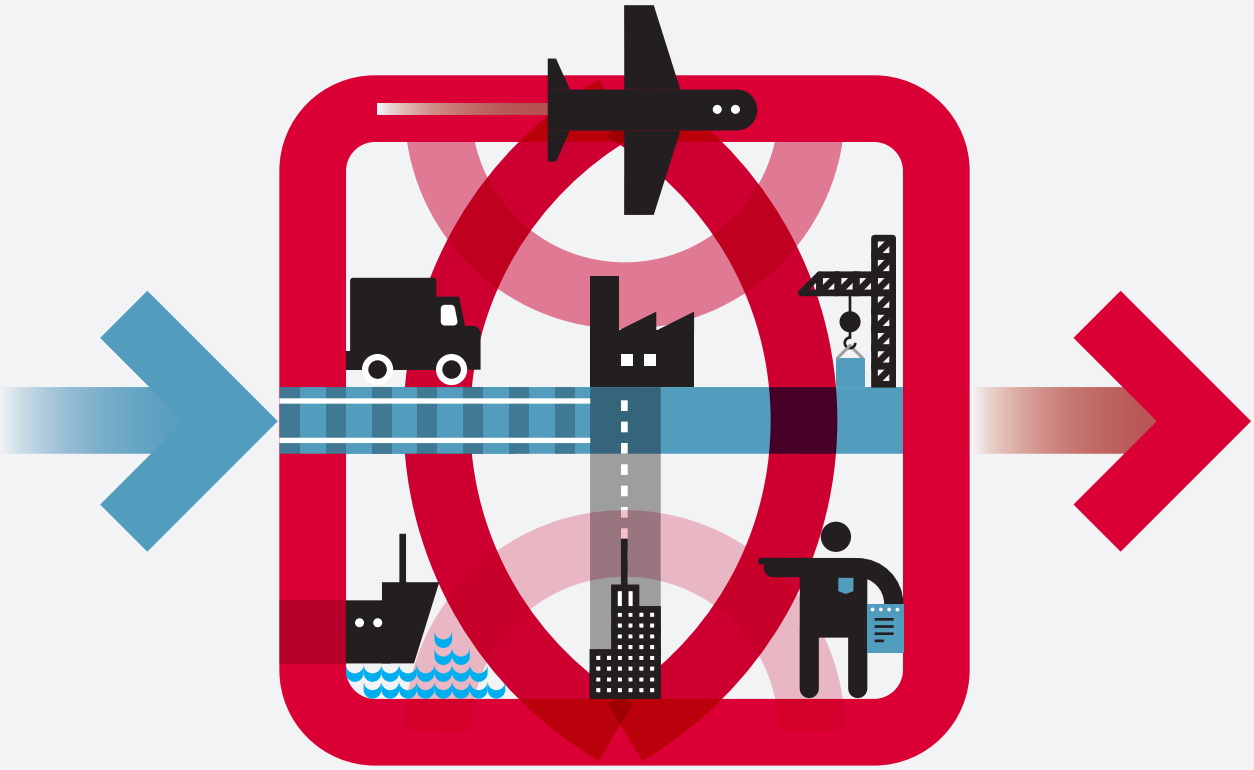
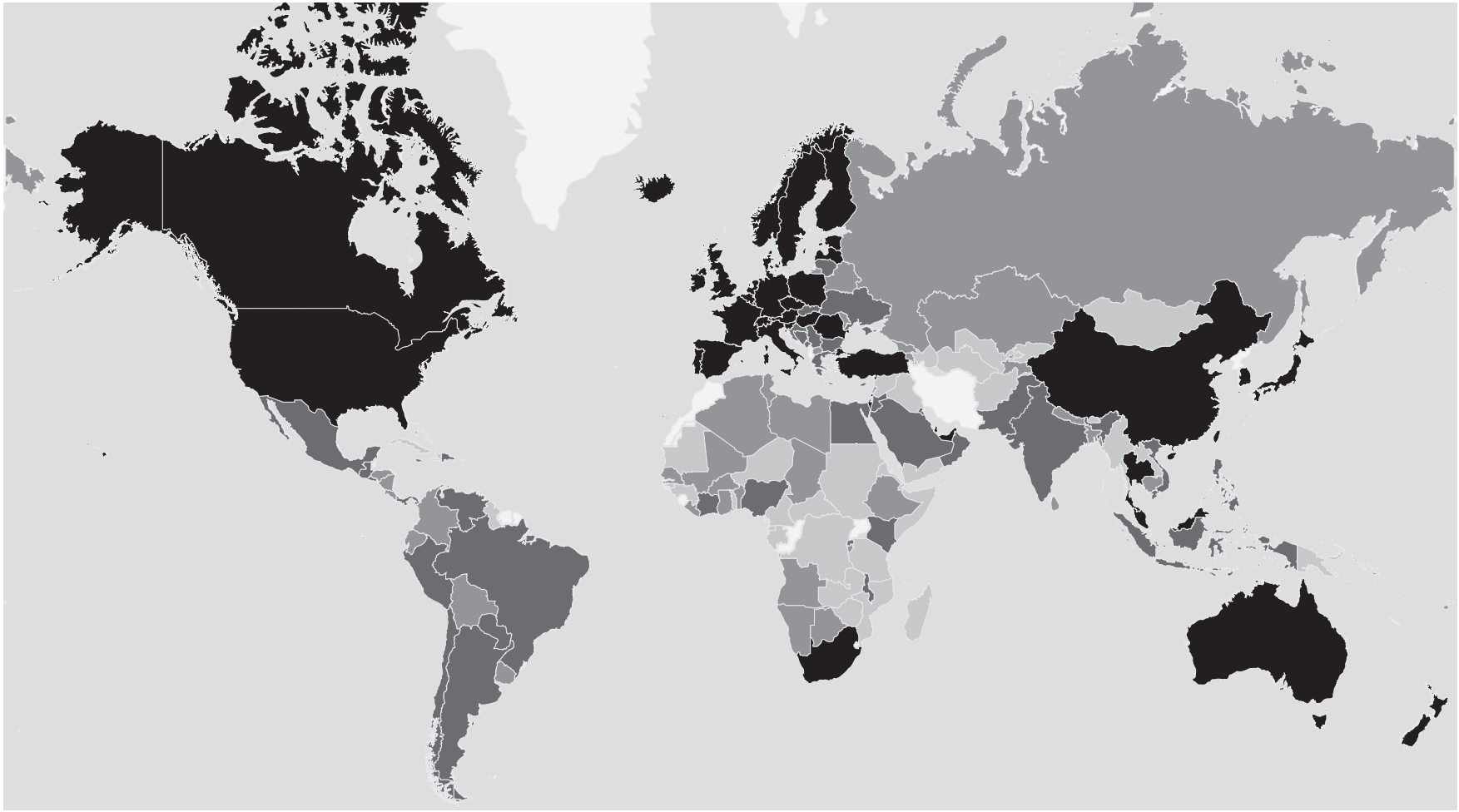
Connecting to Compete

