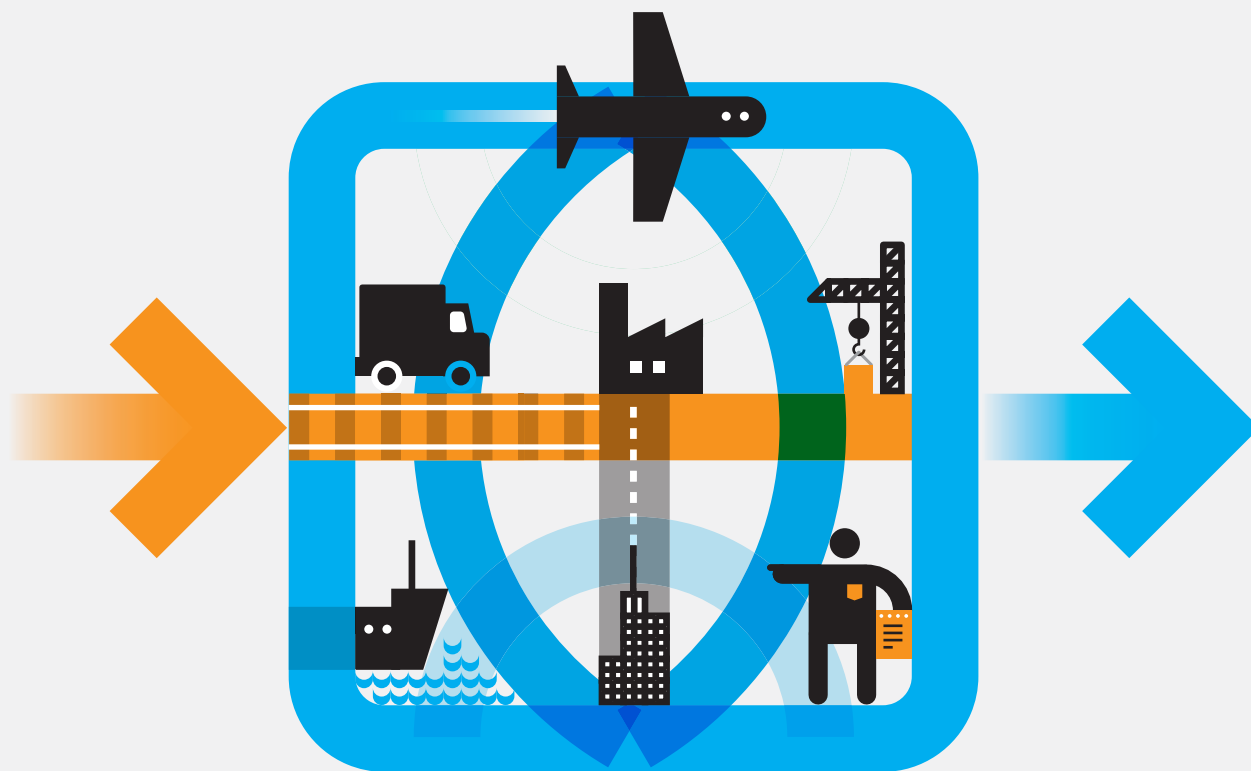


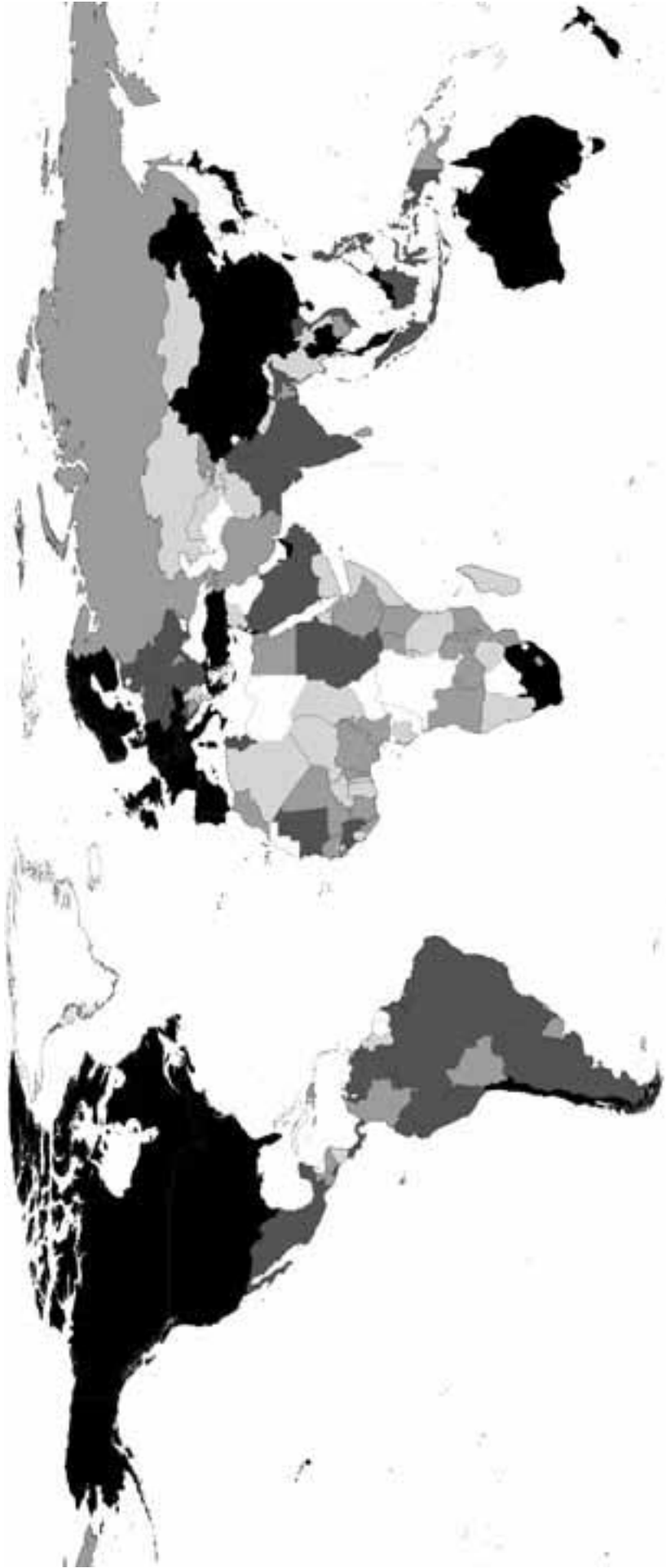
Connecting to Compete

Trade Logistics in the Global Economy



The Logistics Performance Index and Its Indicators

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Public Disclosure Authorized
Public Disclosure Authorized



■ LPI 1–2.29

■ LPI 2.53–3.14

□ No data

■ LPI 2.29–2.53

■ LPI 3.14–5

1 is the lowest score; 5 is the highest score.

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The Logistics Performance Index and Its Indicators

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Foreword

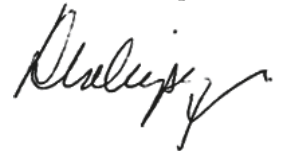
Technological progress and worldwide trade and investment liberalization are presenting new opportunities for countries to harness global markets for growth and poverty reduction. But with the advent of global supply chains, a new premium is being placed on being able to move goods from A to B rapidly, reliably, and cheaply. Being able to connect to what has been referred to as the “physical internet” is fast becoming a key determinant of a country’s competitiveness. For those able to connect, the physical internet brings access to vast new markets; but for those whose links to the global logistics web are weak, the costs of exclusion are large and growing. Whether a cause or a consequence, no country has grown successfully without a large expansion of its trade.

This report aims to shed light on how different countries are doing in the area of trade logistics, and what they can do to improve their performance. It is based on a worldwide survey of the global freight forwarders and express carriers who are the most active in international trade. The Logistics Performance Index (LPI) and its underlying indicators constitute a unique dataset to measure country performance across several dimensions of logistics and to benchmark that logistics performance against 150 countries. It provides the empirical basis to understand and compare differences in trade logistics as well as to inform policy with respect to difficult bottlenecks and tradeoffs. As a tool for policymakers, professionals, development agencies, and other stakeholders, it will directly support the fast-growing agenda for

reforms and investments in trade and transport facilitation.

The report provides some insights on the cost of poor logistics to country competitiveness—and the sources of those higher costs. Beyond cost and time taken to deliver goods, the predictability and reliability of supply chains is increasingly important in a world of just-in-time production sharing. Costs related to hedging against uncertainty are significant. Equally, cost and quality of logistics are determined not just by infrastructure and the performance of public agencies, but also by the availability of quality and competitive private services. Moreover, in many developing countries, problems of adverse geography are compounded by a weak modern services sector due to poor institutions or over-regulation. The report closes with some practical insights, advocating a comprehensive, integrated approach to ensure that actions in one area are not rendered ineffective by bottlenecks in another.

We hope that this initiative will be a valuable addition to the set of tools the World Bank provides to enable countries to assess and benchmark their performance in this critical area, and that it will, in a modest way, promote growth, poverty reduction, and economic development.



Danny Leipziger
Vice President and Head of Network
Poverty Reduction and Economic management

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This is the first report presenting the Logistics Performance Index (LPI) and indicators. The survey will be conducted each year to improve the reliability of the indicators and to build a dataset comparable across countries and over time.

The authors express their gratitude to the hundreds of employees of freight forwarding and express carrier companies around the world who took the time to respond to the survey. Their participation was central to the quality and credibility of the project, and their continuing involvement and feedback will be essential as we develop and refine the survey and the LPI in future years.

Authors

This report has been prepared under the leadership of Jean-François Arvis, Monica Alina Mustra, and John Panzer (sector manager) with a core team of external partners, including Lauri Ojala and Tapio Naula. Additional contributions were made by Julia Nielson (including help in drafting parts of the report) and Jean Pierre Chaffour. Liliya Repa contributed to the data analysis and the data appendix.

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Communications Development Incorporated provided overall design, editing, and layout, led by Bruce Ross-Larson, Laura Peterson Nussbaum, and Amye Kenall. Elaine Wilson created the graphics and typeset the book. Peter Grundy, of Peter Grundy Art & Design, provided the cover design. Monica Alina Mustra managed the publication process and the dissemination activities.

The work was conducted under the general guidance of Uri Dadush.

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Executive summary

Connecting to compete—trade logistics in the global economy—is critical for developing countries to harness global trade and reap the benefits of globalization. Success in integrating global supply chains starts with the ability of firms to move goods across borders rapidly, reliably, and cheaply.

The Logistics Performance Index (LPI) and its indicators provide the first in-depth cross-country assessment of the logistics gap among countries. Drawing on the first-hand knowledge of logistics professionals worldwide, it provides a comprehensive picture of supply chain performance—from customs procedures, logistics costs, and infrastructure quality to the ability to track and trace shipments, timeliness in reaching destination, and the competence of the domestic logistics industry.

Using a 5-point scale, the LPI aggregates more than 5,000 country evaluations. It is complemented by a number of qualitative and quantitative indicators of the domestic logistics environment, institutions, and performance of supply chains (such as costs and delays).

The LPI and its indicators point to significant differences in logistics performance across countries and regions. It reflects not only expected disparities between developed and developing countries, especially the least-developed, landlocked countries, but more important, significant differences among developing countries at similar levels of development. Countries that top the LPI ranking are typically key players in the logistics industry, while those at the bottom are often trapped in a vicious circle of overregulation, poor quality services, and underinvestment. Among developing countries, logistics overachievers are also those experiencing economic growth led by manufactured exports.

A key insight from the survey of logistics professionals is that, **while costs and timeliness are of paramount importance**, traders are primarily concerned with the overall reliability of the supply chain. Costs related to hedging against uncertainty have become a significant part of logistics costs in many developing

countries. Country performance is largely influenced by the weakest link in the supply chain: poor performance in just one or two areas can have serious repercussions on overall competitiveness.

Although much progress has been made in telecommunications and information technology, most logistics professionals are not satisfied with the quality of the physical infrastructure in many developing countries. **Even where customs has been modernized**, the coordination of border procedures between customs and other agencies remains an important concern. Logistics performance is more and more determined by the availability of quality, competitive private services—such as **trucking, customs brokering, and warehousing**.

The LPI suggests that policymakers should look beyond the traditional “trade facilitation” agenda that focuses on road infrastructure and information technology in customs to also reform logistics services markets and reduce coordination failures, especially those of public agencies active in border control. This demands a more integrated, comprehensive approach to reforms all along the supply chain.

Indeed, there are strong synergies among reforms to customs, border management, infrastructure, and transport regulations because reforms usually reinforce each other. **Countries performing well typically have a comprehensive approach that improves key factors in logistics performance in parallel**, while countries with a piecemeal approach tend not to demonstrate lasting improvements.

In turn, cross-cutting reforms need to be supported by broad constituencies. International companies can bring global knowledge, but the support of local exporters, operators, and public agencies is crucial.

The LPI rankings and indicators provide robust benchmarks that may help build the case for reform. By shining a light on the costs of poor logistics performance, the LPI and its indicators can help countries break out of the vicious circle of logistics unfriendliness to effectively access global markets.

Table 1 The first Logistics Performance Index

| Logistics Performance Index | | | Logistics Performance Index | | | Logistics Performance Index | | |
|-----------------------------|------|-------|-----------------------------|------|-------|-----------------------------|------|-------|
| Country | Rank | Score | Country | Rank | Score | Country | Rank | Score |
| Singapore | 1 | 4.19 | Romania | 51 | 2.91 | Senegal | 101 | 2.37 |
| Netherlands | 2 | 4.18 | Jordan | 52 | 2.89 | Côte d'Ivoire | 102 | 2.36 |
| Germany | 3 | 4.10 | Vietnam | 53 | 2.89 | Kyrgyz Republic | 103 | 2.35 |
| Sweden | 4 | 4.08 | Panama | 54 | 2.89 | Ethiopia | 104 | 2.33 |
| Austria | 5 | 4.06 | Bulgaria | 55 | 2.87 | Liberia | 105 | 2.31 |
| Japan | 6 | 4.02 | Mexico | 56 | 2.87 | Moldova | 106 | 2.31 |
| Switzerland | 7 | 4.02 | São Tomé and Príncipe | 57 | 2.86 | Bolivia | 107 | 2.31 |
| Hong Kong, China | 8 | 4.00 | Lithuania | 58 | 2.78 | Lesotho | 108 | 2.30 |
| United Kingdom | 9 | 3.99 | Peru | 59 | 2.77 | Mali | 109 | 2.29 |
| Canada | 10 | 3.92 | Tunisia | 60 | 2.76 | Mozambique | 110 | 2.29 |
| Ireland | 11 | 3.91 | Brazil | 61 | 2.75 | Azerbaijan | 111 | 2.29 |
| Belgium | 12 | 3.89 | Guinea | 62 | 2.71 | Yemen, Rep. | 112 | 2.29 |
| Denmark | 13 | 3.86 | Croatia | 63 | 2.71 | Burundi | 113 | 2.29 |
| United States | 14 | 3.84 | Sudan | 64 | 2.71 | Zimbabwe | 114 | 2.29 |
| Finland | 15 | 3.82 | Philippines | 65 | 2.69 | Serbia and Montenegro | 115 | 2.28 |
| Norway | 16 | 3.81 | El Salvador | 66 | 2.66 | Guinea-Bissau | 116 | 2.28 |
| Australia | 17 | 3.79 | Mauritania | 67 | 2.63 | Lao PDR | 117 | 2.25 |
| France | 18 | 3.76 | Pakistan | 68 | 2.62 | Jamaica | 118 | 2.25 |
| New Zealand | 19 | 3.75 | Venezuela, RB | 69 | 2.62 | Togo | 119 | 2.25 |
| United Arab Emirates | 20 | 3.73 | Ecuador | 70 | 2.60 | Madagascar | 120 | 2.24 |
| Taiwan, China | 21 | 3.64 | Paraguay | 71 | 2.57 | Burkina Faso | 121 | 2.24 |
| Italy | 22 | 3.58 | Costa Rica | 72 | 2.55 | Nicaragua | 122 | 2.21 |
| Luxembourg | 23 | 3.54 | Ukraine | 73 | 2.55 | Haiti | 123 | 2.21 |
| South Africa | 24 | 3.53 | Belarus | 74 | 2.53 | Eritrea | 124 | 2.19 |
| Korea, Rep. | 25 | 3.52 | Guatemala | 75 | 2.53 | Ghana | 125 | 2.16 |
| Spain | 26 | 3.52 | Kenya | 76 | 2.52 | Namibia | 126 | 2.16 |
| Malaysia | 27 | 3.48 | Gambia, The | 77 | 2.52 | Somalia | 127 | 2.16 |
| Portugal | 28 | 3.38 | Iran, Islamic Rep. | 78 | 2.51 | Bhutan | 128 | 2.16 |
| Greece | 29 | 3.36 | Uruguay | 79 | 2.51 | Uzbekistan | 129 | 2.16 |
| China | 30 | 3.32 | Honduras | 80 | 2.50 | Nepal | 130 | 2.14 |
| Thailand | 31 | 3.31 | Cambodia | 81 | 2.50 | Armenia | 131 | 2.14 |
| Chile | 32 | 3.25 | Colombia | 82 | 2.50 | Mauritius | 132 | 2.13 |
| Israel | 33 | 3.21 | Uganda | 83 | 2.49 | Kazakhstan | 133 | 2.12 |
| Turkey | 34 | 3.15 | Cameroon | 84 | 2.49 | Gabon | 134 | 2.10 |
| Hungary | 35 | 3.15 | Comoros | 85 | 2.48 | Syrian Arab Republic | 135 | 2.09 |
| Bahrain | 36 | 3.15 | Angola | 86 | 2.48 | Mongolia | 136 | 2.08 |
| Slovenia | 37 | 3.14 | Bangladesh | 87 | 2.47 | Tanzania | 137 | 2.08 |
| Czech Republic | 38 | 3.13 | Bosnia and Herzegovina | 88 | 2.46 | Solomon Islands | 138 | 2.08 |
| India | 39 | 3.07 | Benin | 89 | 2.45 | Albania | 139 | 2.08 |
| Poland | 40 | 3.04 | Macedonia, FYR | 90 | 2.43 | Algeria | 140 | 2.06 |
| Saudi Arabia | 41 | 3.02 | Malawi | 91 | 2.42 | Guyana | 141 | 2.05 |
| Latvia | 42 | 3.02 | Sri Lanka | 92 | 2.40 | Chad | 142 | 1.98 |
| Indonesia | 43 | 3.01 | Nigeria | 93 | 2.40 | Niger | 143 | 1.97 |
| Kuwait | 44 | 2.99 | Morocco | 94 | 2.38 | Sierra Leone | 144 | 1.95 |
| Argentina | 45 | 2.98 | Papua New Guinea | 95 | 2.38 | Djibouti | 145 | 1.94 |
| Qatar | 46 | 2.98 | Dominican Republic | 96 | 2.38 | Tajikistan | 146 | 1.93 |
| Estonia | 47 | 2.95 | Egypt, Arab Rep. | 97 | 2.37 | Myanmar | 147 | 1.86 |
| Oman | 48 | 2.92 | Lebanon | 98 | 2.37 | Rwanda | 148 | 1.77 |
| Cyprus | 49 | 2.92 | Russian Federation | 99 | 2.37 | Timor-Leste | 149 | 1.71 |
| Slovak Republic | 50 | 2.92 | Zambia | 100 | 2.37 | Afghanistan | 150 | 1.21 |

Overview: Connecting to compete

High logistics costs and—more particularly—low levels of service are a barrier to trade and foreign direct investment—and thus to economic growth

The increase in global production sharing, the shortening of product life cycles, and the intensification of global competition all highlight logistics as a strategic source of competitive advantage. Since the advent of modern trade several centuries ago, the international movement of goods has been primarily organized by freight forwarders, typically large networks of companies with worldwide coverage, capable of handling and coordinating the diverse actions required to move goods across long distances and international borders. More recently, the rise of express carriers and third-party logistics providers has expanded the scope of services available to traders. Freight forwarders and express carriers are at the heart of the present wave of globalization: they facilitate an ever-more demanding system that connects firms, suppliers, and consumers on what *The Economist* characterizes as “the physical internet.”¹ The physical internet is global, but the ability of countries to access it depends on the quality of their national infrastructure as well as the effectiveness of their policies and institutions.

