments in physical and human capital with regulatory changes. Rather than set out a point-by-point "shopping list" of reforms, this section focuses on a few broad principles of efficient and effective regulation.[19] The approach

[16] Hummels, Lugovskyy and Skiba (2007). One sixth of importer/exporter pairs are served by a single liner service, and over half are served by three or less liner services.

[17] Devlin and Yee (2005).See also Nordas et al. (2006)

[18] Wilson et al. (2005) constructed a cross-country database on trade facilitation focusing on four aspects, including infrastructure development and services sector efficiency. They proxy the first dimension as the average of air and sea port performance, and the second dimension as the average of the speed and cost of internet access, and the effect of the internet on business. All data are based on executive perceptions, as measured by the World Economic Forum's *Global Competitiveness Report*.

[19] As one source of guidance on particular aspects of reform in more specific contexts, the World Bank has produced a collection of toolkits designed to aid policymakers in undertaking regulatory and infrastructure reform in areas such as ports, roads, and telecommunications. They can be accessed at http://rru.worldbank.org/Toolkits/. Additional best practice guidance on regulatory issues in particular services and infrastructure sectors is available from a variety of sources. In the case of air transport, the International Civil Aviation Organization has issued a *Declaration of Global*

suggested here is therefore not one of traditional industrial policy, grounded in government support for particular sectors. Rather, the measures that are suggested can be seen as a kind of generalized industrial policy, in the sense of providing the institutions and regulations needed to support efficient and competitive industries. It is not about governments "picking winners", but about allowing winners to pick themselves through competitive markets.

Since the objective here is not to discuss infrastructure and services in general, but instead to highlight the role they can play as trade facilitation instruments, the question posed in this section is the following one: how can trade-related infrastructure and services be designed so as to most effectively lower the costs of doing business internationally? Although the principles set out here are largely aligned with the core disciplines of the GATS, it is important to stress that they in no way conflict with the right of individual countries to pursue socially important regulatory objectives. It is important for each country to develop its own market-friendly approach to regulation, based on its development level and local conditions. Moreover, there is obvious scope for countries to move beyond the GATS, either unilaterally or regionally. Many of the reforms discussed in this section are consistent with the WTO's most favoured nation obligation, and can thus be pursued by countries unilaterally or regionally, regardless of the progress of negotiations in Geneva.

Transparency: In designing and implementing improvements to physical and regulatory infrastructure, policymakers need to ensure that the process followed is transparent and inclusive. This principle covers areas such as being open to public scrutiny and debate; allowing interested private parties the opportunity to comment on proposed regulations, and participate more generally in the regulatory process; provision of independent review or appeal procedures; and publication of new regulations prior to their entry into force. In addition, governments should specify well-defined criteria against which performance of reform packages can be assessed. Performance reviews should have two dimensions: ex ante assessment to aid in the choice of policy instruments; and ex post evaluation, to track implementation and learn from experience on the ground. It is important that cost-benefit analyses be conducted to inform the design and implementation of upgrades to trade-related infrastructure and services sectors, and that they take full account of these sectors interlinkages with the wider economy.

Competition: Whenever possible, regulatory objectives should be pursued using market-based mechanisms. Development of trade-related infrastructure and service sector regulatory frameworks should aim to promote, rather than restrict, competition among market actors as one way of pursuing the objective of lowering costs for importers and exporters who use their services. In the areas of infrastructure and services, this principle is particularly vital in view of the customary monopolies and other restrictive arrangements in sectors such as telecommunications, port services, and transport. Despite the difficulties policymakers can face in designing competition-based mechanisms consistent with the achievement of broader regulatory goals, recent experience in both developed and developing countries suggests that significant progress in this direction is being made. Implementation of a general competition law, and limiting exemptions as far as possible, is an important first step. The GATS provides a concrete framework for advancing a number of the points mentioned above[20]. Articles VIII and IX of GATS contain provisions designed to promote competition by limiting the abuse of monopoly power, and providing for international consultations in relation to broader

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Principles for the Liberalization of International Air Transport that deals with sectoral issues such as safety and security, as well as the tension between competition and cooperation between carriers. In information and communications technology, the International Telecommunications Union regularly publishes best practice guidelines covering issues such as infrastructure sharing, spectrum management, and connectivity. They can be accessed at http://www.itu.int/ITU-D/treg/bestpractices.html.