2014

Trade Logistics in the Global Economy



The Logistics Performance Index and Its Indicators


LPI score
1.00–2.47
2.48–2.75
2.75–3.27
3.34–5.00
No data
1 is the lowest score; 5 is the highest score.

Connecting to Compete 2014
Trade Logistics in the Global Economy

The Logistics Performance Index and Its Indicators

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Foreword

This is the fourth edition of *Connecting to Compete: Trade Logistics in the Global Economy*. It features the Logistics Performance Index (LPI), which the World Bank has produced every two years since 2007. The LPI measures the on-the-ground efficiency of trade supply chains, or logistics performance. This year's edition covers 160 countries.

Supply chains are the backbone of international trade and commerce. Their logistics encompasses freight transportation, warehousing, border clearance, payment systems, and increasingly many other functions outsourced by producers and merchants to dedicated service providers. The importance of good logistics performance for economic growth, diversification, and poverty reduction is now firmly established.

Although logistics is performed mainly by private operators, it has become a public policy concern of national governments and regional and international organizations. Supply chains are a complex sequence of coordinated activities. The performance of the whole depends on such government interventions as infrastructure, logistics services provision, and cross-border trade facilitation.

Since the first edition, the LPI has shown that good policies matter to develop efficient supply chains but also that many developing countries still lag behind. The "logistics gap" evident in the first three editions still prevails and underscores the importance of consistent policies across sectors (trade, customs, and transportation, for instance). The agenda and priorities are evolving. The imperative of facilitating trade through more transparent and consistent border clearance is now universally recognized—and set in stone in December 2013's World Trade Organization Agreement on Trade Facilitation in Bali, Indonesia. New challenges of environmental sustainability, spatial planning, and the regulation and organization of services are receiving more attention, and not only in rich and emerging countries.

The LPI and its components help countries understand the challenges that they and their trading partners face in making their national logistics perform strongly. The LPI complements, rather than substitutes for, the in-depth country assessments that many countries have undertaken in recent years, and many of them with World Bank support. The LPI scores are not to be overemphasized, however—a country's actual ranking or score should not be interpreted in isolation, but instead whether it ranks among the best or worst performers. The LPI allows leaders in government, business, and civil society to better assess the competitive advantage created by good logistics and to understand the relative importance of different interventions. We hope that this fourth edition of *Connecting to Compete* will continue to support this broad community of policymakers and stakeholders.

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This report was prepared by the World Bank's Economic Policy, Debt, and Trade Department, under the guidance of Jeffrey D. Lewis (Director) and Mona Haddad (Sector Manager). The project leaders and main authors were Jean-François Arvis (jarvis1@worldbank.org) and Daniel Saslavsky (dsaslavsky@worldbank.org). Authors included Professor Lauri Ojala (Turku School of Economics, University of Turku; lauri.ojala@utu.fi), Ben Shepherd (Principal, Developing Trade Consultants Ltd.; ben@developing-trade.com), Christina Busch (cbusch@worldbank.org), and Anasuya Raj (araj1@worldbank.org). Monica Alina Antoci (Mustra) served as main author in all previous editions of the LPI. Gerard McLinden and Julia Burr Oliver provided input to this year's edition.

Cordula Rastogi, Amer Zafar Durrani, Olivier Hartmann, Charles Kunaka, and Richard Record provided support to reach freight forwarding associations. Ekaterina Vashakmadze and Cecilia Briceño-Garmendia were peer reviewers for this edition's project concept note. Syed Ejaz Ghani and Gaurav Nayyar also contributed to the review process. Amir Fouad and Miles McKenna provided valuable inputs for the outreach strategy.

The authors are also grateful to external colleagues for their support and contributions with the concept and reaching out to forwarding associations, including Ruth Banomyong (Thammasat University, Thailand) and Tapio Naula (African Development Bank, Tunis). Daniel Cramer of BlueTundra.com designed, developed, and maintained the LPI survey and results websites, under the guidance of the core team. Scott Johnson from the World Bank Information Solutions Group helped the team monitor survey responses.

The LPI survey would not have been possible without the support and participation of the International Federation of Freight Forwarders Associations (www.fiata.com), national freight forwarding associations, and a large group of small, medium, and large logistics companies worldwide. Logistics think tanks in different countries have also provided a valuable contribution to reach out to the freight forwarding community. The Global Express Association, too, gave outreach support with its members. The survey was designed and implemented with Finland's Turku School of Economics, University of Turku (www.tse.fi/en), which has worked with the World Bank to develop the concept since 2000.