Technological advances and economic liberalization have created new opportunities for countries to harness global markets for economic growth and development. But expanded supply chains and global production networks put a new premium on moving goods in a predictable, timely, and cost-effective way. Well connected countries can have access to many more markets and consumers: a country as distant from most major markets as Chile can be a major player in the high-end world food market, supplying fresh fish and perishable fruits to consumers in Asia, Europe, and North America. But for the poorly connected, the costs of exclusion are considerable and growing, and the risks of missed opportunities loom large, especially

for the poorest landlocked countries, many of them in Africa.

In this highly competitive world, the quality of logistics can have a major bearing on a firm’s decisions about which country to locate in, which suppliers to buy from, and which consumer markets to enter. High logistics costs and—more particularly—low levels of service are a barrier to trade and foreign direct investment and thus to economic growth. Countries with higher overall logistics costs are more likely to miss the opportunities of globalization.

Take landlocked Chad. Importing a 20-foot container from Shanghai to its capital N’jamena takes about ten weeks at a cost of \$6,500. Importing the same container to a landlocked country in western or central Europe would take about four weeks and cost less than \$3,000. The shipping costs and delays from Shanghai to Douala, the gateway for Chad, and to West European ports are essentially the same. And the same international freight forwarding company would handle the container from Douala to N’jamena and within Europe. But what accounts for the large difference in time and cost?

The answer lies in better processes, higher quality services, and the operating environment. The forwarder in Europe would use a seamless, paperless system to manage the inland shipment from its eight-hectare campus in the gateway port of Le Havre. The transport inside Europe would take less than three days. And to add value for its client and generate more business, the forwarder would provide additional services, such as improving the client’s internal distribution practices.

In Chad the process would be different. While only five days should be needed to move the container from Douala to N’jamena, the

The LPI suggests that there are strong synergies among reforms to customs, border management, infrastructure, and transport regulations

actual time would likely be as long as five weeks. In a difficult governance and security environment, the freight forwarding company would be trying simply to avoid a breakdown in its client's supply chain. It would maintain company staff along the trade corridor to physically track the goods and trade documents. And it would have to be ready to mediate with the trucking syndicate, the security forces, and myriad government agencies.

Freight forwarders and express carriers are in a privileged position to assess how countries perform on logistics. They manage operations from factory and warehouse to port, from port to overland transit, and through one or more borders to destination, with each link testing a country's logistics infrastructure performance. The logistics performance survey taps the first-hand knowledge of the operational staff of logistics companies worldwide.

Complementing existing international sets of competitiveness indicators—such as the World Bank's *Doing Business* measures and the World Economic Forum's *Global Competitiveness Index*—the Logistics Performance Index and its indicators propose a comprehensive approach to supply chain performance. It provides the first in-depth cross-country assessment of the logistics gap and constraints facing countries. It elaborates on several areas of performance, such as trade procedures, infrastructure, services, and reliability. Based on a 1 to 5 scale (lowest to highest performance), it aggregates more than 5,000 country evaluations by professionals trading with the country on various dimensions of performance. These evaluations, by individuals located outside the country being evaluated, are used to compute the Logistics Performance Index (LPI) and its underlying indicators (table 1 and appendix table A1).

In addition to the LPI, for each country, the survey combines qualitative and quantitative assessments of the domestic logistics environment, institutions, and performance of domestic supply chains (costs, delays) by international professionals located in the country evaluated (appendix tables A2 and A3). This additional information is used to reinforce and interpret the results of the LPI and underlines the major

messages about priorities for reform and effective ways of reforming.

The LPI and its indicators underscore significant differences in logistics performance across countries and regions. These differences reflect the disparities between developed and emerging economies (such as Singapore, which ranks first) and other developing countries, especially the least-developed or landlocked countries (Afghanistan ranks last). Countries that top the LPI rankings are typically hubs and/or key players in the logistics industry.

While performance outcomes such as domestic costs or the time taken to reach a destination are important, traders mostly value the performance of logistics services available to them: reliability and predictability of the supply chain matter most. For example, traditional measures of performance such as direct freight costs and average delays, while important, may not capture the overall logistics performance and thus the ability of countries to use trade for growth. The predictability and reliability of shipments, while more difficult to measure, are more important for firms and may have a more dramatic impact on their ability to compete.

Indeed, professionals view the friendliness of border processes primarily in terms of the transparency and the predictability of clearance procedures. Even where countries have already implemented a customs modernization program, the coordination of border procedures between customs and other agencies (responsible say, for sanitary and phytosanitary standards) is an important concern. The availability and competence of trucking, customs brokering, and warehousing services are also critical performance factors that vary widely across countries. While telecommunications and information technology infrastructure, increasingly the key to successful trade operations, have improved rapidly in most countries, most professionals remain concerned about the quality of physical infrastructure.

In terms of the way forward, the LPI suggests that there are strong synergies among reforms to customs, border management, infrastructure, and transport regulations. Reforms in these different areas have a mutually

reinforcing effect along all links in the logistics supply chain, directly contributing to predictability and performance. Countries performing well have a comprehensive approach, improving all the key logistics in parallel, while those with a piecemeal approach, targeting a single link in the logistics chain, may see initial results but no lasting improvements. A comprehensive reform of logistics and trade facilitation is thus essential. But too few developing countries have created a virtuous circle of improvements. Countries at the bottom of the LPI ranking are typically trapped in a vicious circle of overregulation, poor quality services, and underinvestment.

The LPI suggests that policymakers should look beyond the traditional “facilitation agenda” focused on trade-related infrastructure and information technology in customs. To close the logistics gap, they should also look to reforms in the markets for logistics services, reduce coordination failures (especially those of public agencies active in border control), and build strong domestic constituencies to support reform. This effort will demand a more integrated, comprehensive approach to reforms all along the supply chain. For the most severely constrained countries—typically landlocked countries in Africa and Central Asia—innovative solutions may need to be found, and international donors will have an important role.

The LPI rankings and indicators provide robust benchmarks that may help policymakers—and particularly the private sector—build the

case for reform. By showing countries how they compare with their competitors, and shining a light on the costs of poor logistics performance, it is hoped that the LPI and its indicators may help countries break out of the vicious circle of “logistics unfriendliness”. In identifying the key areas of problems and constraints, the LPI and its indicators also aim to help guide the preparation of the more in-depth, country-specific assessments and strategies, such as trade and transport facilitation audits (Raven 2001), that will be needed to generate concrete improvements in logistics performance.

Section 1 introduces the overall concept of the LPI and the methodology underlying its construction. It also presents examples that point to some of the critical factors behind a country’s logistics performance. It introduces a broad typology of country groups, revealing the large disparities in performance among countries at similar incomes. It examines this logistics gap and shows that good logistics performers experience greater and more diversified trade flows. Section 2 draws upon the qualitative information provided by international operators based in the countries being evaluated to provide insights on the key institutions and processes determining logistics performance and analyzes the importance of reliability in logistics performance for competitiveness. Section 3 offers some ideas on the way forward for policymakers and development agencies, setting priorities for comprehensive reforms according to the current level of performance.

Countries performing well have a comprehensive approach, improving all the key logistics in parallel, while those with a piecemeal approach, targeting a single link in the logistics chain, may see initial results but no lasting improvements

Measuring logistics performance

International logistics encompasses an array of actions, from transportation, consolidation of cargo, warehousing, and border clearance to in-country distribution and payment systems

Improving logistics performance has become an important development policy objective. The performance of customs, trade-related infrastructure, inland transit, logistics services, information systems, and port efficiency are all critical to whether countries can trade goods and services on time and at low cost. And this trade competitiveness is central to whether countries can harness globalization's new opportunities for development.

Governments, often at the urging of the private sector, are now ramping up projects to facilitate trade and transportation, supported by increased assistance from the World Bank and other development agencies. But the scarcity of performance indicators to benchmark and assess country logistics performance is making it difficult for policymakers and private sector stakeholders to quantify the constraints they face in connecting to global markets and also to inform and reinforce constituencies for reform.

International logistics encompasses an array of actions, from transportation, consolidation of cargo, warehousing, and border clearance to in-country distribution and payment systems.

This sequence cannot be easily summarized in a single indicator. Nor is it easy to collect on a global basis the information to build a performance measure. Information on time and costs associated with some important logistics processes—such as port time, time to clear customs, and transport—provides a good starting point and in many cases is readily available. But this information, even when complete, cannot be easily aggregated in a single consistent cross-country dataset because of essential differences in the supply chain structure among countries.

Perhaps more important, many critical elements for good logistics performance—such as the transparency of processes and the quality, predictability, and reliability of services—cannot be captured from the information available on time and costs. So the World Bank, with its professional and academic partners, has produced the (first) Logistics Performance Index (LPI) to start closing the knowledge gap and help countries develop logistics reform programs to enhance their competitiveness. The LPI complements existing measures of competitiveness (box 1.1).

Box 1.1

The LPI and other international indicators

The International Finance Corporation and the World Bank jointly maintain the *Doing Business* database. This major initiative provides objective measures of business regulations and enforcement (www.doingbusiness.org). *Doing Business 2008* presents quantitative indicators on business regulations and the protection of property rights that can be compared across 175 economies and over time.

For trade activities, *Doing Business* focuses on red tape obstacles to the movement of goods across borders and the ease of export and import for small and medium sized enterprises. It looks, for example, at the number of documents and signatures for imports and exports. The LPI uses a broader and comprehensive approach to supply-chain performance to measure some of the critical factors of trade logistics performance, including the quality of infrastructure and logistics services, the security of property from theft

and looting, the transparency of government procedures, macroeconomic conditions, and the underlying strength of institutions.

The Global Competitiveness Index 2006–2007 (GCI), produced by World Economic Forum (www.weforum.org), is a composite index based on macro and micro data as well as interviews with key business and societal stakeholders featuring the 12 pillars of competitiveness. It contains detailed profiles of 125 economies and data tables with global rankings covering more than 100 indicators in nine areas: institutions, infrastructure, macroeconomy, health and primary education, higher education and training, market efficiency, technological readiness, business sophistication, and innovation. Several indicators are directly relevant to trade facilitation and logistics.

The added value of the LPI is that it provides a global benchmark of logistics efficiency and service quality not treated specifically in the GCI or in *Doing Business*.

The Logistics Performance Index and its indicators are based on a survey of multinational freight forwarders and express carriers—professionals whose views matter

The Logistics Performance Index and its indicators

The Logistics Performance Index and its indicators have been constructed from information gathered in a worldwide survey of the companies responsible for moving goods and facilitating trade around the world—the multinational freight forwarders and the main express carriers. It relies on the experience and knowledge of professionals. Their views matter: they have a direct impact on the choice of shipping routes and gateways and can influence the firms' decisions about the location of production, choice of suppliers and selection of target markets.

The indicators summarize the performance of countries in seven areas that capture the current logistics environment (box 1.2). They range from traditional areas such as customs procedures, logistics costs (such as freight rates), and infrastructure quality to new areas like the ability to track and trace shipments, timeliness in reaching a destination, and the competence of the domestic logistics industry. None of these areas alone can ensure good logistics performance. The selection of these areas is based on the latest theoretical and empirical research² and on extensive interviews with logistics

professionals involved in international freight logistics.³ The LPI synthesizes this information in a composite index to allow for comparisons (see appendix table A1).

The LPI and its indicators are given on a numerical scale, from 1 (worst) to 5 (best). This scale can also be used to interpret performance outcomes measures. For example, the analysis based on the additional country information gathered in the survey, indicates that, on average, having an LPI lower by one point (say, 2.5 rather than 3.5) implies six additional days for getting imports from the port to a firm's warehouse and three additional days for exports. It also implies that a shipment is five times more likely to be subject to a physical inspection at entry.

Assessing the performance gap

Countries that top the LPI rankings are major global transport and logistics hubs (Singapore) or the base for a strong logistics service industry (Switzerland). Logistics services in these countries tend to benefit from economies of scale and are often sources of innovation and technological change. The scores for the top performers are fairly close, yet in many cases the differences are statistically significant (box 1.3).

Box 1.2 Building the Logistics Performance Index

The Logistics Performance Index (LPI) is built on information from a web-based questionnaire completed by more than 800 logistics professionals worldwide—the operators or agents of the world's largest logistics service providers. Each respondent was asked to rate performance in seven logistics areas for eight countries with which they conduct business. For each respondent, the eight countries were automatically generated by the survey engine based on trade flows, income level, geographical position of respondent countries (coastal or landlocked), and random selection.⁴ The country selection matrix is presented in technical note 1. Performance was evaluated using a 5-point scale (1 for the lowest score, 5 for the highest).

The seven areas of performance are:⁵

- Efficiency of the clearance process by customs and other border agencies.
- 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.
- Timeliness of shipments in reaching destination.

More than 5,000 individual country evaluations were used to prepare the Logistics Performance Index, which covers 150 countries (see appendix table A1). The LPI was aggregated as a weighted average of the seven areas of logistics performance.⁶ The index is constructed using the Principal Component Analysis method in order to improve the confidence intervals.

Each respondent was also asked to evaluate the logistics performance and the environment and institutions in support of logistics operations in the country in which they are based (appendix table A2) and to provide time and cost data (appendix table A3). This wealth of additional information on different aspects of logistics was used to interpret the LPI as well as validate and cross-check the information underlying the LPI. The questionnaire is available at www.worldbank.org/lpi.

Box 1.3

How precise is the LPI estimate?

The LPI is a robust combination of the various dimensions from the international assessments, built by standard econometric techniques to maximize significance and improve confidence intervals, which are computed at a 10 percent level. The average confidence interval on the 1–5 scale is 0.16, the equivalent of eight places in the LPI ranking. These calculated intervals are larger for small markets that have few respondents. For instance, Mauritius has a surprisingly low ranking (137), but a wide confidence interval of 0.25. An upper-range reading of its index would give it the same ranking as Sri Lanka (97).

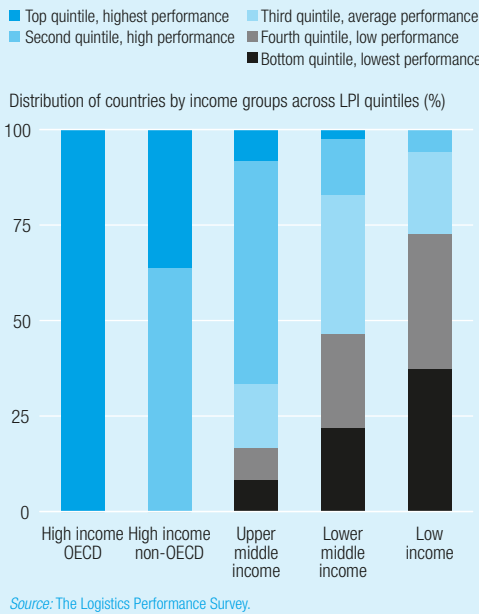
At the other extreme are low-income countries, often landlocked and geographically isolated, or countries afflicted by conflict or severe governance problems. Landlocked developing countries, especially in Africa and Central Asia, are the most logistically constrained. They typically suffer not only from geographical disadvantages resulting in high transport costs and delays but also from limited access to competitive markets for logistics services and dependence upon the performance of other transit countries.

While all developed countries are top performers, there are significant differences among developing countries at similar incomes (figure 1.1). For example, China—a middle income country—ranks 30th of 150, while countries in higher income groups, such as oil producers, perform below their potential. Moreover, countries doing fairly well in logistics are also likely to do well in growth and competitiveness, export diversification, and trade expansion, as discussed further below.

For developing countries where trade has been an important factor in accelerating growth, logistics performance is also significantly better than in other countries at similar incomes. Examples include South Africa (24), Malaysia (27), Chile (32), and Turkey (34) among the upper middle income countries; China (30) and Thailand (31) among the lower middle income; and India (39) and Vietnam (53) among the low income (table 1.1).