[20] See Mattoo et al. (2007) for a general review

anticompetitive practices. Clearly, though, the main momentum for regulatory reform in this area must come from domestic sources.

Non-discrimination is also an important concept, which can be seen as an extension of competitive principles. Treating market actors with an even hand, in the sense of not favouring incumbents over new entrants or domestic over foreign operators, helps ensure pro-competitive market conditions. Attention to entry barriers facing potential domestic and foreign entrants is crucial in maintaining competitive pressure on incumbent operators. This issue affects the framing of regulations, but also the design of physical infrastructure. Issues of network connectivity and interoperability loom large in the sectors of particular interest in this chapter, mainly in transport and telecommunications. GATS firmly entrenches non-discrimination as a core regulatory principle by taking up the obligations of national treatment (no discrimination between domestic and foreign providers, Article XVII), and most favoured nation status (no discrimination among trading partners, Article II).[21] Effective and efficient national regulations tend to follow the same approach.

Holistic approach: The third principle is a "holistic" approach to effective regulation and liberalization. It is important that regulatory reform take proper account of inter-sectoral linkages, and the possibility that reforms in one sector can have important effects on performance in related sectors. In terms of the GATS, this means that there should be no *a priori* exclusions in terms of modes or sectors that are potentially subject to liberalization commitments. This is all the more true for regional integration schemes in services (GATS Article V-1(a)). This holistic approach to regulatory reform is essential to take account of actual business needs. First, given a situation where services are supplied by a combination of various modes (cross-border, consumption abroad, commercial presence, and movement of natural persons), making commitments in all four modes to meet business needs is highly desirable. Second, the exclusion of whole sectors or sub-sectors should be avoided. Particularly in the area of trade-related services, undertaking regulatory reform in related sectors can be beneficial. Logistics services are one example of this dynamic. Indeed, the WTO negotiations on logistics services have been heavily influenced by this cross-sectoral dimension: although the trade classification currently does not classify logistics as an independent category, members appear to be comfortable treating the cluster of categories covered by logistics in a comprehensive fashion precisely because of the cross-cutting nature of these services ranging from transportation to courier deliveries. Undertaking commitments in whole sectors that have impacts on logistics contributes to the greater facilitation of logistics services. If the liberalization of one sector along the logistics services chain is deficient, the whole logistics chain may not function effectively.

Progressive liberalization and forward looking stance: Policymakers need to identify reform priorities in the areas of trade-related infrastructure and services, and proceed step-by-step. Analysis of economy-wide costs and benefits is an important starting point for that process. Since linkages among sectors are complex, reform should be undertaken progressively and in a manner that is appropriate given a country's social and economic specificities. In addition, regulators should be forward looking, in the sense of not prejudging future technological developments. It is widely acknowledged that technological developments in the services area are significant, and business models frequently change depending on available technologies. It is important that liberalization and competition policies should be supportive of ongoing technological developments that meet specific needs in those markets. In particular, regulators need to ensure that incumbent businesses cannot use technological specificity or lack of compatibility as a means of restricting entry and competition.

[21] While MFN status is a general obligation that applies unless a specific exemption is claimed (negative list), national treatment and market access commitments only apply to the extent set out by WTO Members in their schedules of commitments (positive list).

Box 2.15: Sequencing of Reforms

As the discussion in this section has shown, regulatory reform in trade-related services sectors can cover an enormous amount of ground. This makes the issue of sequencing absolutely critical: how can a reform-minded government invest political capital so as to maximize the benefits from reform, minimize adjustment costs, and lay the foundations for further reforms in the future? This is an extremely difficult question to answer in the abstract, since the political and economic situation in each country can be very different. However, it is possible to identify a number of guiding principles from previous reform efforts:

General institutions and policies: Most of the reforms discussed in this section rest on the institutional bedrock of transparency and competition. Competition policy is particularly important: without vigorous enforcement of competition laws, sectoral liberalization can simply lead to the replacement of a domestic monopolist by a foreign one, with no net welfare gain for the domestic economy. Cross-cutting reforms in these areas are therefore a common first step towards implementing broader regulatory reforms.