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

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LPI ranking and scores, 2014

Economy	2014 LPI Rank	Score	% of highest performer	Economy	2014 LPI Rank	Score	% of highest performer	Economy	2014 LPI Rank	Score	% of highest performer
Germany	1	4.12	100.0	Croatia	55	3.05	65.8	Benin	109	2.56	50.0
Netherlands	2	4.05	97.6	Kuwait	56	3.01	64.4	Tunisia	110	2.55	49.7
Belgium	3	4.04	97.5	Philippines	57	3.00	64.2	Fiji	111	2.55	49.5
United Kingdom	4	4.01	96.6	Cyprus	58	3.00	64.1	Angola	112	2.54	49.4
Singapore	5	4.00	96.2	Oman	59	3.00	63.9	Chad	113	2.53	49.0
Sweden	6	3.96	94.9	Argentina	60	2.99	63.6	Tajikistan	114	2.53	48.9
Norway	7	3.96	94.8	Ukraine	61	2.98	63.3	Mauritius	115	2.51	48.5
Luxembourg	8	3.95	94.4	Egypt, Arab Rep.	62	2.97	63.0	Georgia	116	2.51	48.3
United States	9	3.92	93.5	Serbia	63	2.96	62.9	Macedonia, FYR	117	2.50	48.0
Japan	10	3.91	93.4	El Salvador	64	2.96	62.8	Libya	118	2.50	47.9
Ireland	11	3.87	91.9	Brazil	65	2.94	62.3	Mali	119	2.50	47.9
Canada	12	3.86	91.5	Bahamas, The	66	2.91	61.2	Botswana	120	2.49	47.8
France	13	3.85	91.2	Montenegro	67	2.88	60.1	Bolivia	121	2.48	47.4
Switzerland	14	3.84	91.1	Jordan	68	2.87	60.0	Guinea	122	2.46	46.9
Hong Kong SAR, China	15	3.83	90.5	Dominican Republic	69	2.86	59.6	Zambia	123	2.46	46.9
Australia	16	3.81	90.0	Jamaica	70	2.84	59.0	Guyana	124	2.46	46.7
Denmark	17	3.78	89.1	Peru	71	2.84	59.0	Azerbaijan	125	2.45	46.4
Spain	18	3.72	87.1	Pakistan	72	2.83	58.5	Papua New Guinea	126	2.43	45.8
Taiwan, China	19	3.72	87.0	Malawi	73	2.81	58.1	Guinea-Bissau	127	2.43	45.7
Italy	20	3.69	86.2	Kenya	74	2.81	58.0	Comoros	128	2.40	44.9
Korea, Rep.	21	3.67	85.4	Nigeria	75	2.81	57.9	Uzbekistan	129	2.39	44.7
Austria	22	3.65	84.8	Venezuela, RB	76	2.81	57.9	Niger	130	2.39	44.6
New Zealand	23	3.64	84.7	Guatemala	77	2.80	57.6	Lao PDR	131	2.39	44.5
Finland	24	3.62	84.0	Paraguay	78	2.78	57.0	Madagascar	132	2.38	44.3
Malaysia	25	3.59	83.0	Côte d'Ivoire	79	2.76	56.4	Lesotho	133	2.37	44.0
Portugal	26	3.56	82.0	Rwanda	80	2.76	56.3	Central African Republic	134	2.36	43.6
United Arab Emirates	27	3.54	81.3	Bosnia and Herzegovina	81	2.75	56.0	Mongolia	135	2.36	43.4
China	28	3.53	81.1	Maldives	82	2.75	56.0	Equatorial Guinea	136	2.35	43.4
Qatar	29	3.52	80.6	Cambodia	83	2.74	55.8	Zimbabwe	137	2.34	42.9
Turkey	30	3.50	80.1	São Tomé and Príncipe	84	2.73	55.5	Tanzania	138	2.33	42.6
Poland	31	3.49	79.9	Lebanon	85	2.73	55.3	Togo	139	2.32	42.2
Czech Republic	32	3.49	79.8	Ecuador	86	2.71	54.8	Turkmenistan	140	2.30	41.8
Hungary	33	3.46	78.9	Costa Rica	87	2.70	54.5	Iraq	141	2.30	41.6
South Africa	34	3.43	77.9	Kazakhstan	88	2.70	54.4	Cameroon	142	2.30	41.5
Thailand	35	3.43	77.8	Sri Lanka	89	2.70	54.3	Bhutan	143	2.29	41.3
Latvia	36	3.40	77.0	Russian Federation	90	2.69	54.3	Haiti	144	2.27	40.7
Iceland	37	3.39	76.6	Uruguay	91	2.68	53.8	Myanmar	145	2.25	40.0
Slovenia	38	3.38	76.3	Armenia	92	2.67	53.6	Gambia, The	146	2.25	40.0
Estonia	39	3.35	75.1	Namibia	93	2.66	53.1	Mozambique	147	2.23	39.4
Romania	40	3.26	72.4	Moldova	94	2.65	53.0	Mauritania	148	2.23	39.4
Israel	41	3.26	72.4	Nicaragua	95	2.65	53.0	Kyrgyz Republic	149	2.21	38.7
Chile	42	3.26	72.3	Algeria	96	2.65	52.8	Gabon	150	2.20	38.5
Slovak Republic	43	3.25	72.2	Colombia	97	2.64	52.5	Yemen, Rep.	151	2.18	37.9
Greece	44	3.20	70.5	Burkina Faso	98	2.64	52.5	Cuba	152	2.18	37.8
Panama	45	3.19	70.3	Belarus	99	2.64	52.5	Sudan	153	2.16	37.2
Lithuania	46	3.18	69.8	Ghana	100	2.63	52.1	Djibouti	154	2.15	36.8
Bulgaria	47	3.16	69.1	Senegal	101	2.62	52.0	Syrian Arab Republic	155	2.09	34.9
Vietnam	48	3.15	69.0	Liberia	102	2.62	51.9	Eritrea	156	2.08	34.7
Saudi Arabia	49	3.15	68.8	Honduras	103	2.61	51.5	Congo, Rep.	157	2.08	34.5
Mexico	50	3.13	68.2	Ethiopia	104	2.59	51.0	Afghanistan	158	2.07	34.3
Malta	51	3.11	67.5	Nepal	105	2.59	50.9	Congo, Dem. Rep.	159	1.88	28.2
Bahrain	52	3.08	66.7	Solomon Islands	106	2.59	50.8	Somalia	160	1.77	24.8
Indonesia	53	3.08	66.7	Burundi	107	2.57	50.2				
India	54	3.08	66.6	Bangladesh	108	2.56	50.1				