Figure 1.1

High income countries are generally top performers, but there are big differences between countries at other income levels



Many of the oil exporting countries tend to underperform logistically

Overachievers and underachievers: Examples of the logistics gap

Performance is assessed against comparable countries, notably those at similar levels of development (figures 1.2 and 1.3). Overachievers and underachievers can be identified by whether they exhibit a positive or negative LPI gap compared with their potential, extrapolated from their level of development (gross national income per capita).

Many of the oil exporting countries tend to underperform logistically. Algeria (140) lags significantly behind its neighbors Tunisia (60) and Morocco (94). The same applies to Bahrain (36), Saudi Arabia (41), Kuwait (44), and Qatar (46), which underperform relative to the rest of the high income group. One reason for this may be the relative absence in these countries of incentives and pressure from the private sector to implement institutional reforms for trade and transport—reflecting the dominance of oil in their exports. By contrast, for some emerging economies where export-oriented manufacturing has been a major factor in growth, the private sector has been a prime proponent of logistics reforms.

Table 1.1 Top 10 countries, by income group

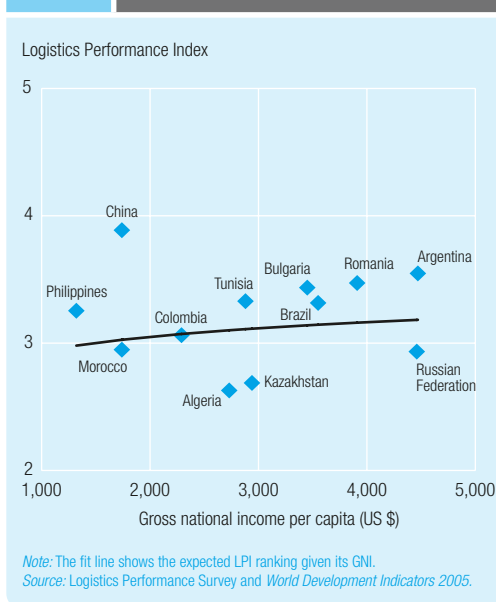
| Top 10 countries Upper middle income | | | Top 10 countries Lower middle income | | | Top 10 countries Low income | | |
|---|--------------------------------|-------|---|--------------------------------|-------|--------------------------------|--------------------------------|-------|
| Country | Logistics Performance Index | | Country | Logistics Performance Index | | Country | Logistics Performance Index | |
| | Rank | Score | | Rank | Score | | Rank | Score |
| South Africa | 24 | 3.53 | China | 30 | 3.32 | India | 39 | 3.07 |
| Malaysia | 27 | 3.48 | Thailand | 31 | 3.31 | Vietnam | 53 | 2.89 |
| Chile | 32 | 3.25 | Indonesia | 43 | 3.01 | São Tomé and Príncipe | 57 | 2.86 |
| Turkey | 34 | 3.15 | Jordan | 52 | 2.89 | Guinea | 62 | 2.71 |
| Hungary | 35 | 3.15 | Bulgaria | 55 | 2.87 | Sudan | 64 | 2.71 |
| Czech Republic | 38 | 3.13 | Peru | 59 | 2.77 | Mauritania | 67 | 2.63 |
| Poland | 40 | 3.04 | Tunisia | 60 | 2.76 | Pakistan | 68 | 2.62 |
| Latvia | 42 | 3.02 | Brazil | 61 | 2.75 | Kenya | 76 | 2.52 |
| Argentina | 45 | 2.98 | Philippines | 65 | 2.69 | Gambia, The | 77 | 2.52 |
| Estonia | 47 | 2.95 | El Salvador | 66 | 2.66 | Cambodia | 81 | 2.50 |

Morocco and Tunisia. Close to the EU market, both Morocco and Tunisia have developed manufacturing activities as part of production chains with European multinational corporations, in areas such as garments, auto parts, and electronics (figure 1.2). Policymakers in both countries have been very sensitive to logistics reform and investments in ports, customs, and foreign participation in logistics services.

So, why does Morocco (94) score lower on the LPI than Tunisia (60) and other competitors, such as Romania (51) and Bulgaria (55)?

While implementing exemplary customs and port reforms, Morocco has not yet reaped the benefits of recent measures to develop the domestic logistics industry, notably trucking and warehousing (Arvis, Bellier, and Raballand 2006). At the same time, Tunisia not only implemented some of the core reforms earlier than Morocco but also developed an electronic data interchange system that dramatically simplified the customs clearance process by integrating several procedures. And their Eastern European competitors have directly benefited from the EU accession process.

Figure 1.2 Performance of selected middle income countries



Nigeria, Senegal, and Ghana. Among the low income countries (figure 1.3), Senegal (105) and Ghana (129) rank significantly lower than Nigeria (97). Senegal and Ghana have both implemented rather successful customs reform, with the African showcase of IT systems for revenue agencies (Gainde in Senegal and CGnet in Ghana) to improve customs clearing (De Wulf and Sokol 2004). By contrast, Nigeria initiated its customs reforms only recently. Forwarders praise the clearance system in Senegal (76 on border processing), but are overwhelmingly negative for Nigeria (96 on border processing). However, they have the opposite opinion for the quality of support services (such as ports and trucking), where Nigeria has benefited from efficient port operations, thanks to privatization of the main container terminals.

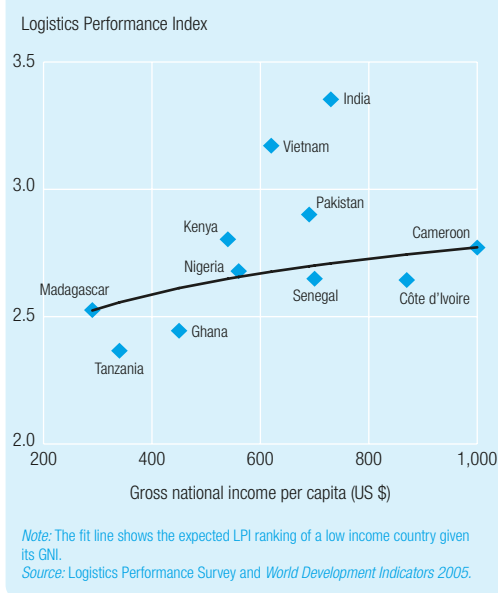
Significant differences can be observed even among countries facing the most severe logistical challenges—landlocked countries in Africa and Central Asia. In East Africa, Uganda, Malawi, and Zambia are landlocked, yet they rank among the top 15 performers of the 39 Sub-Saharan African countries. Each is served by a fairly efficient logistics industry operating in a reasonably competitive environment. Malawi and Zambia also benefit

from being connected to the South African gateway. By contrast, landlocked countries in West and Central Africa ranked lower in the index are poorly served by a fragmented and largely overregulated services industry (characterized by practices such as the *tour de role*).⁷

Uganda, Malawi, and Zambia are landlocked, yet they rank among the top 15 performers of the 39 Sub-Saharan African countries

The LPI gap, trade, and FDI: Good logistics performers benefit more from globalization

Figure 1.3 Performance of selected low income countries



The LPI gap (the difference between a country's actual LPI ranking and its expected ranking based on its level of income) also highlights the association between logistics performance and trade and foreign direct investment (FDI) outcomes. Good logistics performers benefit more from globalization. Logistically friendly countries are more likely to have better global value chain integration and attract export-oriented FDI. Since trade and FDI are the key channels for the international diffusion of knowledge, poor logistics may impede access to new technology and know-how and slow the rate of productivity growth. Conversely, increased trade creates demand for good logistics, putting pressure on facilitating reforms and sustaining a market for modern services.

This is demonstrated by cross-country analyses of the relationship between growth, export

Figure 1.4 Logistics performance is associated with the diversification of exports, 2005



Source: UNCOMTRADE and authors' calculations.

Figure 1.5 Trade expansion of non-oil-exporting developing countries and logistics performance, 1992–2005



diversification, or trade expansion, and the LPI. Countries ranked highly on the LPI also tended to have more diversified exports. For non-oil-exporting developing countries the standard

deviation of this gap is 0.3, while overachievers have a LPI gap of at least 0.5 (figure 1.4).

Likewise, countries undergoing trade expansion (increasing trade—imports and exports—to GDP) tended to also be those outperforming on the LPI relative to their level of income (those with a positive LPI gap). A logistics overachiever with an LPI gap of 0.5 experiences 2 percent more trade expansion, 1 percent more annual growth, or export 40 percent more variety of products (figure 1.5 and technical note 2) than other countries at the same income level.

These significant correlations should be interpreted in terms of their association rather than causality. Improvements in the supply chain contribute significantly to competitiveness by reducing transaction costs. At the same time, a growing, diversifying economy is likely to have the will and the means to improve its logistics performance.

Countries seeking to benefit more from globalization need to identify the key aspects of logistics performance, in particular in terms of their impact on competitiveness. This is the subject of the next section.

Reliability is the biggest concern of logistics professionals

To provide a more complete picture of the key factors determining logistics performance, the Logistics Performance Survey asked logistics professionals about the institutions and processes supporting logistics operations in the countries they are based in (table 2.1). It asked them to assess critical attributes of the supply chain including: timeliness of deliveries, quality of transport and IT infrastructure, efficiency of border clearance processes, competence of the local logistics industry, and domestic costs of services (see appendix table A2) as well as provide time and cost data (appendix table A3).

The questions delved into the quality of infrastructure, the competence of private and public logistics service providers, the roles of customs and other border agencies, such governance issues as corruption and transparency, and the reliability of the trading system and supply chains.⁸ Reliability (measured by the predictability of the clearance process and the timely delivery of shipments) emerged as a key concern,

with the difference in satisfaction between the high and low performing countries much larger than for any other question in the survey. Some of the reasons for this are discussed at the end of this section.

Factors determining logistics performance

Quality of infrastructure. Telecommunications and IT infrastructure are an essential component of modern trade processes. The physical movement of goods now entails the efficient and timely exchange of information. In countries in the LPI's top two quintiles, logistics operators rarely have any issues with the quality of the telecommunications and IT infrastructure, but close to half of them express concerns in countries ranging from average to lowest performers. In Sub-Saharan Africa 43 percent of respondents see this as an issue (appendix table A2).

Table 2.1 How logistics professionals assess institutions and processes

Percent of respondents

| | Top quintile Highest performance | Second quintile High performance | Third quintile Average performance | Fourth quintile Low performance | Bottom quintile Lowest performance |
|---|--|--|--|---------------------------------------|--|
| Concerned about the quality of telecommunications and IT infrastructure | 6 | 7 | 41 | 27 | 46 |
| Concerned about the quality of the physical transport infrastructure (ports, roads, warehouses) | 17 | 28 | 59 | 46 | 57 |
| Satisfied with customs | 55 | 32 | 19 | 18 | 11 |
| Satisfied with other border government agencies | 38 | 13 | 10 | 9 | 18 |
| Satisfied with private logistics services ^a | 59 | 34 | 18 | 16 | 11 |
| Satisfied with professional organizations | 46 | 28 | 6 | 21 | 17 |
| Concerned with frequent solicitation of informal payments | 6 | 23 | 34 | 49 | 56 |
| Satisfied with transparency of border processes ^b | 72 | 44 | 38 | 33 | 26 |
| Imports cleared and delivered as scheduled | 87 | 69 | 32 | 39 | 13 |

a. Aggregation of customs brokers, distributors, and road operators.

b. Aggregation of the results on the predictability of changes in regulations and transparency of customs clearance process.

Source: Logistics Performance Survey, appendix table A2, appendix table A3.

The way the local market for logistics services is regulated directly affects a country's ability to use the physical internet to connect to global markets

The quality of transport infrastructure remains a concern in close to or more than half of the logistics operators in average, low, and lowest performers. That concerns also exist in even the highest and high performing countries reflects the challenge of maintaining physical infrastructure at a level able to satisfy rapidly growing demands.

Competence of private and public logistics service providers. The performance of the supply chain depends on the quality of services delivered by the private sector through customs brokers and road transport operators—and on the competence and diligence of public agencies in charge of border procedures. In these areas, the three bottom quintiles generally fare much worse than the top quintile, and the differences in quality are as significant as those for infrastructure (see table 2.1). For example, the satisfaction with customs brokers is fairly high for the upper middle income countries (around 50 percent), but it is only 8 percent for private providers in Sub-Saharan Africa (see appendix table A2). For the lower performers, the dissatisfaction with the quality of trade logistics services applies to both the private and public sector. In those countries where logistics performance is high, there is more satisfaction with private providers than with public providers. The negative view of private providers in the lower performers is an important insight. Too often in developing countries, and notably in Africa, inadequate regulations and the absence of competition lead to corruption or poor services—such as those provided by “suitcase businessmen” at border posts. Often the mere presence of these operators disturbs the clearance process and hinders the emergence of competent local logistics operators who can work with international operators.

Customs and other border agencies. Clearance at the border is not only a matter of customs diligence. Law enforcement agencies and ministries of agriculture and industry also intervene in the process. Customs performance tends to be better than that of other border agencies; on average, customs clearance accounts for a third

of import time (box 2.1). This underscores the importance of addressing the coordination of border agencies, especially in countries that already have attained good customs clearance.

Corruption and transparency. Logistics performance also depends on broader policy dimensions, including the overall business environment, the quality of regulation for logistics services, and most important, on overall governance. The way the local market for logistics services is regulated directly affects a country's ability to use the physical internet to connect to global markets. The transparency of government procurement, the security of property from theft and looting, the macroeconomic conditions, and the underlying strength of institutions are critical factors in determining logistics performance. Unsurprisingly, ratings of the domestic environment in such areas as corruption and the transparency of processes and regulation reflect these findings. The rating for transparency of border processes consistently declines along with LPI scores for these groups of countries: poor performers in the LPI were also poor performers on transparency of border processes (see table 2.1). Solicitation of informal payments is rare among the top 30 countries but common among lower performers (close to or more than 50 percent of responses).

Reliability of the trading system and supply chains. For traders at the origin or the destination of the supply chain, what matters most is the quality and reliability of logistics services, measured by the predictability of the clearance process and timely delivery of shipments to destination. The difference in satisfaction between the high and low performing countries on this question is much larger than for any other question in the survey. Performance data derived from the survey on the time (days) for delivery of goods confirms the same phenomenon (box 2.2).

Taken together, all these factors—quality of infrastructure, the competence of private and public logistics service providers, the roles of customs and other border agencies, governance issues such as corruption and transparency, and

Clearance processes by customs and other agencies are among the most important links in the global supply chain. Key facilitation principles have been addressed by several international agreements (Kyoto convention, GATT, and the current negotiations on trade facilitation at the WTO). In the Logistics Performance Survey, logistics professionals provide in-depth evaluations in this critical area, across countries (appendix table A2 and appendix table A3).

The Logistics Performance Survey results show a high degree of IT use in Africa, 55 percent, a credit to UNCTAD's Asycuda program and some homegrown projects. Preshipment inspection is a major source of delays in Africa (56 percent) and Latin America (43 percent). Physical inspections and the time needed for clearance are also strongly associated with overall logistics performance. But only one-third of the time to import is explained by the customs process, the rest by transportation, handling, or delays caused by private operators.

Customs and border processing performance, by region

| Percent | OECD high income | Non-OECD high income | East Asia & Pacific | Europe & Central Asia | Latin | Middle East & North Africa | South Asia | Sub-Saharan Africa |
|---|------------------|----------------------|---------------------|-----------------------|---------------------|----------------------------|------------|--------------------|
| | | | | | America & Caribbean | | | |
| Estimated percentage of physical inspections | 3 | 22 | 22 | 14 | 25 | 45 | 36 | 48 |
| Respondents agreeing that traders demonstrating high levels of compliance receive expedited customs clearance | 54 | 25 | 41 | 51 | 42 | 42 | 57 | 17 |
| Respondents able to use IT to submit customs declaration | 70 | 42 | 28 | 46 | 58 | 53 | 50 | 55 |
| Time (days) and cost (US\$) | | | | | | | | |
| Time between accepted customs declaration and customs clearance | 1.0 | 1.7 | 2.1 | 1.7 | 2.7 | 1.9 | 2.4 | 4.2 |
| Average time to export | 2.4 | 2.9 | 3.9 | 2.8 | 3.9 | 3.7 | 3.6 | 8.1 |
| Average time to import | 3.2 | 3.6 | 4.4 | 3.5 | 4.8 | 6.0 | 6.5 | 12.3 |
| Cost to import a 40-foot container or a semi-trailer (US\$) | 663 | 572 | 819 | 936 | 1,000 | 609 | 880 | 2,124 |

Source: Logistics Performance Survey, appendix table A2, and appendix table A3.

The Logistics Performance Survey captures the time to import and export and, more important, the dispersion in time as a measure of predictability. Delays tend to increase with lower overall performance, but also with unpredictability. The effect is much

stronger in some countries in the bottom quintile—not only in poor landlocked countries, such as Chad, but also in coastal Tanzania and Benin, which have import times of more than a week.

Customs and border processing performance, by quintile

| | Top quintile Highest performance | Second quintile High performance | Third quintile Average performance | Fourth quintile Low performance | Bottom quintile Lowest performance |
|--|-------------------------------------|-------------------------------------|---------------------------------------|------------------------------------|---------------------------------------|
| Best time to import (best decile of shipments) | 1.9 days | 2.1 days | 3.7 days | 4.6 days | 6.1 days |
| Median time to import | 3.2 days | 3.9 days | 5.4 days | 7.1 days | 13.6 days |

Source: Logistics Performance Survey and appendix table A3.

Suppliers to the same automobile manufacturer will carry 7 days of inventory in Italy but 35 days in Morocco. Some retailers in African countries maintain three months of inventories or more

the reliability of the trading system and supply chains—confirm once again that logistics performance is about predictability (see table 2.1). Predictability is central to the overall costs that companies incur in logistics and thus to their competitiveness in global supply chains.

Logistics and competitiveness: Why predictability and reliability matter more than costs

Just as strong logistics performance is associated with increased trade in developing countries (section 1), firm-level competitiveness is extremely sensitive to the quality of the logistics environment in which it operates. A firm’s competitiveness is influenced by cost and performance of its supply chain and thus depends on the overall logistics environment—but the main impact is less through cost than through the predictability of the deliveries.