Identification of priority sectors: It is unlikely that any government could undertake regulatory reform in all relevant sectors simultaneously. It is therefore important to identify sectors with particularly strong linkages to the rest of the economy: reform in these sectors can have particularly large economic effects. Transport is an example of such a sector, since it is used as an intermediate input in almost every other sector of the economy.

Identification of priority modes of supply: For each priority sector, reform will have the biggest economic payoff if it is targeted at the dominant mode of supply. Since the dominant mode varies from sector to sector, governments need to be acutely aware of the commercial realities of each individual sector.

Adjustment mechanisms: Although this section has highlighted the benefits of regulatory reform, governments must also be aware of the fact that it induces resource reallocations and, thus, adjustment costs for some members of the community. It is important to address these costs up front, and to design mechanisms to limit their impact. Economic actors facing large adjustment costs can form a powerful lobby against regulatory reform, and may indeed make it politically difficult for the program to get moving. In such cases, it may be appropriate to consider compensatory measures.

Source: Hodge, James (2002) "Liberalization of Trade in Services in Developing Countries", in Bernard M. Hoekman, Aaditya Mattoo, and Philip English, *Development, Trade, and the WTO.*

IID4. Experience of Asia and the Pacific Economies

This chapter has highlighted the complex interplays between infrastructure and services sectors when it comes to trade facilitation. A central message that flows from this analysis is the importance for policymakers of taking an integrated approach within the framework of a broad set of trade facilitation policies. To see how reform can be operationalized, the chapter concludes with two case studies: development of transport corridors in the Greater Mekong Subregion; and integration of the logistics services sector in ASEAN economies.

Transport Corridors: The Case of Greater Mekong Subregion [22]

[22] The material in this case study draws on the following sources: Edmonds and Fujimura (2008); Menon and Warr (2008); and Stone and Strutt (2009).

Among the various aspects of trade facilitation, infrastructure arguably has the strongest potential to promote regional spillovers. Ports and airports do not just serve the countries where they are located, but also link neighbouring countries with world markets. The same can be true of roads, which can act as important transit corridors within the region, in particular where landlocked countries are concerned. Regional infrastructure upgrades thus provide substantial scope for national and regional economic benefits, but at the same time pose a number of particular difficulties for policymakers. This case study investigates both aspects more closely, drawing on recent quantitative work looking at the effects of implementing economic corridor programs in the Greater Mekong Subregion, i.e. Cambodia, Lao PDR, Myanmar, Thailand, Vietnam, and the Chinese provinces of Yunnan and Guangxi (See Figure 2.27). The Asian Development Bank has been active in assisting countries in the region promote a broad agenda of economic integration, covering trade and infrastructure aspects.[23]