Summary and key findings

Improving logistics performance is at the core of the economic growth and competitiveness agenda. Policymakers globally recognize the logistics sector as one of their key pillars for development. Trade powerhouses in Europe like the Netherlands[1] or in developing countries like Vietnam or Indonesia[2] see seamless and sustainable logistics as an engine of growth and of integration with global value chains.

Indeed, inefficient logistics raises the costs of trading and reduces the potential for global integration. This is a hefty burden for developing countries trying to compete in the global marketplace. Since 2007, the Logistics Performance Index (LPI) has been informing the debate on the role of logistics for growth and the policies to support it in such areas as infrastructure, service provision, and cross-border trade facilitation.

Logistics performance continues to converge—slowly

The results of *Connecting to Compete 2014* point to Germany as the best performing country with an LPI score of 4.12, and Somalia as the worst with 1.77 (on a scale of 1 to 5). (Germany was also the best performer over 2007–14—box 1.) A slightly converging trend from previous LPI surveys in 2007, 2010, and 2012 is also found in 2014, with lower performing countries improving their overall LPI scores more than higher performing countries (figure 1).

The modest convergence since 2007 is explained by a perceived improvement in trade-supporting infrastructure in low- and middle-income countries—and to a lesser extent in their logistics services and customs and border management (figure 2). This perceived improvement attests to the success of developing countries in closing the transport infrastructure gap with high-income countries.

If service delivery is poor, good physical connectivity is not enough

Infrastructure development has assured basic connectivity and access to gateways for most developing countries, a fact consistent with trends in the LPI since 2007. Yet countries have been more successful in delivering quality for some types of infrastructure. Quality

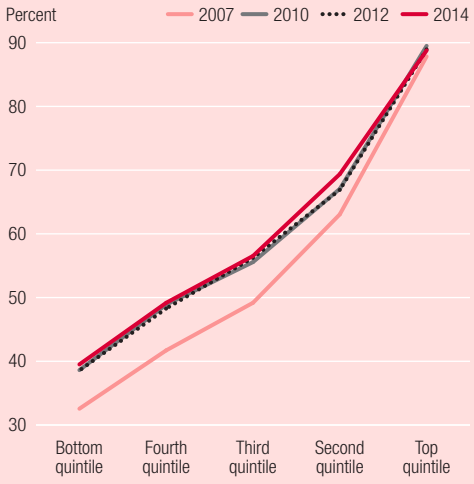
Box 1 The weighted aggregate results of the international LPI, 2007–14

Variation of countries' scores from one LPI survey to another could be significantly reduced by aggregating the scores of the six components across the four LPI surveys. Scores in the 2014 LPI were given a weight 53.3 percent, followed by 26.7 percent for 2012, 13.3 percent for 2010, and 6.7 percent for 2007. This also enabled the comparison of 166 countries.

In the aggregated 2007–14 LPI, Germany ranked highest at 4.10, followed by Singapore (4.06) and the Netherlands (4.05); 15 of 28 European Union (EU) member states and 23 of 34 Organisation for Economic Co-operation and Development (OECD) members were among the top 30 countries. The non-OECD economies in this group were Singapore (2nd), Hong Kong SAR, China (8th), Taiwan, China (20th), United Arab Emirates (24th), Malaysia (26th), China (27th), and South Africa (28th). All EU member states and OECD countries were in the top third. Somalia (score 1.63) was ranked 166th at 20.2 percent of the top score.

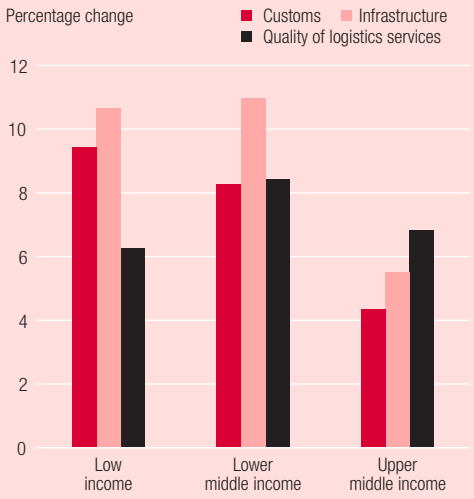
Efficient border management is critical for eliminating avoidable delays and enhancing predictability in border clearance

Figure 1 **LPI score as percentage of highest LPI score by LPI quintile, 2007, 2010, 2012, and 2014**



Source: Logistics Performance Index 2007, 2010, 2012, and 2014.

Figure 2 **Percentage change in LPI component as measured against the highest performer, 2007–14**



Source: Logistics Performance Index 2007 and 2014.

of information and communications technology infrastructure is regarded not only as the highest across all respondents, but also where the gap between lowest and highest performers has narrowed the most, partly due to automation in border management. Conversely, rail infrastructure inspires general dissatisfaction. Ratings for other types of infrastructure vary by region.