Firms have to bear the direct costs associated with moving goods, such as freight costs, port and handling charges, procedural fees (such as bonds), agent fees, and side payments. But they also have to absorb the induced costs associated with hedging for the lack of predictability and reliability of the supply chain (Arvis and others 2007) (figure 2.1). They may need to carry higher inventories of supplies or finished products, or switch to more expensive modes of transportation to be sure to meet delivery schedules (Guasch 2003).

Induced costs are inversely related to predictability and also tend to rise steeply with declining logistics performance. For example, suppliers to the same automobile manufacturer will carry 7 days of inventory in Italy but 35 days in Morocco. Some retailers in African countries maintain three months of inventories or more. Bangladesh has to ship, on average, 10 percent

of its garment production by air to be certain to meet the schedules of European buyers.

The high induced costs of unpredictability in the international supply chain are a major constraint for companies and countries trying to diversify into higher value production. In global production chains countries face a double challenge of maintaining an efficient chain not just for exports but also for imported inputs and components. This can be a particular burden for least developed countries, where inputs often cannot be sourced regionally.

Improvements in the quality of the supply chain can thus open new opportunities to entrepreneurs, even in otherwise constrained countries. Southern Mali and Burkina Faso can consider diversifying into exports of fresh mangoes (three-week shelf life) as well as cotton exports (typically stored at ports for months), thanks to greater cooperation between local operators and international logistics providers and better performance of the railroad from Abidjan, following a well executed privatization program.

Induced costs in countries with good logistics performance are much lower than those for countries with low logistics performance (figure 2.2), differences that can determine a

Figure 2.1 Structure of logistics costs supported by traders

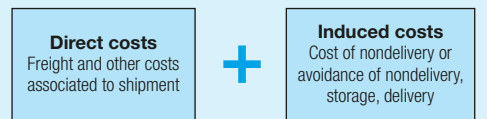
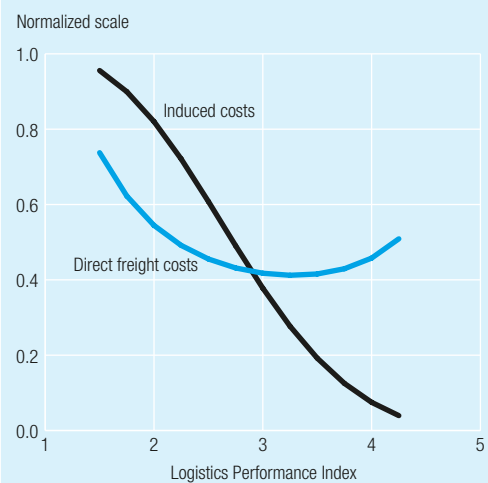


Figure 2.2 Direct freight costs versus induced costs assessed by respondent



Note: The normalized scale is a nonmonetary measure of the relative level of costs across countries, as assessed by respondents in the survey. The curves are fitted to a logistics model, with a utility quadratic in the LPI. Induced costs = percent of respondents saying that import shipments are not cleared and delivered on time. Direct costs = percent of respondents saying that overall direct logistics costs are high by international standards.

product's competitiveness in international markets. By contrast, direct logistics costs tend to be much more similar across countries and across different logistics performance levels. They are less of a differentiating factor in a country's ability to compete. Domestic freight services are tradable, at least regionally. The costs of capital and some direct inputs, such as fuel, are also fairly comparable, even in countries at very different levels of development. For developing countries the lower cost of labor may be offset by lower productivity, hence the U curve for direct costs.

Excluding landlocked countries, the average inland costs (port and hauling) of importing a 40-foot container or semi-trailer, for all countries in the survey, is about \$700: typically 1.5 percent of the value of goods or the equivalent of two weeks of inventories, much less than the actual costs in many developing countries once large induced costs are factored in.⁹ This average masks wide differences. Large coastal countries, such as Russia and the United States, have higher costs due to long domestic distances. Other countries are primarily trading overland, as in Eastern Europe, increasing the costs.

Higher overall import costs are observed in low logistics performers. In Africa, even in the larger coastal economies of Nigeria and Kenya, the cost of importing or exporting a 40-foot container is in excess of \$2,000. Costs are also

increased by the low economies of scale for multimodal infrastructure or structural imbalances of volumes of trade along corridors. In some regions, especially in Africa and Central Asia, the freight costs are augmented by a proliferation of official and unofficial payments. In western Africa facilitating payments and mandatory procedural fees double the direct cost of transportation (Arvis and others 2007).

The competitive position of countries at an intermediate development level tends to be eroded if they have low logistics performance and thus much higher induced costs. Firms in lowest performing countries are even worse off, since they have to support both high freight costs and very high induced costs (see figure 2.2).

The above trends show that the higher logistics costs borne by traders in poor environments are only partially associated with freight transport. And because of their endogenous nature, they can thus be lowered by better domestic systems and policies. The large differences observed between countries can be explained by the fact that the overall performance of a country is largely influenced by the weakest link in its supply chain. Poor performance, even in only one or two areas, can have very strong implications for overall country performance. This insight is also important for the design of effective reforms, the subject of the next section.

The large differences observed between countries can be explained by the fact that the overall performance of a country is largely influenced by the weakest link in its supply chain

Traditional measures of performance such as direct freight costs and average delays, while important, may not capture the overall logistics performance and thus the ability of countries to use trade for growth

By providing a comprehensive assessment of the gaps and constraints in logistics performance, the LPI and other information derived from the Logistics Performance Survey can help policymakers, private stakeholders, and international organizations quantify the constraints countries face in connecting globally.

The LPI and its indicators also suggest that policymakers may have to expand the traditional “facilitation agenda,” focused on trade-related infrastructure and customs information technology, and pursue improvements in the markets for logistics services. Reforms to improve logistics should follow an integrated approach, focusing on the interaction between infrastructure and public and private services, addressing coordination failures and identifying constituencies for reform. To be effective, reforms should improve the predictability and reliability of shipments and not just focus on reducing average costs and delays.

For instance, traditional measures of performance such as direct freight costs and average delays, while important, may not capture the overall logistics performance and thus the ability of countries to use trade for growth. The predictability and reliability of shipments, while more difficult to measure, are more important for firms and may have a much greater impact on their ability to compete.

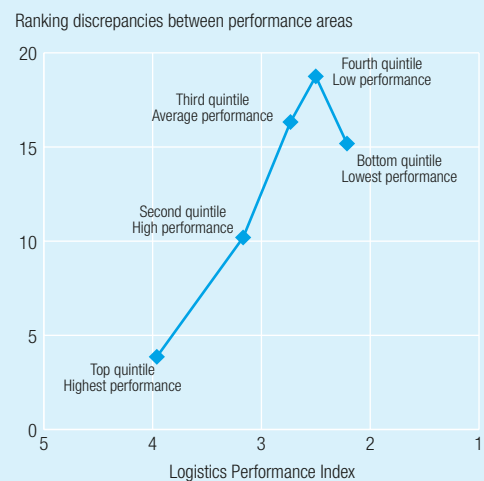
Reforms must be comprehensive

A gradual approach targeting a single factor of supply chain performance (trade infrastructure or a customs procedure) can bring some initial results, but ultimately may prove limited or unsustainable. For example, poor integration among the agencies involved in

border processes may neutralize the benefit of a customs modernization program (DeWulf and Sokol 2005). Facilitation initiatives for trade corridors may not produce visible effects without modernization of the private services and supporting the market (Arvis and others 2007).

The synergies between the various areas of reform—such as customs, border management, infrastructure, and transport regulation—are supported by further analysis of the Logistics Performance Survey dataset. For instance, the consistency between the different dimensions in logistics performance is lower for lower performing countries: high performers are consistently high performers across all indicators, while low performers are inconsistent (figure 3.1).

Figure 3.1 High performers are consistent performers: Discrepancies across factors of performance



Note: The indicator used to illustrate the consistency in performance is the standard deviation of country ranking along the seven component indicators of the LPI. While there is less correlation among the various factors of performance, the effect in this chart is amplified by the fact that the LPI values for countries in the bottom quintile have more “noise” due to a smaller number of assessments.

Table 3.1 Percent of respondents acknowledging positive trends in developments for the following areas, during the last three years

| | High income OECD & non-OECD | East Asia & Pacific | Europe & Central Asia | Latin America & Caribbean | Middle East & North Africa | South Asia | Sub-Saharan Africa |
|--|-----------------------------|---------------------|-----------------------|---------------------------|----------------------------|------------|--------------------|
| Overall business environment | 57 | 44 | 66 | 61 | 68 | 64 | 38 |
| Availability of private sector services | 58 | 54 | 82 | 70 | 81 | 78 | 51 |
| Quality of telecommunications infrastructure | 85 | 47 | 89 | 65 | 98 | 71 | 62 |
| Quality of transport infrastructure | 56 | 41 | 57 | 38 | 67 | 40 | 33 |
| Other border crossing-related government agencies clearance procedures | 43 | 26 | 62 | 28 | 38 | 30 | 42 |
| Customs clearance procedures | 65 | 38 | 69 | 58 | 70 | 60 | 48 |

Source: Logistics Performance Survey and appendix table A2.

Some areas of reform are tackled more than others

Most governments are carrying out policy reforms and furthering public investments in critical areas of the supply chain (table 3.1). But facilitation efforts appear to have had significantly higher impact in customs than in the other border agencies. As seen from the Logistics Performance Survey results, for most countries surveyed, improvements in IT are more widespread than in the other areas, followed by the increased availability of private services.

Performance is improving in the majority of areas surveyed in Europe and Central Asia, in the Middle East and North Africa, and in South Asia (table 3.1). But the perception of trends in Sub-Saharan Africa and East Asia is not as strong. Logistics operators in Africa may still be looking for basic improvements, while those in East Asia look for continuing improvements to keep up with fast-growing demand.

Implementing reform is not easy

Creating an effective logistics environment requires consistent improvements and the continuing participation of all stakeholders, who can demand concrete and practical improvements in performance. Although the problems to be addressed are rather specific, the ability to tackle them depends largely on a country's overall governance and institutional context.

Poor logistics environments are often characterized by rent-seeking, which creates powerful vested interests working to maintain the

status quo. Countries become trapped in a vicious circle where rent-seeking leads to poor logistics services, often leading to fraud and giving rise to over regulation and unfriendly procedures. This in turn discourages investment and the entry of more efficient service providers, completing a vicious circle of rent-seeking and poor performance (figure 3.2).

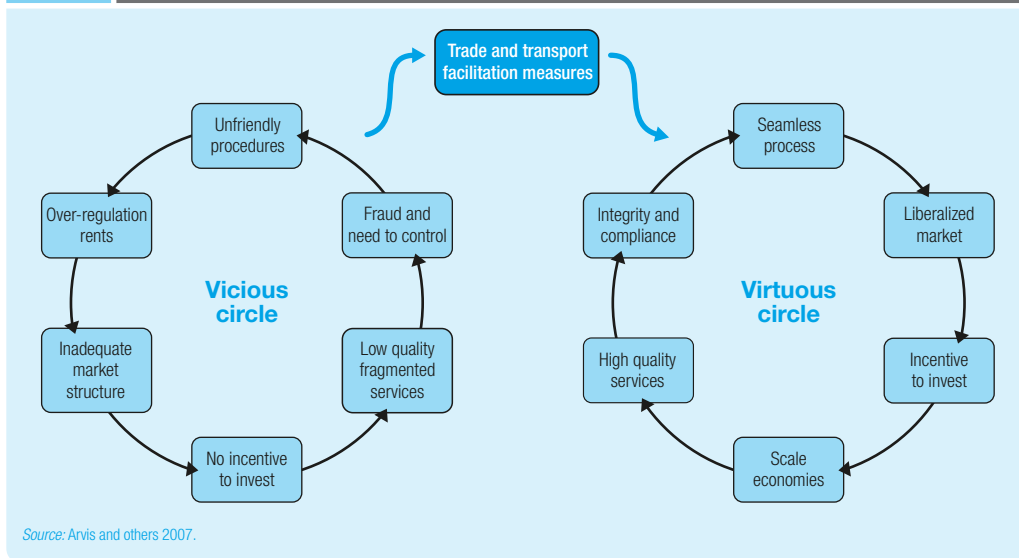
Improving logistics requires the capacity to move toward the virtuous circle—connecting services, infrastructure investments, and streamlined administrative processes. This encompasses the technical capacity to undertake reforms in each sub-area and the ability to overcome the political constraints to effective and comprehensive reforms. Change needs to be supported by a wide constituency, so countries with a large and diverse export community have a tremendous advantage over others, such as oil exporters. Unsurprisingly, logistics operators in India and Vietnam are twice as positive as those in other low income countries about the role of business groups in trade facilitation (appendix table A2).

While integrated reforms are essential, priorities and strategies may differ

A comprehensive reform of logistics and trade facilitation is essential. To close the logistics gap, policymakers should pursue improvements in the markets for logistics services, reduce coordination failures (especially those of public agencies active in border control), and build strong constituencies to support reform.

International companies can bring global knowledge and pressure for change. But the support of local constituencies of exporters, operators, and public agencies is crucial

Figure 3.2 Vicious and virtuous logistics



This effort will demand more integrated supply chain-related reforms, according to the performance of countries, with implications for policymakers and development agencies. For the most severely constrained countries—typically landlocked countries in Africa and Central Asia—innovative solutions may need to be found, and international donors will have an important role.

The Logistics Performance Survey indicates that the differences in the logistics performance between the third and fourth quintiles are often very small and also much smaller than with the others. As a result these two quintiles have been grouped together. Much bigger differences in values are seen for the top two quintiles and the bottom quintile.

The following four groups of countries can be identified in terms of the transition from the vicious circle to the virtuous circle:

- Logistics friendly (corresponding to the top quintile).
- Comprehensive reformers—emerging economies in East Asia and Latin America, new EU member states, South Africa, India (corresponding to the second quintile).
- Partial reformers—oil producers, most countries in Africa, South Asia, and the Middle East (corresponding to the third and fourth quintile).

- Logistics unfriendly—countries with difficult geography (landlocked), least developed countries, or both (corresponding to the fifth quintile).

This classification of countries is a broad typology. Given the confidence intervals and the methodology employed, it is indicative of a country’s logistics performance, but should not be inferred directly from the LPI ranking for any specific country. The association with the quintiles should instead be considered a useful guide for setting reform priorities (figure 3.3).

This typology of countries implies that the agenda for reforms, the priorities, and implementation strategies may vary dramatically according to the broader logistics environment, even though the basic ingredients of successful component reforms, such as for customs or ports, may be the same (see table 3.3).

Cross-cutting reforms need to be supported by broad constituencies. International companies can bring global knowledge and pressure for change. But the support of local constituencies of exporters, operators, and public agencies is crucial. However, these constituencies tend to be weak in partial reformers and nonexistent in the logistics unfriendly countries.

The LPI rankings and indicators provide robust benchmarks that may help policymakers—and particularly the private

Figure 3.3 Logistics typology

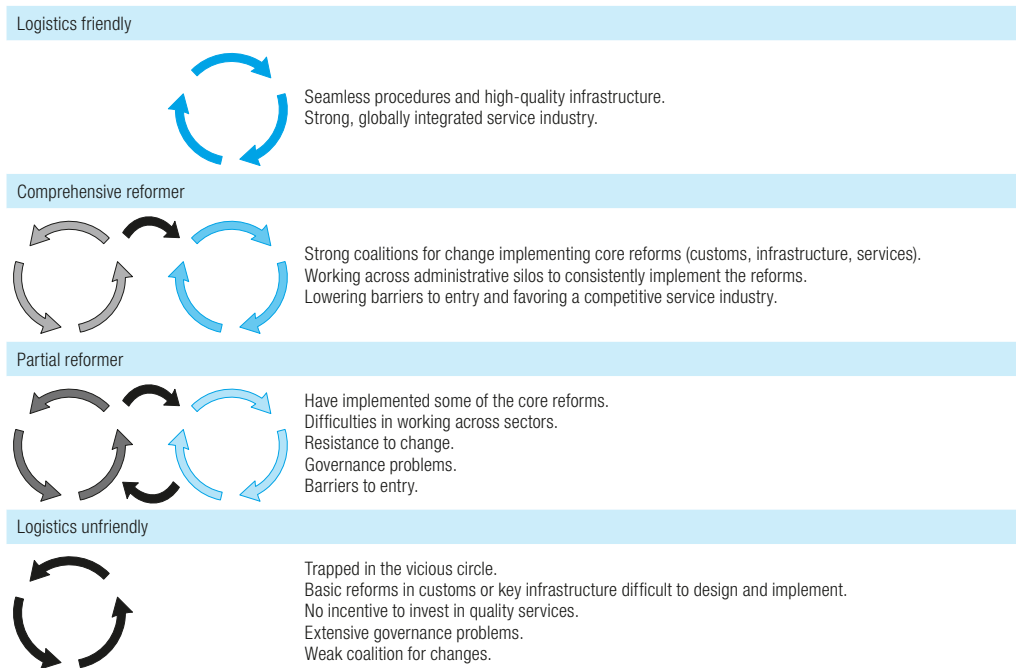


Table 3.2 Identify the severity of constraints to overall performance

| Areas for reform | Logistics friendly | Comprehensive reformers | Partial reformers | Logistics unfriendly |
|---------------------------------------|--------------------|-------------------------|-------------------|----------------------|
| Trade-related physical infrastructure | x | xx | xx | xxx |
| IT trade-related infrastructure | | x | x | xx |
| Customs | | x | xx | xxx |
| Other border processes | xx | xxx | xxx | xxx |
| Reliability of support services | | x | xx | xxx |
| Other governance-related constraints | x | xx | xxx | xxx |
| Constituency for reform | x | x | xx | xxx |

x = mild constraint xx = medium constraint xxx = severe constraint

sector—to build the case for reform. By showing countries how they compare with their competitors and shining a light on the costs of poor logistics performance, it is hoped that the LPI and its indicators may help countries break out of the vicious circle of logistics unfriendliness.