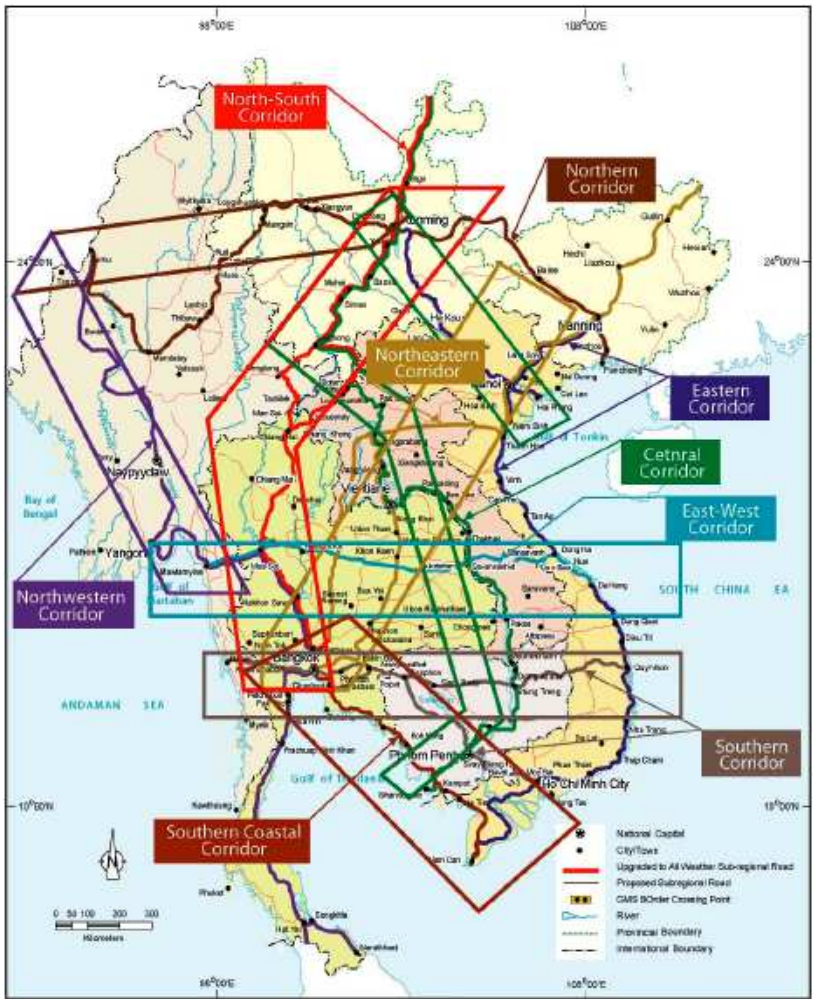
Progress on integrating the once heavily insulated GMS economies through reduced intra- and extra-regional trade costs has required action on a number of fronts. Such an approach is entirely consistent with the emphasis this chapter has placed on interlinkages between physical and regulatory infrastructure. One of the first steps taken in 1995 was to adopt the GMS *Transport Master Plan*, which identified road and other transport projects likely to have a particularly strong impact on regional connectivity, and thus flow through to lower trade costs. As a follow up, GMS economies entered into a Cross-Border Transport Agreement (CBTA) in 2003, designed to provide greater regulatory support to regional infrastructure development. The CBTA therefore covers areas such as customs and border formalities, exchange of commercial traffic rights, transit regimes, infrastructure standards, and vehicle requirements for cross-border traffic.

Recent empirical work suggests that on an aggregate level, the GMS economies have made substantial progress in terms of lowering trade costs and promoting economic integration. Transport cost savings range from 16% to 65% (median = 45%), and time savings from 25% to 50%.[24] Using a CGE model, it is the "soft" (regulatory) aspects of cross-border transport that have the biggest impact in addition to significant trade and economic welfare benefits from infrastructure upgrading. There is also a generally significant association between the density of cross-border roads and bilateral trade among GMS countries (Edmonds and Fujimura, 2008). In some cases, these studies also find evidence that enhancement of the domestic road network can be trade promoting.

In the case of the Lao PDR, road upgrades can have significant economic welfare benefits, including through increased trade. Menon and Warr (2008) conduct a detailed cost-benefit analysis, and find that the balance is generally positive. Interestingly, they find that provision of dry season only roads to areas that currently lack any road connection at all has a real GDP impact that is six times as large as that associated with upgrading existing dry season roads to all weather roads. The difference in poverty incidence is even larger: new dry season roads have a poverty reducing effect 17 times as large as that associated with upgrades. In terms of maximizing anti-poverty effects, their cost-benefit analysis suggests that building new dry season roads is relatively attractive.

Figure 2.27: Transport Corridors in the Greater Mekong Subregion

[23] For further information see www.adb.org/GMS
[24] Stone and Strutt (2009) review a variety of findings, and did their own analysis using CGE model



Source: ADB, 2009

Given the regional context within which the GMS transport corridor programs are nested, it is important for policymakers to deal effectively with the distributional issues that arise. The Northern Economic Corridor, for instance, is built mostly on Laotian territory, but primarily benefits China and Thailand by providing these two relatively large economies with a better overland link. Regional coordination and cooperation are therefore crucial to ensure that such links are adequately provided, even when the costs and benefits are effectively borne by different parties. In this case, the project is largely financed on concessional terms by the Thai and Chinese governments. In addition, the Lao PDR has the right to collect a usage charge even on traffic originating in either of the other two countries.