Infrastructure services are delivered by logistics providers that operate under very different environments globally. Usually, the quality of the services they provide is perceived better than the quality of the corresponding infrastructure they operate. This "divide" between services and infrastructure quality is wider in air and maritime transport. Railroads, again, have low ratings almost everywhere. And low-income countries still score poorly on road freight services, despite having given them more policy attention recently. Acceptable services in infrastructure can be achieved in less-than-ideal circumstances, but differences in service quality can be substantial for similar levels of perceived infrastructure quality, for operational excellence cannot be replaced or necessarily equated with good physical "hardware."

Trade facilitation and border management reforms matter

Supply chain reliability is a major concern for traders and logistics providers alike. In a global environment, consignees require more certainty about when and how deliveries will take place. This increases the demand for quality in logistics services, posing challenges for private agents and for governments, all of which face pressure to facilitate trade while safeguarding the public against criminal activity, health concerns, or terrorism threats.

Efficient border management is critical for eliminating avoidable delays and enhancing predictability in border clearance. Coordination among government control agencies will remain essential in trade facilitation efforts—as will introducing best practices in automation and risk management in non-customs control agencies, which have generally been less open to reform. Accordingly, customs agencies have obtained higher LPI ratings than all other agencies in border management, particularly sanitary and phytosanitary control agencies, and less so those enforcing standards.

The World Trade Organization Ministerial Conference Agreement on Trade Facilitation, in December 2013 in Bali, marked the importance of the facilitation agenda for expanding

trade. After more than a decade of negotiations, the Bali Ministerial Declaration renewed the impetus to reform trade facilitation. It also created some urgency for the donor community to support developing countries in this endeavor.

Increased complexity, no more low-hanging fruit

Previous editions proposed a typology of four broad groups of countries, based on how friendly their logistics environments are. The most in need of attention from the international community and their neighbors are those with governance challenges—such as postconflict countries and fragile states—as well as those challenged by their economic size or geography in their connectivity to global markets—such as landlocked developing countries and small island states. Long-standing, but still mainly unresolved, implementation challenges in these countries, such as regional transit regimes, remain key for future progress as many now have the basic connective infrastructure in place.

Despite least developed countries' efforts to improve their logistics, there is a growing need for consistent action plans where complexity is higher, as in most middle-income countries. The notion that there may be low-hanging fruit that countries can pick easily is less and less true. Further, reforms with many stakeholders can be slow to implement, or even reversed by governance weaknesses, as in Tunisia. More detailed, accurate data for policymaking and information sharing is needed. For instance, the trade facilitation concept of "single windows for trade" requires alignment of several government control agencies, which takes time, but can be implemented in least developed countries, as in the Lao People's Democratic Republic. Countries that introduce far-reaching changes have combined regulatory reform with investment planning, interagency coordination, and incentives for operators.

The LPI shows that the quality of services is driving logistics performance in emerging and richer economies, too (see figure 2). Yet developing services like third-party logistics, trucking, and forwarding may be the most complex policy agenda ahead, with few success stories so far. In "logistics friendly" countries, manufacturers and traders already outsource logistics to third-party providers, and focus on their core business while managing more complex supply chains.

Supply chain sustainability concerns are stronger in this edition. About 37 percent of respondents shipping to countries in the Organisation for Economic Co-operation and Development recognized a demand for environmentally friendly logistics solutions, compared with just 10 percent for low-income destinations. Governments will need to make long-term policy changes that improve and maintain the competitiveness of these services, consistent with fast-changing industry practices. So developing countries will have to not only consider the environmental footprint of their logistics, especially in trading with developed countries, but also revisit governance and operational models for environmentally friendly infrastructure and related transport modes, especially railways, that seem to perform poorly relative to those in the top performers.

Conclusion

Logistics performance is strongly associated with the reliability of supply chains and the predictability of service delivery for producers and exporters. Supply chains—only as strong as their weakest links—are becoming more and more complex, often spanning many countries while remaining critical to national competitiveness.

Comprehensive reforms and long-term commitments from policymakers and private stakeholders will be essential. Here, the LPI provides a unique reference to better understand key trade logistics impediments worldwide.

The LPI shows that the quality of services is driving logistics performance in emerging and richer economies

SECTION 1

The 2014 Logistics Performance Index

Logistics lies at the heart of Europe's single market and is central to daily lives of companies and citizens. European logistics policy supports an environment where transport companies and operators can run their business efficiently, so they can continue growing and innovating in order to keep Europe globally competitive.

—Siim Kallas, Vice-President of the European Commission and European Commissioner for Transport

As reflected in the statement by Commissioner Kallas, the importance of efficient logistics is now widely accepted by policymakers worldwide. Trade and commerce are moved within and across borders by private operators. The efficiency of those supply chains—logistics performance—is what the Logistics Performance Index (LPI) and its components measure. This performance depends heavily on the policy environment: measures by individual countries or regional economic groups in infrastructure provision, regulation and development of services, or facilitation of trade through more friendly procedures at the border contribute substantially to logistics performance.

Unlike in 2007 when the World Bank started performance monitoring, the problem today is not poor awareness among public and private sector leaders, but the design and implementation of policies that enable countries to connect to logistics networks and compete globally (box 1.1). The December 2013 Trade Facilitation Agreement of the World Trade Organization (WTO), signed in Bali, Indonesia, is a testimony to this consensus, providing some guidance on crucial policies (see box 2.2). But countries that constantly improve their logistics performance can develop reforms and investment consistently in a broader economic objective. Improving logistics enhances the competitiveness of logistics-intensive sectors, such as component manufacturing, which join multinational value chains.[3] Other countries may want to develop logistics as an activity tied to their transport connectivity and geographic advantage.