In identifying the key problem areas and constraints, the LPI and its indicators also aim to help guide the preparation of more in-depth, country-specific assessments and strategies, such as trade and transport facilitation audits (Raven 2001), that are needed to generate concrete improvements in logistics performance.

Technical note 1

Selection of countries

Technical note table 1.1 presents the matrix of how the eight countries are selected based on the respondent's country of work.

The LPI methodology uses the World Bank Classification of Countries.¹⁰ Technical note table 1.2 classifies all World Bank member countries (184) and all other economies with populations of more than 30,000 (208). The country coverage by the logistics performance index (150 total) is also shown.

For operational and analytical purposes, economies are divided among income groups according to 2005 gross national income (GNI) per capita, calculated using the World Bank Atlas method. The groups are: low income, \$875 or less; lower middle income, \$876–3,465; upper middle income, \$3,466–10,725; and high income, \$10,726 or more. Other analytical groups based on geographic regions are also used.

Technical note table 1.1 Six country selection rules

| | Respondents from low income countries | Respondents from middle income countries | Respondents from high income countries |
|---------------------------------------|---|---|--|
| Respondents from coastal countries | Five most important export partner countries + Three most important import partner countries | Three most important export partner countries + The most important import partner country + Four countries randomly, one from each country group: a) Africa b) East Asia + Central Asia c) Latin America d) Europe less Central Asia + OECD | Four countries randomly out of one list of five most important export partner countries and five most important import partner countries + Four countries randomly, one from each country group: a) Africa b) East Asia + Central Asia c) Latin America d) Europe less Central Asia + OECD |
| Respondents from landlocked countries | Four most important export partner countries + Two most important import partner countries + Two landlocked countries | Three most important export partner countries + One most important import partner country + Two landlocked countries + Two countries randomly, one from each country group: a) Africa + East Asia + Central Asia + Latin America and b) Europe less Central Asia + OECD | |

Technical note table 1.2 Regional coverage of the Logistics Performance Index

| Income groups/world regions | Total countries in group/region | Number of countries ranked in LPI | LPI's coverage of group/ region (%) |
|---|---------------------------------|-----------------------------------|-------------------------------------|
| Low income | 54 | 51 | 94 |
| Middle income | 98 | 65 | 66 |
| Lower middle income | 58 | 41 | 71 |
| Upper middle income | 40 | 24 | 60 |
| Low & middle income | 152 | 116 | 76 |
| East Asia & Pacific | 24 | 13 | 54 |
| Europe & Central Asia | 27 | 25 | 93 |
| Latin America & Caribbean | 31 | 21 | 68 |
| Middle East & North Africa | 14 | 11 | 79 |
| South Asia | 8 | 7 | 88 |
| Sub-Saharan Africa | 48 | 39 | 81 |
| High income | 56 | 34 | 61 |
| European Monetary Union | 12 | 12 | 100 |
| High income (OECD) | 24 | 23 | 96 |
| High income (non-OECD) | 32 | 10 | 31 |
| Heavily indebted poor countries (HIPC) | 40 | 37 | 93 |
| Least developed countries (UN classification) | 49 | 41 | 84 |
| Landlocked developing countries (UN classification) | 31 | 26 | 84 |
| Commonwealth of Independent States | 12 | 10 | 83 |
| Transitional | 24 | 22 | 92 |
| Organization of Petroleum Exporting Countries | 12 | 10 | 83 |
| Total countries | 208 | 150 | 72 |

Technical note 2

The Logistics Performance Index and multivariate regressions

Straightforward econometric analyses point to significant association between the LPI and outcomes such as:

- Medium term growth over 1992–2005.
- Trade expansion, defined as the overall annual change in trade openness over the same period. It is excess of trade growth over GDP growth.
- The index of trade diversification—the Theil index, which can be interpreted

as the natural logarithm of the number of exported varieties.

The sample of countries excludes high income countries and oil exporters. The results are robust to other choices of period (technical note table 2.1). Regression 1 measures the LPI against the level of development (Log [GNI/cap] 2005). The residual measures how much the countries are performing logistically against their potential (the standard deviation in LPI gap is 0.3). Regressions 2 to 6 measure one of the growth, trade expansion, or diversification variables against the LPI index and Log (GNI/cap), or against the sole LPI gap.

Technical note table 2.1

| Independent variable | Dependent variable | | | | | |
|----------------------|---------------------|------------------------|------------------------|------------------------------------|------------------------------------|-----------------------------|
| | Regression 1 LPI | Regression 2 Growth | Regression 3 Growth | Regression 4 Trade expansion | Regression 5 Trade expansion | Regression 6 Theil index |
| LPI | | 2.0% | | 3.7% | | 1.05 |
| | | (2.8)** | | (3.5)** | | (3.5)** |
| Log(GNI/cap) | 0.422 | −0.8% | | −2.1% | | 0.95 |
| | (7.1)** | (−1.5) | | (−2.7)** | | (4.4)** |
| LPI gap | | | 2.0% | | 3.7% | |
| | | | (2.8)** | | (3.5)** | |
| R ² | 0.35 | 0.08 | 0.08 | 0.12 | 0.11 | 0.44 |
| F | 50.9 | 3.9 | 7.8 | 6.4 | 12.1 | 38.5 |
| Number of countries | 97 | 97 | 97 | 97 | 97 | 97 |

*Significant at the 5 percent level.
**Significant at the 1 percent level.

Notes

1. Makillie (2006).
2. The methodology developed by Daley and Murphy in 1993—using a survey format, a 4-point scale, and open-ended questions—set out to measure the perceived importance and influence of different component attributes that affect the logistical friendliness of countries. In a follow up study by Ojala and Qeiroz (2004) only those characteristics identified as best encapsulating logistics performance were included for evaluation.
3. These interviews were conducted in the context of the Trade and Transport Facilitation Audits (TTFA) performed by the World Bank and others (Raven 2001) and contributed substantially to refining the methodology.
4. While respondents know best the countries with which they trade most, relying on trade statistics alone would leave small and low income economies uncovered.
5. In appendix table A1, the short names for these seven areas of performance are: customs, infrastructure, international shipments, logistics competence, tracking and tracing, domestic logistics costs, and timeliness.
6. Domestic costs were found to be uncorrelated to the other areas in the LPI. Therefore, being less significant, this component was dropped from the composition of the index.
7. *Tour de role* refers to a heavily regulated freight allocation system where truckers are queuing to get loads in turns. Price is typically set by collusion between transport unions and the government.
8. In appendix table A2, performance is evaluated in 30 subareas for which LPI quintiles, regional, or income group averages allow for meaningful comparisons. For most countries the number of respondents in this section of the survey is too small to warrant a country statistic.
9. The typical value of a container of consumer goods is \$50,000, while the inventory value is about 0.1 percent per day (Arvis and others 2007).
10. For detailed information on the World Bank Classification of Countries, visit www.worldbank.org/data/.

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Appendix



| | | |
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Table A1 Country rankings on the Logistics Performance Index and indicators

| Country | Logistics Performance Index | | | Customs | | Infrastructure | | International shipments | |
|----------------------|-----------------------------|-------|---------------------|---------|-------|----------------|-------|-------------------------|-------|
| | LPI rank | Score | Confidence interval | Rank | Score | Rank | Score | Rank | Score |
| Singapore | 1 | 4.19 | 0.05 | 3 | 3.90 | 2 | 4.27 | 2 | 4.04 |
| Netherlands | 2 | 4.18 | 0.04 | 1 | 3.99 | 1 | 4.29 | 1 | 4.05 |
| Germany | 3 | 4.10 | 0.03 | 4 | 3.88 | 3 | 4.19 | 4 | 3.91 |
| Sweden | 4 | 4.08 | 0.08 | 5 | 3.85 | 5 | 4.11 | 5 | 3.90 |
| Austria | 5 | 4.06 | 0.11 | 8 | 3.83 | 9 | 4.06 | 3 | 3.97 |
| Japan | 6 | 4.02 | 0.03 | 11 | 3.79 | 6 | 4.11 | 9 | 3.77 |
| Switzerland | 7 | 4.02 | 0.08 | 6 | 3.85 | 4 | 4.13 | 14 | 3.67 |
| Hong Kong, China | 8 | 4.00 | 0.04 | 7 | 3.84 | 8 | 4.06 | 7 | 3.78 |
| United Kingdom | 9 | 3.99 | 0.03 | 13 | 3.74 | 10 | 4.05 | 6 | 3.85 |
| Canada | 10 | 3.92 | 0.05 | 9 | 3.82 | 12 | 3.95 | 8 | 3.78 |
| Ireland | 11 | 3.91 | 0.11 | 10 | 3.82 | 19 | 3.72 | 11 | 3.76 |
| Belgium | 12 | 3.89 | 0.05 | 16 | 3.61 | 11 | 4.00 | 16 | 3.65 |
| Denmark | 13 | 3.86 | 0.10 | 2 | 3.97 | 14 | 3.82 | 15 | 3.67 |
| United States | 14 | 3.84 | 0.03 | 19 | 3.52 | 7 | 4.07 | 20 | 3.58 |
| Finland | 15 | 3.82 | 0.13 | 14 | 3.68 | 17 | 3.81 | 30 | 3.30 |
| Norway | 16 | 3.81 | 0.09 | 12 | 3.76 | 15 | 3.82 | 19 | 3.62 |
| Australia | 17 | 3.79 | 0.09 | 17 | 3.58 | 20 | 3.65 | 12 | 3.72 |
| France | 18 | 3.76 | 0.05 | 21 | 3.51 | 16 | 3.82 | 18 | 3.63 |
| New Zealand | 19 | 3.75 | 0.12 | 18 | 3.57 | 22 | 3.61 | 10 | 3.77 |
| United Arab Emirates | 20 | 3.73 | 0.08 | 20 | 3.52 | 18 | 3.80 | 13 | 3.68 |
| Taiwan, China | 21 | 3.64 | 0.09 | 25 | 3.25 | 21 | 3.62 | 17 | 3.65 |
| Italy | 22 | 3.58 | 0.05 | 29 | 3.19 | 23 | 3.52 | 21 | 3.57 |
| Luxembourg | 23 | 3.54 | 0.30 | 15 | 3.67 | 13 | 3.86 | 45 | 3.00 |
| South Africa | 24 | 3.53 | 0.10 | 27 | 3.22 | 26 | 3.42 | 22 | 3.56 |
| Korea, Rep. | 25 | 3.52 | 0.07 | 28 | 3.22 | 25 | 3.44 | 24 | 3.44 |
| Spain | 26 | 3.52 | 0.08 | 30 | 3.17 | 24 | 3.51 | 23 | 3.45 |
| Malaysia | 27 | 3.48 | 0.07 | 23 | 3.36 | 28 | 3.33 | 26 | 3.36 |
| Portugal | 28 | 3.38 | 0.11 | 26 | 3.24 | 31 | 3.16 | 33 | 3.23 |
| Greece | 29 | 3.36 | 0.15 | 31 | 3.06 | 35 | 3.05 | 37 | 3.11 |
| China | 30 | 3.32 | 0.04 | 35 | 2.99 | 30 | 3.20 | 28 | 3.31 |
| Thailand | 31 | 3.31 | 0.10 | 32 | 3.03 | 32 | 3.16 | 32 | 3.24 |
| Chile | 32 | 3.25 | 0.08 | 24 | 3.32 | 34 | 3.06 | 34 | 3.21 |
| Israel | 33 | 3.21 | 0.17 | 43 | 2.73 | 37 | 3.00 | 31 | 3.27 |
| Turkey | 34 | 3.15 | 0.13 | 33 | 3.00 | 39 | 2.94 | 42 | 3.07 |
| Hungary | 35 | 3.15 | 0.11 | 34 | 3.00 | 33 | 3.12 | 41 | 3.07 |
| Bahrain | 36 | 3.15 | 0.18 | 22 | 3.40 | 27 | 3.40 | 27 | 3.33 |
| Slovenia | 37 | 3.14 | 0.18 | 40 | 2.79 | 29 | 3.22 | 36 | 3.14 |
| Czech Republic | 38 | 3.13 | 0.15 | 36 | 2.95 | 36 | 3.00 | 43 | 3.06 |
| India | 39 | 3.07 | 0.08 | 47 | 2.69 | 42 | 2.90 | 39 | 3.08 |
| Poland | 40 | 3.04 | 0.11 | 38 | 2.88 | 51 | 2.69 | 52 | 2.92 |
| Saudi Arabia | 41 | 3.02 | 0.06 | 45 | 2.72 | 38 | 2.95 | 50 | 2.93 |
| Latvia | 42 | 3.02 | 0.16 | 58 | 2.53 | 58 | 2.56 | 29 | 3.31 |
| Indonesia | 43 | 3.01 | 0.13 | 44 | 2.73 | 45 | 2.83 | 44 | 3.05 |
| Kuwait | 44 | 2.99 | 0.52 | 59 | 2.50 | 46 | 2.83 | 76 | 2.60 |
| Argentina | 45 | 2.98 | 0.09 | 51 | 2.65 | 47 | 2.81 | 49 | 2.97 |
| Qatar | 46 | 2.98 | 0.19 | 67 | 2.44 | 55 | 2.63 | 46 | 3.00 |

| Logistics competence | | Tracking & tracing | | Domestic logistics costs | | Timeliness | |
|----------------------|-------|--------------------|-------|--------------------------|-------|------------|-------|
| Rank | Score | Rank | Score | Rank | Score | Rank | Score |
| 2 | 4.21 | 1 | 4.25 | 113 | 2.70 | 1 | 4.53 |
| 1 | 4.25 | 4 | 4.14 | 120 | 2.65 | 5 | 4.38 |
| 3 | 4.21 | 5 | 4.12 | 135 | 2.34 | 8 | 4.33 |
| 6 | 4.06 | 3 | 4.15 | 129 | 2.44 | 4 | 4.43 |
| 4 | 4.13 | 12 | 3.97 | 141 | 2.24 | 3 | 4.44 |
| 5 | 4.12 | 7 | 4.08 | 148 | 2.02 | 6 | 4.34 |
| 8 | 4.00 | 9 | 4.04 | 139 | 2.26 | 2 | 4.48 |
| 9 | 3.99 | 8 | 4.06 | 119 | 2.66 | 7 | 4.33 |
| 7 | 4.02 | 6 | 4.10 | 143 | 2.21 | 11 | 4.25 |
| 12 | 3.85 | 11 | 3.98 | 91 | 2.84 | 13 | 4.19 |
| 11 | 3.93 | 15 | 3.96 | 121 | 2.65 | 9 | 4.32 |
| 10 | 3.95 | 14 | 3.96 | 122 | 2.62 | 10 | 4.25 |
| 15 | 3.83 | 17 | 3.76 | 128 | 2.52 | 18 | 4.11 |
| 13 | 3.85 | 10 | 4.01 | 144 | 2.20 | 19 | 4.11 |
| 14 | 3.85 | 2 | 4.17 | 142 | 2.22 | 15 | 4.18 |
| 17 | 3.78 | 20 | 3.67 | 147 | 2.08 | 12 | 4.24 |
| 18 | 3.76 | 13 | 3.97 | 97 | 2.80 | 20 | 4.10 |
| 19 | 3.76 | 16 | 3.87 | 136 | 2.34 | 23 | 4.02 |
| 16 | 3.82 | 19 | 3.68 | 89 | 2.86 | 22 | 4.05 |
| 20 | 3.67 | 23 | 3.61 | 98 | 2.80 | 17 | 4.12 |
| 23 | 3.58 | 24 | 3.60 | 42 | 3.10 | 14 | 4.18 |
| 21 | 3.63 | 21 | 3.66 | 132 | 2.39 | 27 | 3.93 |
| 33 | 3.22 | 26 | 3.56 | 85 | 2.88 | 25 | 4.00 |
| 25 | 3.54 | 18 | 3.71 | 124 | 2.61 | 31 | 3.78 |
| 22 | 3.63 | 25 | 3.56 | 110 | 2.73 | 30 | 3.86 |
| 24 | 3.55 | 22 | 3.63 | 107 | 2.75 | 29 | 3.86 |
| 26 | 3.40 | 28 | 3.51 | 36 | 3.13 | 26 | 3.95 |
| 34 | 3.19 | 30 | 3.44 | 102 | 2.78 | 21 | 4.06 |
| 28 | 3.33 | 27 | 3.53 | 88 | 2.87 | 16 | 4.13 |
| 27 | 3.40 | 31 | 3.37 | 72 | 2.97 | 36 | 3.68 |
| 29 | 3.31 | 36 | 3.25 | 25 | 3.21 | 28 | 3.91 |
| 35 | 3.19 | 37 | 3.17 | 114 | 2.68 | 44 | 3.55 |
| 32 | 3.23 | 29 | 3.46 | 145 | 2.17 | 41 | 3.58 |
| 30 | 3.29 | 34 | 3.27 | 112 | 2.71 | 52 | 3.38 |
| 37 | 3.07 | 44 | 3.00 | 57 | 3.00 | 34 | 3.69 |
| 59 | 2.75 | 47 | 3.00 | 140 | 2.25 | 84 | 3.00 |
| 36 | 3.09 | 52 | 2.91 | 32 | 3.18 | 33 | 3.73 |
| 42 | 3.00 | 35 | 3.27 | 10 | 3.40 | 42 | 3.56 |
| 31 | 3.27 | 42 | 3.03 | 46 | 3.08 | 47 | 3.47 |
| 38 | 3.04 | 40 | 3.12 | 23 | 3.23 | 40 | 3.59 |
| 51 | 2.88 | 43 | 3.02 | 106 | 2.76 | 39 | 3.65 |
| 48 | 2.94 | 41 | 3.06 | 73 | 2.94 | 35 | 3.69 |
| 50 | 2.90 | 33 | 3.30 | 92 | 2.84 | 58 | 3.28 |
| 47 | 3.00 | 32 | 3.33 | 130 | 2.40 | 32 | 3.75 |
| 44 | 3.00 | 46 | 3.00 | 93 | 2.84 | 46 | 3.50 |
| 43 | 3.00 | 38 | 3.17 | 56 | 3.00 | 38 | 3.67 |