The GMS transport corridors program provides a good example of the way in which transport upgrading can support a broader economic integration agenda. The principle lessons for policymakers can be distilled down to the following points:

- Identification of transport corridor projects should be based on a rigorous ex ante assessment of relative costs and benefits, and should be subject to ex post evaluation;
- Infrastructure upgrading needs to be accompanied by ancillary measures such as regulatory reform in transport services sectors, improved logistics, and simplified border crossing procedures;

- Financial mechanisms such as transfers, loans, or usage charges, should be considered if it is necessary to smooth out uneven distributions of costs and benefits across regional economies.

Logistics Services Liberalization: The Case of ASEAN [25]

ASEAN economies have set themselves the ambitious goal of an integrated single market by 2015, in the form of the ASEAN Economic Community. Although logistics services are not included in the 11 priority sectors identified in the 2004 *Framework Agreement for the Integration of Priority Sectors*, they are singled out for special mention in Article 10. ASEAN members commit to expedite the development of integrated logistics services in the region by promoting transport facilitation, improving transport infrastructure, strengthening maritime services, and creating a policy environment conducive to private sector involvement in the sector, including through private/public partnerships.

More recently, ASEAN's vision has evolved to treat logistics as part of the core integration agenda in their own right. The 2007 *Roadmap for the Integration of Logistics Services* effectively designates logistics as an additional priority sector. Preliminary analysis underlines the importance of logistics within the region, and the need for reform: more than 30% of total export logistics costs stem from regulation, with attendant delays reducing ASEAN trade by 30%-40%. Analysis of the Vientiane – Laem Chabang and Danang – Mukdaharn logistics corridors suggests that road transport—a combination of infrastructure and regulation—is a major issue in both cases, as are import/export formalities.

Economic analysis makes clear that a holistic approach is required to deal with the broad range of factors that affect logistics performance. The *Roadmap* recognizes this by identifying five core principles which can then be developed into a detailed set of actions and timeframes:

- Progressive liberalization of transport and logistics services sectors;
- Enhanced competitiveness of ASEAN logistics service providers through trade and logistics facilitation;
- Expanded capability of logistics services providers in ASEAN;
- Development of human capacities in the logistics sector; and
- Upgraded multimodal transport infrastructure and investment.

ASEAN's approach is notable for its ambition. It covers both physical and regulatory infrastructure, as discussed in this chapter. Indeed, it goes further by addressing the need to invest in sector-specific human capital as well. Each of the principles set out above is used as an organizing concept for a set of specific policy goals, each of which has designated implementing agencies within ASEAN, and a set timeline.

Although the *Roadmap* contains many of the elements necessary for enhancing the competitiveness of the transport and logistics sectors, it will be important for stakeholders to track closely the implementation of these commitments over time. Experience suggests that implementation is likely to be a complex task, intensive in international and inter-agency cooperation. Part of the difficulty in pursuing reform of the logistics sector stems from the dispersion of logistics services throughout different parts of the UN Central Product Classification, the most commonly used international schema for classifying services. This dispersion is mirrored at the regulatory level in the number of distinct agencies responsible for

[25] This case study draws on material from Banomyong et al. (2008), Hamanaka (2008), and Vitasa (2007).

various sectors. The *Roadmap* makes a substantial effort to draw these sectors together into a coherent view of what constitutes logistics for policy purposes. It thus includes measures directed at maritime, air, rail, and road transport, storage, and courier/packaging services, in addition to the customs and border control environment through which logistics service providers must navigate. Coordination at the national level will be vital in ensuring that initiatives in all of these areas work together.

ASEAN's experience in enhancing the performance of the logistics sector as part of a broader regional integration agenda suggests a number of useful lessons for policymakers:

- An enhanced logistics sector has the potential to significantly boost regional and international trade;
- Reform of the logistics sector needs to be broad-based, covering sectoral regulations, infrastructure, and the general trading environment;
- General principles should be backed up by detailed, precise commitments, with attribution of responsibility to implementing agencies, and verifiable timelines; and
- Coordination of actors at the national and international levels is vital to the success of reforms, given the dispersion of responsibilities and expertise across agencies.

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