Take Greece, a country just starting to come out of a painful crisis, which is seeing its LPI pick up. The government and private sector decided to reform the logistics sector boldly to exploit the country's location as an entry point into Europe from the east and south: Piraeus (the port of Athens) is the first deep-sea European port from Asia through the Suez Canal. The port has been overhauled and has seen a boost in throughput via a public-private partnership with COSCO, the largest integrated shipping company in China. The government has taken steps to align service regulation with Western Europe and increase the efficiency of the railway corridor to Austria and Germany.

Features of the 2014 survey

The 2014 LPI survey is similar to the three before: a standardized questionnaire with two parts—international and domestic. For the international part ("international LPI"), respondents assess six key areas of logistics performance in eight of their main overseas markets (box 1.2). For the domestic part, respondents provide qualitative and quantitative data on the logistics environment in the country where they work—such as information on time and costs in a typical supply chain. The survey also collects data on domestic logistics and on the time and cost burdens of import and export transactions. In 2014 there were more than 6,000 assessments

Box 1.1 **Connectivity, logistics networks, and logistics performance**

What is connectivity?

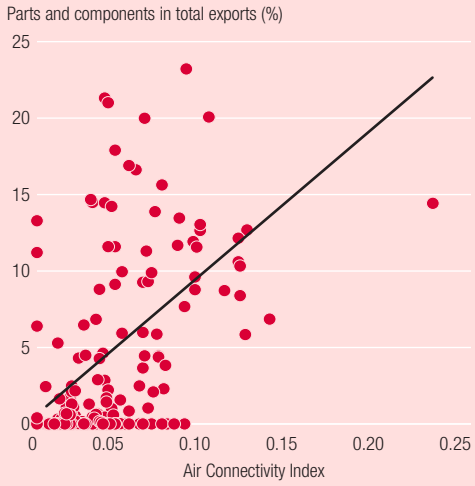
Since the first edition of *Connecting to Compete* in late 2007, many policy packages promoting gains to logistics, trade facilitation, and transport have been labeled "connectivity." The Asia-Pacific Economic Cooperation, for example, has a supply chain connectivity initiative, while Indonesia has set up a connectivity program, as has a group of countries in Central America and the Caribbean.

Yet despite the relevance and coherence of the policies, the concept remains intuitive and often loosely defined, such that "connectivity" may become a catchword with too blurry a relation to such practicalities as "trade facilitation" and "logistics."

Some clarification and formalization of the concept has been proposed.[1] Trade logistics is supported by companies that operate in networks. International transportation, shipping, or air transport takes place in complex networks structured in hubs and spokes. The connectivity of a country, or perhaps one of its ports or airports, is defined as how "central" this country is to those networks. Connectivity partly reflects geography and the global structure of transportation and logistics networks. Country-specific trade transaction costs coming from supply chain inefficiencies increase economic distance and reduce connectivity. Hence policies that increase logistics performance improve connectivity, notwithstanding network geography.

As one might expect, the LPI is tied to connectivity indicators such as the United Nations Conference on Trade and Development's liner shipping connectivity index[2]—one of only a few connectivity indicators. The World Bank has proposed an Air Connectivity Index,[3] a full version of which will be made available soon. These data confirm that there is a strong correlation between connectivity and economic outcomes such as participation in global value chains, as measured by trade in manufactured components (see figure).

Better air connectivity increases participation in global value chains



Source: Arvis and Shepherd 2013.

Notes

1. Arvis and Shepherd 2011.
2. Hoffmann and Ojala 2010.
3. Arvis and Shepherd 2011.

made by logistics professionals, in line with the last edition. The domestic LPI covers nearly 120 countries.

Feedback from users, policymakers, practitioners, and logistics professionals was considered. Minor changes were made to the international part. A new question on "green logistics" that was introduced in 2012 was repeated in 2014 (see box 3.2).[4]

Key findings from the 2014 international LPI

As in the first three editions, high-income countries dominate the top 10 rankings (table 1.1). In fact, the composition of the 10 has remained relatively unchanged since 2010. As expected, most of these countries are major and well-established logistics players with a dominant role in global or regional supply chains.

All 10 economies in the bottom of the ranking are low-income countries, and 6 are in Africa (table 1.2). Countries where armed conflict and civil unrest disrupt supply chains and the business environment in general seem to be particularly affected. Disadvantageous geographic factors and natural disasters add to a country's challenges to access markets.

It is no surprise that the lower and upper middle-income groups comprise some of the fastest growing economies of the last two decades. Moreover, some of them have become trade powerhouses in their own right, with a high degree of integration with global value chains (tables 1.3 and 1.4). Within the low-income group, Malawi and Kenya are the lead performers (table 1.5).

Box 1.2 Using the international LPI

The international LPI analyzes countries in six components:

- The efficiency of customs and border clearance ("Customs").
- The quality of trade and transport infrastructure ("Infrastructure").
- The ease of arranging competitively priced shipments ("Ease of arranging shipments").
- The competence and quality of logistics services—trucking, forwarding, and customs brokerage ("Quality of logistics services").
- The ability to track and trace consignments ("Tracking and tracing").
- The frequency with which shipments reach consignees within scheduled or expected delivery times ("Timeliness").

The components were chosen based on recent theoretical and empirical research and on the practical experience of logistics professionals involved in international freight forwarding.