Table A1 Country rankings on the Logistics Performance Index and indicators (continued)

| Country | Logistics Performance Index | | | Customs | | Infrastructure | | International shipments | |
|------------------------|-----------------------------|-------|---------------------|---------|-------|----------------|-------|-------------------------|-------|
| | LPI rank | Score | Confidence interval | Rank | Score | Rank | Score | Rank | Score |
| Estonia | 47 | 2.95 | 0.11 | 42 | 2.75 | 41 | 2.91 | 56 | 2.85 |
| Oman | 48 | 2.92 | 0.22 | 46 | 2.71 | 43 | 2.86 | 79 | 2.57 |
| Cyprus | 49 | 2.92 | 0.13 | 41 | 2.77 | 40 | 2.91 | 51 | 2.92 |
| Slovak Republic | 50 | 2.92 | 0.17 | 55 | 2.61 | 52 | 2.68 | 38 | 3.09 |
| Romania | 51 | 2.91 | 0.18 | 56 | 2.60 | 50 | 2.73 | 35 | 3.20 |
| Jordan | 52 | 2.89 | 0.13 | 54 | 2.62 | 56 | 2.62 | 40 | 3.08 |
| Vietnam | 53 | 2.89 | 0.18 | 37 | 2.89 | 60 | 2.50 | 47 | 3.00 |
| Panama | 54 | 2.89 | 0.15 | 48 | 2.68 | 48 | 2.79 | 58 | 2.80 |
| Bulgaria | 55 | 2.87 | 0.15 | 66 | 2.47 | 63 | 2.47 | 59 | 2.79 |
| Mexico | 56 | 2.87 | 0.05 | 60 | 2.50 | 53 | 2.68 | 53 | 2.91 |
| São Tomé and Príncipe | 57 | 2.86 | 0.49 | 61 | 2.50 | 95 | 2.20 | 25 | 3.40 |
| Lithuania | 58 | 2.78 | 0.21 | 52 | 2.64 | 80 | 2.30 | 48 | 3.00 |
| Peru | 59 | 2.77 | 0.15 | 49 | 2.68 | 57 | 2.57 | 54 | 2.91 |
| Tunisia | 60 | 2.76 | 0.15 | 39 | 2.83 | 44 | 2.83 | 55 | 2.86 |
| Brazil | 61 | 2.75 | 0.07 | 74 | 2.39 | 49 | 2.75 | 74 | 2.61 |
| Guinea | 62 | 2.71 | 0.24 | 62 | 2.50 | 75 | 2.33 | 85 | 2.50 |
| Croatia | 63 | 2.71 | 0.20 | 78 | 2.36 | 61 | 2.50 | 67 | 2.69 |
| Sudan | 64 | 2.71 | 0.19 | 79 | 2.36 | 72 | 2.36 | 68 | 2.67 |
| Philippines | 65 | 2.69 | 0.15 | 53 | 2.64 | 86 | 2.26 | 63 | 2.77 |
| El Salvador | 66 | 2.66 | 0.13 | 75 | 2.38 | 68 | 2.42 | 61 | 2.78 |
| Mauritania | 67 | 2.63 | 0.19 | 70 | 2.40 | 96 | 2.20 | 77 | 2.60 |
| Pakistan | 68 | 2.62 | 0.16 | 69 | 2.41 | 71 | 2.37 | 65 | 2.72 |
| Venezuela, RB | 69 | 2.62 | 0.08 | 77 | 2.37 | 59 | 2.51 | 66 | 2.69 |
| Ecuador | 70 | 2.60 | 0.26 | 88 | 2.25 | 73 | 2.36 | 72 | 2.64 |
| Paraguay | 71 | 2.57 | 0.15 | 100 | 2.20 | 64 | 2.47 | 113 | 2.29 |
| Costa Rica | 72 | 2.55 | 0.11 | 64 | 2.49 | 67 | 2.43 | 82 | 2.53 |
| Ukraine | 73 | 2.55 | 0.15 | 97 | 2.22 | 74 | 2.35 | 83 | 2.53 |
| Belarus | 74 | 2.53 | 0.25 | 50 | 2.67 | 54 | 2.63 | 126 | 2.13 |
| Guatemala | 75 | 2.53 | 0.18 | 87 | 2.27 | 104 | 2.13 | 73 | 2.62 |
| Kenya | 76 | 2.52 | 0.17 | 81 | 2.33 | 100 | 2.15 | 60 | 2.79 |
| Gambia, The | 77 | 2.52 | 0.32 | 89 | 2.25 | 76 | 2.33 | 69 | 2.67 |
| Iran, Islamic Rep. | 78 | 2.51 | 0.20 | 63 | 2.50 | 66 | 2.44 | 78 | 2.59 |
| Uruguay | 79 | 2.51 | 0.10 | 86 | 2.29 | 70 | 2.38 | 100 | 2.40 |
| Honduras | 80 | 2.50 | 0.11 | 65 | 2.48 | 79 | 2.32 | 93 | 2.48 |
| Cambodia | 81 | 2.50 | 0.12 | 104 | 2.19 | 81 | 2.30 | 95 | 2.47 |
| Colombia | 82 | 2.50 | 0.10 | 116 | 2.10 | 85 | 2.28 | 75 | 2.61 |
| Uganda | 83 | 2.49 | 0.16 | 99 | 2.21 | 99 | 2.17 | 98 | 2.42 |
| Cameroon | 84 | 2.49 | 0.25 | 57 | 2.57 | 114 | 2.00 | 110 | 2.33 |
| Comoros | 85 | 2.48 | 0.15 | 85 | 2.30 | 65 | 2.46 | 108 | 2.33 |
| Angola | 86 | 2.48 | 0.22 | 71 | 2.40 | 88 | 2.25 | 87 | 2.50 |
| Bangladesh | 87 | 2.47 | 0.18 | 125 | 2.00 | 82 | 2.29 | 96 | 2.46 |
| Bosnia and Herzegovina | 88 | 2.46 | 0.17 | 84 | 2.32 | 87 | 2.26 | 86 | 2.50 |
| Benin | 89 | 2.45 | 0.21 | 142 | 1.80 | 134 | 1.89 | 62 | 2.78 |
| Macedonia, FYR | 90 | 2.43 | 0.24 | 126 | 2.00 | 83 | 2.29 | 70 | 2.67 |
| Malawi | 91 | 2.42 | 0.26 | 90 | 2.25 | 105 | 2.13 | 81 | 2.56 |
| Sri Lanka | 92 | 2.40 | 0.14 | 91 | 2.25 | 106 | 2.13 | 112 | 2.31 |

| Logistics competence | | Tracking & tracing | | Domestic logistics costs | | Timeliness | |
|----------------------|-------|--------------------|-------|--------------------------|-------|------------|-------|
| Rank | Score | Rank | Score | Rank | Score | Rank | Score |
| 45 | 3.00 | 58 | 2.84 | 18 | 3.29 | 53 | 3.35 |
| 67 | 2.67 | 63 | 2.80 | 20 | 3.25 | 24 | 4.00 |
| 58 | 2.77 | 51 | 2.92 | 76 | 2.92 | 62 | 3.25 |
| 40 | 3.00 | 55 | 2.87 | 44 | 3.09 | 60 | 3.26 |
| 52 | 2.86 | 56 | 2.86 | 123 | 2.62 | 66 | 3.18 |
| 41 | 3.00 | 57 | 2.85 | 77 | 2.92 | 68 | 3.17 |
| 56 | 2.80 | 53 | 2.90 | 17 | 3.30 | 65 | 3.22 |
| 61 | 2.73 | 49 | 2.93 | 26 | 3.21 | 49 | 3.43 |
| 53 | 2.86 | 39 | 3.14 | 80 | 2.91 | 43 | 3.56 |
| 57 | 2.80 | 48 | 2.96 | 101 | 2.79 | 51 | 3.40 |
| 39 | 3.00 | 45 | 3.00 | 2 | 3.67 | 76 | 3.00 |
| 64 | 2.70 | 74 | 2.60 | 60 | 3.00 | 50 | 3.40 |
| 60 | 2.73 | 67 | 2.70 | 59 | 3.00 | 80 | 3.00 |
| 88 | 2.43 | 60 | 2.83 | 30 | 3.20 | 105 | 2.80 |
| 49 | 2.94 | 65 | 2.77 | 126 | 2.58 | 72 | 3.10 |
| 68 | 2.67 | 59 | 2.83 | 29 | 3.20 | 45 | 3.50 |
| 54 | 2.83 | 87 | 2.46 | 49 | 3.08 | 48 | 3.45 |
| 55 | 2.83 | 50 | 2.92 | 58 | 3.00 | 67 | 3.17 |
| 70 | 2.65 | 69 | 2.65 | 19 | 3.27 | 70 | 3.14 |
| 78 | 2.53 | 61 | 2.82 | 74 | 2.94 | 73 | 3.06 |
| 65 | 2.70 | 62 | 2.80 | 41 | 3.11 | 71 | 3.10 |
| 63 | 2.71 | 76 | 2.57 | 90 | 2.86 | 88 | 2.93 |
| 74 | 2.59 | 79 | 2.54 | 115 | 2.68 | 75 | 3.03 |
| 71 | 2.64 | 89 | 2.45 | 12 | 3.36 | 59 | 3.27 |
| 73 | 2.63 | 68 | 2.67 | 38 | 3.13 | 63 | 3.23 |
| 89 | 2.43 | 78 | 2.57 | 48 | 3.08 | 90 | 2.89 |
| 90 | 2.41 | 81 | 2.53 | 21 | 3.25 | 55 | 3.31 |
| 120 | 2.13 | 66 | 2.71 | 37 | 3.13 | 78 | 3.00 |
| 79 | 2.50 | 90 | 2.43 | 65 | 3.00 | 64 | 3.23 |
| 104 | 2.31 | 73 | 2.62 | 108 | 2.75 | 89 | 2.92 |
| 46 | 3.00 | 99 | 2.33 | 67 | 3.00 | 132 | 2.50 |
| 66 | 2.69 | 125 | 2.00 | 75 | 2.93 | 106 | 2.80 |
| 84 | 2.45 | 77 | 2.57 | 103 | 2.78 | 82 | 3.00 |
| 91 | 2.41 | 91 | 2.41 | 86 | 2.88 | 93 | 2.88 |
| 82 | 2.47 | 80 | 2.53 | 27 | 3.21 | 74 | 3.05 |
| 86 | 2.44 | 71 | 2.63 | 81 | 2.91 | 86 | 2.94 |
| 77 | 2.55 | 100 | 2.33 | 3 | 3.63 | 56 | 3.29 |
| 109 | 2.25 | 85 | 2.50 | 64 | 3.00 | 57 | 3.29 |
| 72 | 2.64 | 83 | 2.50 | 62 | 3.00 | 117 | 2.67 |
| 81 | 2.50 | 92 | 2.38 | 66 | 3.00 | 100 | 2.83 |
| 103 | 2.33 | 88 | 2.46 | 50 | 3.08 | 54 | 3.33 |
| 98 | 2.37 | 105 | 2.29 | 9 | 3.41 | 77 | 3.00 |
| 75 | 2.56 | 54 | 2.89 | 24 | 3.22 | 107 | 2.78 |
| 101 | 2.33 | 84 | 2.50 | 63 | 3.00 | 99 | 2.83 |
| 76 | 2.56 | 126 | 2.00 | 39 | 3.13 | 79 | 3.00 |
| 85 | 2.45 | 75 | 2.58 | 47 | 3.08 | 113 | 2.69 |

Table A1 Country rankings on the Logistics Performance Index and indicators (continued)

| Country | Logistics Performance Index | | | Customs | | Infrastructure | | International shipments | |
|-----------------------|-----------------------------|-------|---------------------|---------|-------|----------------|-------|-------------------------|-------|
| | LPI rank | Score | Confidence interval | Rank | Score | Rank | Score | Rank | Score |
| Nigeria | 93 | 2.40 | 0.09 | 94 | 2.23 | 92 | 2.23 | 92 | 2.49 |
| Morocco | 94 | 2.38 | 0.22 | 101 | 2.20 | 77 | 2.33 | 64 | 2.75 |
| Papua New Guinea | 95 | 2.38 | 0.24 | 127 | 2.00 | 123 | 2.00 | 80 | 2.57 |
| Dominican Republic | 96 | 2.38 | 0.10 | 82 | 2.33 | 97 | 2.18 | 107 | 2.34 |
| Egypt, Arab Rep. | 97 | 2.37 | 0.24 | 119 | 2.08 | 119 | 2.00 | 111 | 2.33 |
| Lebanon | 98 | 2.37 | 0.31 | 106 | 2.17 | 102 | 2.14 | 88 | 2.50 |
| Russian Federation | 99 | 2.37 | 0.06 | 136 | 1.94 | 93 | 2.23 | 94 | 2.48 |
| Zambia | 100 | 2.37 | 0.27 | 120 | 2.08 | 120 | 2.00 | 102 | 2.40 |
| Senegal | 101 | 2.37 | 0.18 | 76 | 2.38 | 108 | 2.09 | 130 | 2.09 |
| Côte d'Ivoire | 102 | 2.36 | 0.23 | 98 | 2.22 | 94 | 2.22 | 127 | 2.13 |
| Kyrgyz Republic | 103 | 2.35 | 0.14 | 102 | 2.20 | 112 | 2.06 | 106 | 2.35 |
| Ethiopia | 104 | 2.33 | 0.21 | 109 | 2.14 | 135 | 1.88 | 97 | 2.43 |
| Liberia | 105 | 2.31 | 0.23 | 72 | 2.40 | 101 | 2.14 | 57 | 2.83 |
| Moldova | 106 | 2.31 | 0.19 | 110 | 2.14 | 128 | 1.94 | 105 | 2.36 |
| Bolivia | 107 | 2.31 | 0.12 | 128 | 2.00 | 111 | 2.08 | 99 | 2.42 |
| Lesotho | 108 | 2.30 | 0.35 | 73 | 2.40 | 115 | 2.00 | 89 | 2.50 |
| Mali | 109 | 2.29 | 0.14 | 107 | 2.17 | 132 | 1.90 | 119 | 2.23 |
| Mozambique | 110 | 2.29 | 0.18 | 95 | 2.23 | 109 | 2.08 | 118 | 2.25 |
| Azerbaijan | 111 | 2.29 | 0.22 | 96 | 2.23 | 116 | 2.00 | 90 | 2.50 |
| Yemen, Rep. | 112 | 2.29 | 0.19 | 105 | 2.18 | 110 | 2.08 | 123 | 2.20 |
| Burundi | 113 | 2.29 | 0.36 | 103 | 2.20 | 62 | 2.50 | 84 | 2.50 |
| Zimbabwe | 114 | 2.29 | 0.21 | 138 | 1.92 | 136 | 1.87 | 114 | 2.27 |
| Serbia and Montenegro | 115 | 2.28 | 0.13 | 83 | 2.33 | 98 | 2.18 | 116 | 2.25 |
| Guinea-Bissau | 116 | 2.28 | 0.23 | 111 | 2.14 | 89 | 2.25 | 120 | 2.22 |
| Lao PDR | 117 | 2.25 | 0.21 | 121 | 2.08 | 121 | 2.00 | 103 | 2.40 |
| Jamaica | 118 | 2.25 | 0.11 | 80 | 2.35 | 113 | 2.03 | 128 | 2.13 |
| Togo | 119 | 2.25 | 0.20 | 117 | 2.10 | 90 | 2.25 | 101 | 2.40 |
| Madagascar | 120 | 2.24 | 0.15 | 93 | 2.24 | 107 | 2.13 | 117 | 2.25 |
| Burkina Faso | 121 | 2.24 | 0.23 | 115 | 2.13 | 133 | 1.89 | 71 | 2.67 |
| Nicaragua | 122 | 2.21 | 0.14 | 112 | 2.14 | 137 | 1.86 | 124 | 2.18 |
| Haiti | 123 | 2.21 | 0.13 | 122 | 2.08 | 103 | 2.14 | 122 | 2.20 |
| Eritrea | 124 | 2.19 | 0.26 | 113 | 2.14 | 117 | 2.00 | 135 | 2.00 |
| Ghana | 125 | 2.16 | 0.25 | 129 | 2.00 | 91 | 2.25 | 115 | 2.25 |
| Namibia | 126 | 2.16 | 0.28 | 114 | 2.14 | 118 | 2.00 | 125 | 2.14 |
| Somalia | 127 | 2.16 | 0.22 | 68 | 2.43 | 147 | 1.63 | 141 | 1.88 |
| Bhutan | 128 | 2.16 | 0.13 | 134 | 1.95 | 127 | 1.95 | 134 | 2.06 |
| Uzbekistan | 129 | 2.16 | 0.14 | 137 | 1.94 | 124 | 2.00 | 133 | 2.07 |
| Nepal | 130 | 2.14 | 0.17 | 141 | 1.83 | 144 | 1.77 | 131 | 2.09 |
| Armenia | 131 | 2.14 | 0.23 | 118 | 2.10 | 142 | 1.78 | 140 | 2.00 |
| Mauritius | 132 | 2.13 | 0.25 | 130 | 2.00 | 84 | 2.29 | 121 | 2.20 |
| Kazakhstan | 133 | 2.12 | 0.13 | 139 | 1.91 | 138 | 1.86 | 129 | 2.10 |
| Gabon | 134 | 2.10 | 0.36 | 92 | 2.25 | 69 | 2.40 | 147 | 1.67 |
| Syrian Arab Republic | 135 | 2.09 | 0.20 | 108 | 2.17 | 131 | 1.91 | 138 | 2.00 |
| Mongolia | 136 | 2.08 | 0.20 | 131 | 2.00 | 129 | 1.92 | 91 | 2.50 |
| Tanzania | 137 | 2.08 | 0.17 | 123 | 2.07 | 122 | 2.00 | 132 | 2.08 |
| Solomon Islands | 138 | 2.08 | 0.19 | 144 | 1.73 | 126 | 2.00 | 104 | 2.36 |