Earlier methodologies developed in 1993 used a survey format, a two-point scale, and open-ended questions to measure the perceived importance and influence of different component attributes affecting the "logistics friendliness" of countries.[1] In a follow-up study, only the characteristics identified as best encapsulating logistics performance were included for evaluation.[2] The methodology was refined with contributions from interviews conducted for the Trade and Transport Facilitation Audits performed by the World Bank and others over more than a decade.[3]

The figure maps the six LPI indicators to two main categories:

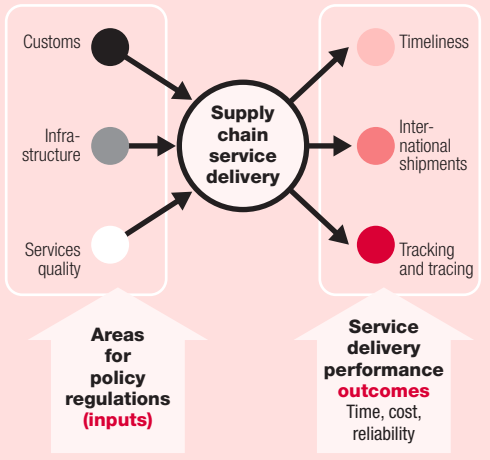
- Areas for policy regulations, indicating main inputs to the supply chain (customs, infrastructure, and quality of logistics services).
- Service delivery performance outcomes (timeliness, international shipments, and tracking and tracing).

The LPI uses standard statistical techniques to aggregate the data into a single indicator.[4] (See appendix 5 for a detailed description of how the LPI is calculated.) This single indicator can be used to compare countries, regions, and income groups. It can also be used for country-level work.

Because operators on the ground can best assess these vital aspects of logistics performance, the LPI relies on a structured online survey of logistics professionals from the companies responsible for moving goods around the world: multinational freight forwarders and the main express carriers—those best able to assess how countries perform. And their views matter, directly affecting the choice of shipping routes and gateways and influencing firms' decisions on production location, choice of suppliers, and selection of target markets. Their participation is central to the LPI's quality and credibility, and their involvement and feedback have been essential in continually developing and refining the survey. Nearly 1,000 logistics professionals based in 125 countries took part in the 2013 survey for the 2014 LPI, and 5 additional countries were covered in the international LPI scores and ranking.

See the 2014 LPI questionnaire at www.worldbank.org/lpi.

Input and outcome LPI indicators



Source: Authors' analysis.

Notes

1. Murphy, Daley, and Dalenberg 1993.
2. Ojala and Queiroz 2000, 2004.
3. Raven 2001.
4. In the three previous editions of the LPI (2007, 2010, and 2012), statistical aggregation has produced an overall index that is close to the simple average of country scores across the six LPI components.

Figure 1.1 shows the cumulative distribution of LPI scores. The vertical lines mark the boundaries of LPI quintiles—five groups containing equal numbers of countries rated in the LPI. The bottom quintile comprises countries with the lowest LPI scores and the top quintile those with the highest. We can see that the same number of countries are spread across a roughly similar range of scores in the bottom, second, and top quintiles, but in the third and fourth quintiles together the range of scores is similar. In other words, country scores are much "closer" in the third and fourth quintiles.

The distribution of LPI scores is broken down into four categories, used in all editions of *Connecting to Compete:*

- *Logistics unfriendly*—includes countries with severe logistics constraints, such as

The distribution of LPI scores is broken down into four categories:

Table 1.1 The top 10 performers on the 2014 LPI—largely unchanged since 2010

	2014 LPI			2012 LPI			2010 LPI		
Economy	Rank	Score	% of highest performer	Rank	Score	% of highest performer	Rank	Score	% of highest performer
Germany	1	4.12	100.0	4	4.03	97.0	1	4.11	100.0
Netherlands	2	4.05	97.6	5	4.02	96.7	4	4.07	98.5
Belgium	3	4.04	97.5	7	3.98	95.3	9	3.94	94.5
United Kingdom	4	4.01	96.6	10	3.90	92.7	8	3.95	94.9
Singapore	5	4.00	96.2	1	4.13	100.0	2	4.09	99.2
Sweden	6	3.96	94.9	13	3.85	91.2	3	4.08	98.8
Norway	7	3.96	94.8	22	3.68	85.9	10	3.93	94.2
Luxembourg	8	3.95	94.4	15	3.82	90.3	5	3.98	95.7
United States	9	3.92	93.5	9	3.93	93.7	15	3.86	91.7
Japan	10	3.91	93.4	8	3.93	93.8	7	3.97	95.2

Source: Logistics Performance Index 2010, 2012, and 2014.

Table 1.2 The bottom 10 performers on the 2014 LPI—all low-income economies

	2014 LPI			2012 LPI			2010 LPI		
Economy	Rank	Score	% of highest performer	Rank	Score	% of highest performer	Rank	Score	% of highest performer
Yemen, Rep.	151	2.18	37.9	63	2.89	60.3	101	2.58	50.8
Cuba	152	2.18	37.8	144	2.20	38.3	150	2.07	34.3
Sudan	153	2.16	37.2	148	2.10	35.3	146	2.21	38.7
Djibouti	154	2.15	36.8	154	1.80	25.5	126	2.39	44.8
Syrian Arab Rep.	155	2.09	34.9	92	2.60	51.3	80	2.74	55.9
Eritrea	156	2.08	34.7	147	2.11	35.5	154	1.70	22.4
Congo, Rep.	157	2.08	34.5	149	2.08	34.7	116	2.48	47.4
Afghanistan	158	2.07	34.3	135	2.30	41.5	143	2.24	39.9
Congo, Dem. Rep.	159	1.88	28.2	143	2.21	38.6	85	2.68	53.8
Somalia	160	1.77	24.8	na	na	na	155	1.34	10.9

na is not applicable.
Source: Logistics Performance Index 2010, 2012, and 2014.