| Logistics competence | | Tracking & tracing | | Domestic logistics costs | | Timeliness | |
|----------------------|-------|--------------------|-------|--------------------------|-------|------------|-------|
| Rank | Score | Rank | Score | Rank | Score | Rank | Score |
| 95 | 2.38 | 97 | 2.36 | 83 | 2.90 | 114 | 2.69 |
| 119 | 2.13 | 130 | 2.00 | 133 | 2.38 | 95 | 2.86 |
| 105 | 2.29 | 106 | 2.29 | 7 | 3.43 | 69 | 3.14 |
| 108 | 2.25 | 107 | 2.28 | 54 | 3.05 | 91 | 2.89 |
| 96 | 2.38 | 72 | 2.62 | 94 | 2.83 | 96 | 2.85 |
| 93 | 2.40 | 101 | 2.33 | 11 | 3.40 | 115 | 2.67 |
| 83 | 2.46 | 119 | 2.17 | 131 | 2.40 | 87 | 2.94 |
| 87 | 2.44 | 64 | 2.80 | 43 | 3.10 | 130 | 2.50 |
| 62 | 2.73 | 103 | 2.30 | 45 | 3.09 | 123 | 2.63 |
| 97 | 2.38 | 128 | 2.00 | 68 | 3.00 | 61 | 3.25 |
| 100 | 2.35 | 93 | 2.38 | 99 | 2.80 | 109 | 2.76 |
| 129 | 2.00 | 141 | 1.83 | 34 | 3.17 | 37 | 3.67 |
| 127 | 2.00 | 132 | 2.00 | 31 | 3.20 | 134 | 2.43 |
| 112 | 2.21 | 86 | 2.50 | 78 | 2.92 | 111 | 2.73 |
| 117 | 2.17 | 95 | 2.38 | 127 | 2.53 | 104 | 2.81 |
| 115 | 2.20 | 140 | 1.83 | 6 | 3.50 | 98 | 2.83 |
| 114 | 2.21 | 94 | 2.38 | 53 | 3.05 | 92 | 2.88 |
| 99 | 2.36 | 129 | 2.00 | 95 | 2.83 | 101 | 2.83 |
| 128 | 2.00 | 96 | 2.38 | 87 | 2.88 | 124 | 2.63 |
| 111 | 2.22 | 104 | 2.30 | 116 | 2.67 | 108 | 2.78 |
| 80 | 2.50 | 127 | 2.00 | 137 | 2.33 | 148 | 2.00 |
| 113 | 2.21 | 70 | 2.64 | 134 | 2.36 | 97 | 2.85 |
| 107 | 2.29 | 124 | 2.07 | 51 | 3.07 | 128 | 2.54 |
| 132 | 2.00 | 114 | 2.22 | 35 | 3.14 | 94 | 2.86 |
| 106 | 2.29 | 139 | 1.89 | 146 | 2.13 | 102 | 2.83 |
| 125 | 2.07 | 112 | 2.24 | 5 | 3.50 | 119 | 2.65 |
| 94 | 2.40 | 115 | 2.20 | 14 | 3.33 | 145 | 2.11 |
| 131 | 2.00 | 118 | 2.19 | 28 | 3.21 | 116 | 2.67 |
| 102 | 2.33 | 122 | 2.13 | 118 | 2.67 | 143 | 2.25 |
| 92 | 2.41 | 116 | 2.19 | 55 | 3.04 | 131 | 2.50 |
| 121 | 2.11 | 121 | 2.16 | 104 | 2.78 | 125 | 2.60 |
| 69 | 2.67 | 82 | 2.50 | 61 | 3.00 | 149 | 1.83 |
| 146 | 1.75 | 110 | 2.25 | 149 | 2.00 | 133 | 2.50 |
| 142 | 1.83 | 142 | 1.83 | 125 | 2.60 | 83 | 3.00 |
| 110 | 2.25 | 144 | 1.75 | 71 | 3.00 | 81 | 3.00 |
| 116 | 2.18 | 108 | 2.27 | 13 | 3.36 | 126 | 2.57 |
| 118 | 2.15 | 123 | 2.08 | 82 | 2.91 | 112 | 2.73 |
| 124 | 2.08 | 102 | 2.33 | 22 | 3.25 | 110 | 2.75 |
| 122 | 2.11 | 113 | 2.22 | 8 | 3.43 | 122 | 2.63 |
| 147 | 1.75 | 111 | 2.25 | 117 | 2.67 | 137 | 2.33 |
| 126 | 2.05 | 117 | 2.19 | 96 | 2.81 | 120 | 2.65 |
| 136 | 2.00 | 134 | 2.00 | 109 | 2.75 | 136 | 2.33 |
| 145 | 1.80 | 137 | 2.00 | 84 | 2.89 | 118 | 2.67 |
| 144 | 1.80 | 136 | 2.00 | 70 | 3.00 | 142 | 2.25 |
| 138 | 1.92 | 120 | 2.17 | 15 | 3.33 | 140 | 2.27 |
| 123 | 2.10 | 131 | 2.00 | 111 | 2.73 | 139 | 2.30 |

Table A1 Country rankings on the Logistics Performance Index and indicators (continued)

| Country | Logistics Performance Index | | | Customs | | Infrastructure | | International shipments | |
|--------------|-----------------------------|-------|---------------------|---------|-------|----------------|-------|-------------------------|-------|
| | LPI rank | Score | Confidence interval | Rank | Score | Rank | Score | Rank | Score |
| Albania | 139 | 2.08 | 0.17 | 132 | 2.00 | 78 | 2.33 | 109 | 2.33 |
| Algeria | 140 | 2.06 | 0.22 | 148 | 1.60 | 139 | 1.83 | 139 | 2.00 |
| Guyana | 141 | 2.05 | 0.15 | 135 | 1.95 | 143 | 1.78 | 144 | 1.80 |
| Chad | 142 | 1.98 | 0.16 | 133 | 2.00 | 141 | 1.80 | 142 | 1.83 |
| Niger | 143 | 1.97 | 0.23 | 145 | 1.67 | 149 | 1.40 | 145 | 1.80 |
| Sierra Leone | 144 | 1.95 | 0.21 | 149 | 1.58 | 140 | 1.83 | 143 | 1.82 |
| Djibouti | 145 | 1.94 | 0.16 | 146 | 1.64 | 130 | 1.92 | 137 | 2.00 |
| Tajikistan | 146 | 1.93 | 0.19 | 140 | 1.91 | 125 | 2.00 | 136 | 2.00 |
| Myanmar | 147 | 1.86 | 0.17 | 124 | 2.07 | 145 | 1.69 | 146 | 1.73 |
| Rwanda | 148 | 1.77 | 0.13 | 143 | 1.80 | 148 | 1.53 | 148 | 1.67 |
| Timor-Leste | 149 | 1.71 | 0.23 | 147 | 1.63 | 146 | 1.67 | 149 | 1.50 |
| Afghanistan | 150 | 1.21 | 0.10 | 150 | 1.30 | 150 | 1.10 | 150 | 1.22 |

| Logistics competence | | Tracking & tracing | | Domestic logistics costs | | Timeliness | |
|----------------------|-------|--------------------|-------|--------------------------|-------|------------|-------|
| Rank | Score | Rank | Score | Rank | Score | Rank | Score |
| 130 | 2.00 | 145 | 1.67 | 105 | 2.78 | 144 | 2.13 |
| 139 | 1.92 | 109 | 2.27 | 33 | 3.17 | 103 | 2.82 |
| 137 | 1.95 | 98 | 2.35 | 4 | 3.50 | 129 | 2.50 |
| 143 | 1.82 | 138 | 1.91 | 1 | 4.00 | 127 | 2.56 |
| 134 | 2.00 | 133 | 2.00 | 150 | 1.67 | 85 | 3.00 |
| 140 | 1.91 | 135 | 2.00 | 69 | 3.00 | 121 | 2.64 |
| 133 | 2.00 | 143 | 1.82 | 100 | 2.80 | 138 | 2.30 |
| 141 | 1.90 | 146 | 1.67 | 138 | 2.33 | 146 | 2.11 |
| 135 | 2.00 | 149 | 1.57 | 79 | 2.92 | 147 | 2.08 |
| 148 | 1.67 | 148 | 1.60 | 52 | 3.07 | 135 | 2.38 |
| 149 | 1.60 | 147 | 1.67 | 16 | 3.33 | 141 | 2.25 |
| 150 | 1.25 | 150 | 1.00 | 40 | 3.13 | 150 | 1.38 |

Table A2 Country-specific environment and institutions data averages, by income group and region

| Question | Logistics Performance Survey question | Income group | | | | Region | | | | | |
|--|---|---|------------|---------------------|---------------------|---------------------|-----------------------|-------------------------------|----------------------------|------------|--------------------|
| | | High income non-OECD & non OECD | Low income | Lower middle income | Upper middle income | East Asia & Pacific | Europe & Central Asia | Latin America & the Caribbean | Middle East & North Africa | South Asia | Sub-Saharan Africa |
| <i>Based on your experience in international logistics, please select the options that best describe the logistics operational environment in your country of work</i> | | Percent of respondents answering high/very high | | | | | | | | | |
| 1 | Port/Airport charges are | 47 | 54 | 47 | 42 | 47 | 48 | 53 | 39 | 45 | 48 |
| 2 | Overall, logistics costs (e.g., port charges, domestic transport, agent fees), are | 46 | 60 | 46 | 31 | 40 | 23 | 58 | 47 | 41 | 59 |
| 3 | Warehousing service charges are | 38 | 43 | 41 | 27 | 17 | 25 | 55 | 15 | 47 | 45 |
| 4 | Rail transport rates are | 43 | 28 | 24 | 24 | 25 | 24 | 14 | 36 | 33 | 30 |
| 5 | Less-than-full truck load services rates are | 33 | 61 | 36 | 31 | 38 | 30 | 33 | 38 | 56 | 61 |
| 6 | Full truck load rates are | 27 | 59 | 39 | 21 | 39 | 21 | 34 | 32 | 34 | 68 |
| <i>Evaluate the quality of infrastructure in use for logistics operations in your country of work</i> | | Percent of respondents answering low/very low | | | | | | | | | |
| 27 | Telecommunications infrastructure and services | 6 | 44 | 29 | 11 | 35 | 20 | 28 | 15 | 11 | 43 |
| 28 | Fixed transport infrastructure (e.g., ports, roads, warehouses) | 17 | 52 | 53 | 34 | 46 | 44 | 46 | 51 | 34 | 54 |
| <i>Evaluate the effectiveness and efficiency of the following processes in your country of work</i> | | Percent of respondents answering high/very high | | | | | | | | | |
| 29 | Do traders demonstrating high levels of compliance receive expedited customs clearance? | 54 | 25 | 40 | 52 | 41 | 51 | 42 | 42 | 57 | 17 |
| 32 | Can customs declarations be submitted and processed electronically? | 70 | 42 | 49 | 60 | 28 | 46 | 58 | 53 | 50 | 55 |
| 33 | Do you receive adequate and timely information when regulations change? | 62 | 27 | 35 | 45 | 41 | 43 | 44 | 30 | 24 | 23 |
| 34 | Is customs clearance a transparent process? | 73 | 26 | 39 | 48 | 25 | 44 | 47 | 47 | 33 | 26 |
| 35 | Are export shipments cleared and shipped as scheduled? | 95 | 56 | 63 | 82 | 89 | 76 | 70 | 65 | 62 | 46 |
| 36 | Are import shipments cleared and delivered as scheduled? | 80 | 24 | 36 | 73 | 44 | 75 | 40 | 42 | 32 | 22 |
| <i>Evaluate the level of competence of the following professions in your country of work</i> | | Percent of respondents answering high/very high | | | | | | | | | |
| 37 | Trade and transport related associations | 46 | 14 | 17 | 18 | 18 | 19 | 15 | 10 | 15 | 16 |
| 38 | Other border crossing-related government agencies | 33 | 5 | 13 | 16 | 11 | 13 | 13 | 10 | 3 | 12 |
| 39 | Customs agencies | 52 | 10 | 22 | 30 | 20 | 30 | 19 | 40 | 17 | 8 |
| 40 | Freight forwarders | 59 | 23 | 30 | 45 | 31 | 51 | 27 | 38 | 42 | 16 |
| 41 | Consignees or shippers | 40 | 14 | 21 | 24 | 25 | 30 | 13 | 32 | 23 | 10 |
| 42 | Warehousing and distribution operators | 51 | 13 | 13 | 30 | 16 | 30 | 17 | 13 | 16 | 12 |
| 43 | Air transport service providers | 62 | 26 | 27 | 48 | 38 | 40 | 34 | 38 | 36 | 20 |
| 44 | Rail transport service providers | 24 | 8 | 13 | 15 | 23 | 24 | 10 | 17 | 5 | 0 |
| 45 | Road transport service providers | 50 | 12 | 16 | 34 | 22 | 39 | 11 | 38 | 16 | 8 |
| 46 | Customs brokers | 55 | 14 | 23 | 47 | 29 | 42 | 33 | 27 | 25 | 8 |
| <i>Evaluate the evolution of the following factors in your country of work, over the past 3 years</i> | | Percent of respondents answering better/much better | | | | | | | | | |
| 47 | Overall business environment | 57 | 39 | 63 | 62 | 44 | 66 | 61 | 68 | 64 | 38 |
| 48 | Good governance and eradication of corruption | 44 | 23 | 36 | 36 | 26 | 39 | 35 | 58 | 18 | 22 |
| 49 | Regulatory regime | 33 | 23 | 37 | 35 | 27 | 39 | 43 | 29 | 28 | 20 |
| 50 | Availability of private sector services | 58 | 54 | 73 | 75 | 54 | 82 | 70 | 81 | 78 | 51 |
| 51 | Quality of telecommunications infrastructure | 85 | 62 | 70 | 79 | 47 | 89 | 65 | 98 | 71 | 62 |

Table A2 Country-specific environment and institutions data averages, by income group and region (continued)

| Question | Logistics Performance Survey question | Income group | | | | Region | | | | | |
|---|--|---------------------------------|------------|---------------------|---|---------------------|-----------------------|-------------------------------|----------------------------|------------|--------------------|
| | | High income non-OECD & non OECD | Low income | Lower middle income | Upper middle income | East Asia & Pacific | Europe & Central Asia | Latin America & the Caribbean | Middle East & North Africa | South Asia | Sub-Saharan Africa |
| 52 | Quality of transport infrastructure | 56 | 36 | 41 | 55 | 41 | 57 | 38 | 67 | 40 | 33 |
| 53 | Other border crossing-related government agencies clearance procedures | 43 | 34 | 36 | 51 | 26 | 62 | 28 | 38 | 30 | 42 |
| 54 | Customs clearance procedures | 65 | 41 | 60 | 69 | 38 | 69 | 58 | 70 | 60 | 48 |
| <i>Evaluate the incidence on your activity of the following constraints in your country of work</i> | | | | | Percent of respondents answering high/very high | | | | | | |
| 55 | Solicitation of informal payments | 10 | 54 | 40 | 16 | 30 | 24 | 36 | 21 | 39 | 58 |
| 56 | Criminal activities (e.g., stolen cargo) | 6 | 19 | 14 | 9 | 5 | 0 | 24 | 6 | 19 | 22 |
| 57 | Major delays due to pre-shipment inspection | 19 | 53 | 33 | 14 | 20 | 12 | 43 | 35 | 17 | 56 |
| 58 | Major delays due to compulsory warehousing | 13 | 18 | 20 | 14 | 10 | 9 | 30 | 25 | 19 | 14 |

Note: For each survey question, responses have been aggregated at the individual country level. A simple average of country aggregates within the group was then calculated. The results are reported in percentages. The scale used for this set of questions had five options ranging from "very high" to "very low."

Table A3 Country-specific performance data, by country

| Logistics Performance Survey question | | | | | | | | | | |
|---------------------------------------|---------------------------------------|---------------------------------------|---|---|---|-----------------------------------|-----------------------------------|--|---|--|
| Country | Rate of physical inspection (percent) | Customs clearance ^a (days) | Lead time ^b export, median case (days) | Lead time ^c import, best case (days) | Lead time ^d import, median case (days) | Number of border agencies exports | Number of border agencies imports | Possibility of a review procedure ^e (percent) | Typical charge ^f for a 40-foot export container or a semi-trailer (US\$) | Typical charge for a 40-foot import container or a semi-trailer (US\$) |
| Afghanistan | 100 | 3.8 | 8.1 | 14.0 | 20.7 | 2.3 | 3.3 | 33 | 1,260 | 1,817 |
| Angola | 36 | 5.8 | 7.9 | 4.6 | 10.6 | 3.7 | 3.7 | 0 | 3,873 | 1,957 |
| Argentina | 19 | 1.6 | 3.0 | 2.4 | 4.1 | 3.3 | 2.9 | 8 | 487 | 634 |
| Australia | 3 | 1.7 | 3.5 | 2.5 | 3.4 | 1.5 | 2.3 | 100 | 562 | 562 |
| Austria | 3 | 0.7 | 2.2 | 1.5 | 3.3 | 3.7 | 3.8 | 25 | 1,000 | 1,000 |
| Bahrain | 22 | 2.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 100 | 500 | 500 |
| Bangladesh | 31 | 4.1 | 2.3 | 3.0 | 4.5 | 2.0 | 2.3 | 33 | 211 | 397 |
| Belgium | 3 | 1.0 | 1.4 | 2.0 | 3.5 | 2.0 | 2.0 | 33 | 500 | 500 |
| Benin | 100 | 10.0 | 3.0 | 10.0 | 7.0 | 6.0 | 6.0 | 0 | 1,000 | 1,000 |
| Bolivia | 6 | 0.5 | 4.0 | 3.0 | 4.0 | 1.0 | 1.0 | 100 | 2,000 | 2,000 |
| Bosnia and Herzegovina | 50 | 1.0 | 2.0 | 1.0 | 1.0 | 4.0 | 4.0 | 0 | 500 | 500 |
| Brazil | 13 | 5.8 | 3.4 | 3.1 | 7.0 | 5.7 | 6.0 | 0 | 909 | 1,145 |
| Bulgaria | 4 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.5 | 100 | 150 | 150 |
| Cambodia | 12 | 1.0 | 2.7 | 1.4 | 3.3 | 3.7 | 3.7 | 50 | 335 | 422 |
| Cameroon | 3 | 2.4 | 5.9 | 3.2 | 10.0 | 5.0 | 6.0 | 50 | 1,000 | 1,225 |
| Canada | 2 | 0.8 | 2.6 | 2.2 | 4.0 | 2.7 | 3.8 | 80 | 627 | 757 |
| Central African Republic | 100 | 7.0 | 7.0 | 7.0 | 30.0 | 4.0 | 4.0 | 0 | 5,000 | 5,000 |
| Chad | 100 | 3.0 | 11.0 | 11.0 | 35.0 | 5.0 | 5.0 | 0 | 6,000 | 6,000 |
| Chile | 4 | 1.0 | 2.8 | 1.0 | 3.2 | 2.5 | 2.5 | 0 | 274 | 274 |
| China | 7 | 1.4 | 2.6 | 2.4 | 3.8 | 4.0 | 3.9 | 36 | 380 | 388 |
| Colombia | 35 | 7.0 | 7.0 | 4.0 | 7.0 | 2.0 | 2.0 | 0 | 2,000 | 2,000 |
| Congo, Dem. Rep. | 100 | 4.0 | 14.0 | 8.0 | 18.0 | 0.0 | 8.0 | 0 | 2,000 | 5,000 |
| Costa Rica | 11 | 1.7 | 4.0 | 4.0 | 4.0 | 3.0 | 3.0 | 0 | 1,000 | 1,000 |
| Croatia | 12 | 0.9 | 4.3 | 1.6 | 2.9 | 2.4 | 2.8 | 50 | 309 | 344 |
| Cyprus | 22 | 1.0 | 1.0 | 2.0 | 2.0 | 3.0 | 3.0 | 50 | 274 | 500 |
| Czech Republic | 1 | 0.8 | 4.8 | 3.7 | 5.4 | 3.0 | 2.8 | 100 | 1,000 | 794 |
| Denmark | 1 | 0.7 | 1.3 | 1.3 | 1.3 | 2.0 | 1.8 | 100 | 315 | 315 |
| Dominican Republic | 75 | 4.6 | 1.0 | 1.0 | 1.0 | 1.0 | 5.5 | 0 | 250 | 250 |
| Ecuador | 66 | 2.6 | 8.9 | 11.4 | 8.9 | 3.0 | 3.0 | 0 | 707 | 707 |
| Egypt | 51 | 2.5 | 4.0 | 3.4 | 5.8 | 4.5 | 4.3 | 71 | 237 | 445 |
| El Salvador | 1 | 1.0 | 2.0 | 1.0 | 2.0 | 2.0 | 5.0 | 0 | 1,000 | 1,000 |
| Estonia | 2 | 0.5 | 1.3 | 1.3 | 2.3 | 2.3 | 2.3 | 100 | 211 | 422 |
| Finland | 2 | 0.8 | 2.3 | 1.5 | 2.6 | 2.2 | 2.1 | 92 | 434 | 480 |
| France | 7 | 1.6 | 3.2 | 3.4 | 4.5 | 4.8 | 5.0 | 100 | 1,189 | 1,189 |
| Germany | 2 | 0.7 | 2.3 | 1.6 | 2.4 | 2.8 | 3.7 | 100 | 806 | 806 |
| Greece | 4 | 1.0 | 3.0 | 1.4 | 3.5 | 1.5 | 2.5 | 0 | 500 | 500 |
| Guinea | 22 | 2.2 | 3.5 | 1.4 | 3.9 | 3.0 | 3.0 | 0 | 500 | 500 |
| Haiti | 25 | 3.9 | 4.2 | 3.5 | 5.3 | 3.0 | 3.5 | 100 | 671 | 474 |
| Honduras | 6 | 1.4 | 2.4 | 1.7 | 3.2 | 2.5 | 3.0 | 0 | 707 | 866 |
| Hong Kong, China | 2 | 0.6 | 1.9 | 1.3 | 2.4 | 2.5 | 3.7 | 67 | 561 | 654 |
| Hungary | 5 | 0.8 | 3.5 | 3.0 | 4.7 | 3.0 | 3.3 | 50 | 1,145 | 909 |
| India | 25 | 2.4 | 4.0 | 4.0 | 4.7 | 2.9 | 2.4 | 39 | 601 | 619 |
| Indonesia | 12 | 1.6 | 2.5 | 1.9 | 3.9 | 2.7 | 2.7 | 38 | 266 | 244 |

Table A3 Country-specific performance data, by country (continued)

| Country | Logistics Performance Survey question | | | | | | | | | |
|--------------------|---------------------------------------|---------------------------------------|---|---|---|-----------------------------------|-----------------------------------|--|---|--|
| | Rate of physical inspection (percent) | Customs clearance ^a (days) | Lead time ^b export, median case (days) | Lead time ^c import, best case (days) | Lead time ^d import, median case (days) | Number of border agencies exports | Number of border agencies imports | Possibility of a review procedure ^e (percent) | Typical charge ^f for a 40-foot export container or a semi-trailer (US\$) | Typical charge for a 40-foot import container or a semi-trailer (US\$) |
| Iran | 87 | 1.0 | 4.0 | 2.0 | 3.5 | 3.5 | 2.5 | 0 | 500 | 707 |
| Ireland | 1 | 0.8 | 1.8 | 1.0 | 2.3 | 1.7 | 1.7 | 50 | 266 | 266 |
| Israel | 2 | 1.4 | 5.3 | 2.0 | 8.7 | 5.0 | 6.0 | 100 | 1,000 | 2,000 |
| Italy | 5 | 1.3 | 2.3 | 1.6 | 3.5 | 6.7 | 10.0 | 100 | 335 | 531 |
| Jamaica | 18 | 3.0 | 10.0 | 6.0 | 10.0 | 6.0 | 5.0 | 100 | | |
| Japan | 3 | 1.4 | 3.0 | 1.3 | 2.7 | 3.0 | 3.0 | 100 | 721 | 630 |
| Jordan | 22 | 1.8 | 2.0 | 2.0 | 4.6 | 3.3 | 3.7 | 33 | 707 | 1,000 |
| Kazakhstan | 18 | 7.1 | 2.8 | 2.0 | 11.5 | 2.0 | 7.5 | 50 | 194 | 194 |
| Kenya | 28 | 4.0 | 5.8 | 4.7 | 10.0 | 3.3 | 4.4 | 25 | 1,176 | 1,719 |
| Kuwait | 45 | 2.0 | 4.5 | 2.3 | 3.4 | 2.4 | 2.6 | 25 | 355 | 490 |
| Latvia | 4 | 0.7 | 2.3 | 1.7 | 2.4 | 2.8 | 3.0 | 67 | 211 | 287 |
| Lebanon | 42 | 2.0 | 2.4 | 1.4 | 2.4 | 1.5 | 2.0 | 0 | 354 | 500 |
| Liberia | 50 | 3.0 | 4.0 | 2.0 | 5.0 | 5.0 | 5.0 | 0 | 500 | 500 |
| Lithuania | 14 | 4.2 | 4.5 | 1.0 | 4.5 | 3.5 | 7.5 | 100 | 354 | 354 |
| Malawi | 3 | 1.0 | 4.2 | 2.6 | 3.7 | 1.5 | 1.5 | 100 | 387 | 548 |
| Malaysia | 6 | 1.7 | 3.4 | 1.7 | 3.3 | 2.5 | 3.3 | 75 | 783 | 658 |
| Maldives | 50 | 0.5 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 | 0 | | |
| Mali | 75 | 3.0 | 12.0 | 14.0 | 18.0 | 3.0 | 3.0 | 0 | 3,000 | 3,000 |
| Mauritius | 18 | 0.7 | 3.0 | 2.0 | 2.4 | 2.0 | 5.0 | 100 | 194 | 250 |
| Mexico | 10 | 1.3 | 3.9 | 2.4 | 4.4 | 3.3 | 3.4 | 0 | 552 | 511 |
| Morocco | 10 | 1.0 | 4.0 | 4.0 | 10.0 | 3.0 | 3.0 | 100 | 300 | 500 |
| Myanmar | 56 | 4.5 | 2.6 | 2.2 | 3.2 | 3.7 | 3.7 | 0 | 150 | 150 |
| Namibia | 18 | 1.0 | 3.0 | 3.0 | 4.0 | 3.0 | 6.0 | 0 | 1,000 | 1,000 |
| Nepal | 12 | 1.4 | 4.9 | 8.0 | 8.7 | 5.3 | 4.3 | 33 | 1,817 | 2,621 |
| Netherlands | 3 | 0.6 | 2.6 | 1.6 | 2.6 | 2.9 | 1.7 | 80 | 298 | 364 |
| New Zealand | 5 | 0.5 | 1.9 | 1.4 | 2.2 | 2.3 | 2.8 | 0 | 224 | 224 |
| Nicaragua | 18 | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | 1.0 | 0 | 3,000 | 2,000 |
| Nigeria | 72 | 8.1 | 9.9 | 8.4 | 11.2 | 7.5 | 7.5 | 0 | 1,732 | 2,449 |
| Norway | 2 | 0.5 | 2.2 | 2.2 | 3.4 | 2.3 | 2.0 | 60 | 660 | 562 |
| Pakistan | 10 | 2.4 | 3.2 | 2.7 | 3.7 | 3.2 | 2.9 | 60 | 382 | 444 |
| Panama | 18 | 1.7 | 3.2 | 2.8 | 4.9 | 2.5 | 2.5 | 50 | 354 | 274 |
| Paraguay | 100 | 5.0 | 1.0 | 4.0 | 4.0 | 0.0 | 10.0 | 0 | 1,000 | 1,000 |
| Peru | 7 | 1.6 | 1.7 | 2.7 | 4.4 | 3.3 | 3.2 | 25 | 420 | 707 |
| Philippines | 32 | 1.8 | 6.3 | 3.7 | 5.3 | 4.0 | 4.0 | 50 | 721 | 794 |
| Poland | 3 | 3.2 | 3.0 | 2.0 | 3.0 | 3.0 | 4.0 | 0 | 2,000 | 1,000 |
| Portugal | 3 | 1.7 | 2.5 | 2.5 | 5.0 | 2.0 | 2.3 | 50 | 335 | 500 |
| Qatar | 100 | 3.9 | 1.0 | 1.0 | 1.0 | 3.0 | 3.0 | 50 | | |
| Romania | 24 | 1.2 | 2.2 | 1.4 | 3.0 | 4.0 | 3.5 | 25 | 783 | 794 |
| Russian Federation | 20 | 1.4 | 2.8 | 2.0 | 3.0 | 4.0 | 4.5 | 0 | 1,565 | 1,732 |
| Saudi Arabia | 32 | 3.9 | 4.3 | 3.6 | 6.6 | 2.0 | 1.8 | 50 | 224 | 335 |
| Senegal | 36 | 4.2 | 4.0 | 2.3 | 5.2 | 4.0 | 4.0 | 33 | 500 | 825 |
| Serbia Montenegro | 4 | 0.5 | 2.0 | 2.0 | 3.0 | 2.0 | 1.5 | 0 | 3,000 | 5,000 |
| Sierra Leone | 75 | 10.0 | 10.0 | 7.0 | 18.0 | 3.0 | 3.0 | 0 | 1,000 | 500 |

Table A3 Country-specific performance data, by country (continued)

| Logistics Performance Survey question | | | | | | | | | | |
|---------------------------------------|---------------------------------------|---------------------------------------|---|---|---|-----------------------------------|-----------------------------------|--|---|--|
| Country | Rate of physical inspection (percent) | Customs clearance ^a (days) | Lead time ^b export, median case (days) | Lead time ^c import, best case (days) | Lead time ^d import, median case (days) | Number of border agencies exports | Number of border agencies imports | Possibility of a review procedure ^e (percent) | Typical charge ^f for a 40-foot export container or a semi-trailer (US\$) | Typical charge for a 40-foot import container or a semi-trailer (US\$) |
| Singapore | 3 | 1.1 | 2.4 | 1.2 | 2.2 | 1.5 | 1.7 | 67 | 311 | 311 |
| Slovak Republic | 6 | 0.8 | 2.6 | 2.2 | 3.0 | 2.3 | 2.0 | 100 | 707 | 707 |
| Slovenia | 3 | 1.0 | 3.7 | 2.0 | 3.9 | 4.0 | 2.5 | 100 | 500 | 500 |
| Solomon Islands | 50 | 4.0 | 9.0 | 5.0 | 11.0 | 10.0 | 10.0 | 100 | | |
| South Africa | 2 | 1.9 | 2.2 | 1.9 | 4.0 | 4.5 | 3.2 | 60 | 619 | 515 |
| South Korea | 1 | 1.0 | 2.0 | 1.8 | 2.7 | 2.3 | 2.7 | 67 | 630 | 630 |
| Spain | 3 | 1.5 | 2.6 | 1.7 | 3.1 | 5.2 | 5.2 | 33 | 595 | 595 |
| Sri Lanka | 20 | 1.8 | 1.9 | 1.9 | 2.5 | 2.4 | 2.8 | 20 | 245 | 263 |
| Sweden | 1 | 0.7 | 1.9 | 1.7 | 2.6 | 2.6 | 3.4 | 80 | 758 | 794 |
| Switzerland | 2 | 0.5 | 1.6 | 2.1 | 3.8 | 3.3 | 4.0 | 33 | 1,225 | 1,225 |
| Taiwan, China | 11 | 1.0 | 2.0 | 1.4 | 3.0 | 3.0 | 6.0 | 50 | 1,000 | 707 |
| Tanzania | 22 | 7.8 | 11.2 | 11.2 | 21.2 | 2.3 | 3.5 | 0 | 354 | 612 |
| Thailand | 9 | 1.9 | 3.4 | 1.4 | 2.3 | 4.3 | 4.3 | 0 | 422 | 422 |
| Tunisia | 61 | 3.0 | 5.9 | 2.4 | 10.0 | 3.5 | 6.5 | 50 | 500 | 500 |
| Turkey | 10 | 1.9 | 2.5 | 1.5 | 2.4 | 5.0 | 4.8 | 40 | 917 | 1,286 |
| Uganda | 61 | 4.5 | 14.0 | 10.0 | 14.0 | 2.0 | 2.0 | 100 | 3,000 | 3,000 |
| Ukraine | 40 | 1.0 | 2.4 | 2.0 | 2.4 | 4.7 | 5.3 | 67 | 250 | 500 |
| United Arab Emirates | 3 | 0.9 | 3.5 | 2.2 | 4.1 | 3.6 | 3.6 | 71 | 291 | 298 |
| United Kingdom | 3 | 0.8 | 3.3 | 3.2 | 3.4 | 4.2 | 4.1 | 75 | 777 | 1,147 |
| United States | 3 | 1.1 | 3.6 | 2.5 | 3.9 | 2.9 | 3.2 | 64 | 861 | 1,008 |
| Uruguay | 11 | 1.7 | 5.0 | 2.2 | 5.0 | 2.5 | 3.5 | 100 | 671 | 671 |
| Venezuela | 38 | 4.4 | 4.7 | 4.9 | 6.4 | 2.4 | 3.6 | 0 | 715 | 490 |
| Vietnam | 14 | 1.4 | 2.8 | 2.6 | 4.0 | 4.5 | 4.0 | 57 | 194 | 294 |
| Zambia | 44 | 2.0 | 9.2 | 5.2 | 9.9 | 2.0 | 2.0 | 67 | 4,217 | 5,000 |
| Zimbabwe | 50 | 2.0 | 25.0 | 14.0 | 18.0 | 3.0 | 2.0 | 100 | 4,000 | 4,000 |

a. Time taken between the submission of an accepted customs declaration and customs clearance.

b. From shipper to port of loading, median case = 50 percent of shipments.

c. From port of discharge to consignee, best case = 10 percent of shipments.

d. From port of discharge to consignee, median case = 50 percent of shipments.

e. The percentages reported in this column represent the proportion of respondents answering that a simple and inexpensive review procedure is available.

f. Total cost to transport and port services.

Note: Country-specific data is not available for all 150 countries in the index. Blank cells indicate no data available.

What is the Logistics Performance Index?

Based on a worldwide survey of global freight forwarders and express carriers, the Logistics Performance Index is a benchmarking tool developed by the World Bank that measures performance along the logistics supply chain within a country. Allowing for comparisons across 150 countries, the index can help countries identify challenges and opportunities and improve their logistics performance.

Technological progress and worldwide trade and investment liberalization are presenting new opportunities for countries to harness global markets for growth and poverty reduction. But with the advent of global supply chains, a new premium is being placed on being able to move goods from A to B rapidly, reliably, and cheaply. Countries able to connect to the global logistics web have access to vast new markets; but those whose links are weak face the large and growing costs of exclusion.



Logistics Performance Index



International Federation
for Freight Forwarders
Associations



Global Facilitation Partnership for Transportation and Trade



Global
Express
Association



TURKU SCHOOL OF ECONOMICS



THE WORLD BANK

Trade facilitation has been recognized as key to economic development, but research on this topic has suffered from a lack of good quantitative measures. By introducing a comprehensive new index of logistics performance, **Connecting to Compete: Trade Logistics in the Global Economy** makes an important contribution to the literature and offers new insights into the factors limiting the globalization gains accruing to the poorest countries of the world.

Thomas W. Hertel
Distinguished Professor and Executive Director
Center for Global Trade Analysis, Purdue University

The establishment of the Logistics Performance Index underlines the importance of logistics in a globalized world. The index delivers a comprehensive and consistent view on the different national logistics markets and supports the process of continual improvement of service levels related to logistics.

Klaus-Michael Kuehne, Executive Chairman
Kuehne + Nagel International AG

For developing countries such as Pakistan, there is need of such studies that give some indication and guidance on how and what countries should improve to become competitive and reach the level of developed countries. We were glad to be able to contribute to this important initiative of the World Bank.

Muhammad Khalid Paracha, Managing Director
MAP Enterprises, Karachi, Pakistan