Table 1.3 The top 10 lower middle-income performers on the 2014 LPI

	2014 LPI			2012 LPI			2010 LPI		
Economy	Rank	Score	% of highest performer	Rank	Score	% of highest performer	Rank	Score	% of highest performer
Vietnam	48	3.15	69.0	53	3.00	64.1	53	2.96	63.1
Indonesia	53	3.08	66.7	59	2.94	62.2	75	2.76	56.5
India	54	3.08	66.6	46	3.08	66.4	47	3.12	67.9
Philippines	57	3.00	64.2	52	3.02	64.8	44	3.14	68.8
Ukraine	61	2.98	63.3	66	2.85	59.3	102	2.57	50.6
Egypt, Arab Rep.	62	2.97	63.0	57	2.98	63.3	92	2.61	51.8
El Salvador	64	2.96	62.8	93	2.60	51.2	86	2.67	53.7
Pakistan	72	2.83	58.5	71	2.83	58.4	110	2.53	49.1
Nigeria	75	2.81	57.9	121	2.45	46.3	100	2.59	51.0
Guatemala	77	2.80	57.6	74	2.80	57.7	90	2.63	52.4

Source: Logistics Performance Index 2010, 2012, and 2014.

Table 1.4 The top 10 upper middle-income performers on the 2014 LPI

	2014 LPI			2012 LPI			2010 LPI		
Economy	Rank	Score	% of highest performer	Rank	Score	% of highest performer	Rank	Score	% of highest performer
Malaysia	25	3.59	83.0	29	3.49	79.8	29	3.44	78.4
China	28	3.53	81.1	26	3.52	80.5	27	3.49	79.9
Turkey	30	3.50	80.1	27	3.51	80.3	39	3.22	71.4
Hungary	33	3.46	78.9	40	3.17	69.5	52	2.99	63.8
South Africa	34	3.43	77.9	23	3.67	85.5	28	3.46	78.9
Thailand	35	3.43	77.8	38	3.18	69.6	35	3.29	73.6
Romania	40	3.26	72.4	54	3.00	63.8	59	2.84	59.1
Panama	45	3.19	70.3	61	2.93	61.6	51	3.02	65.0
Bulgaria	47	3.16	69.1	36	3.21	70.7	63	2.83	58.8
Mexico	50	3.13	68.2	47	3.06	66.0	50	3.05	65.7

Source: Logistics Performance Index 2010, 2012, and 2014.

Table 1.5 The top 10 low-income performers on the 2014 LPI

	2014 LPI			2012 LPI			2010 LPI		
Economy	Rank	Score	% of highest performer	Rank	Score	% of highest performer	Rank	Score	% of highest performer
Malawi	73	2.81	58.1	73	2.81	57.8	na	na	na
Kenya	74	2.81	58.0	122	2.43	45.9	99	2.59	51.0
Rwanda	80	2.76	56.3	139	2.27	40.5	151	2.04	33.4
Cambodia	83	2.74	55.8	101	2.56	50.0	129	2.37	44.0
Burkina Faso	98	2.64	52.5	134	2.32	42.3	145	2.23	39.4
Liberia	102	2.62	51.9	119	2.45	46.3	127	2.38	44.4
Ethiopia	104	2.59	51.0	141	2.24	39.6	123	2.41	45.4
Nepal	105	2.59	50.9	151	2.04	33.1	147	2.20	38.6
Burundi	107	2.57	50.2	155	1.61	19.5	na	na	na
Bangladesh	108	2.56	50.1	na	na	na	79	2.74	56.0

na is not applicable.
Source: Logistics Performance Index 2010, 2012, and 2014.

Logistics unfriendly, partial performers, consistent performers, and logistics friendly

the least developed countries (bottom LPI quintile).

- *Partial performers*—includes countries with a level of logistics constraints most often seen in low- and middle-income countries (third and fourth LPI quintiles).
- *Consistent performers*—includes countries rated for logistics performance more highly than most others in their income group (second LPI quintile).
- *Logistics friendly*—includes high performers, mostly high-income countries (top LPI quintile).

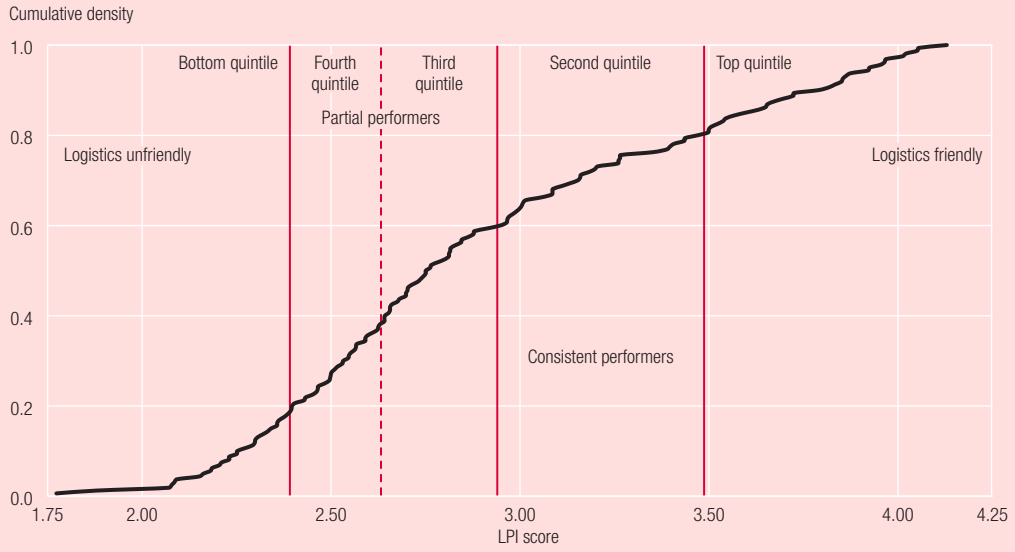
Logistics performance still improving

Few measures hold the same potential for stimulating economic development as trade facilitation. Trade facilitation fosters logistics performance, and better logistics spurs growth, competitiveness, and investment. Customs and border management or the improvement of transit regimes are a few areas where trade facilitation can help improve logistics.

Such sustained improvement calls for policymakers and private stakeholders to adopt comprehensive reforms. To move products to market efficiently and reliably, countries must

To move products to market efficiently and reliably, countries must reduce trading costs and adopt policies to support trade

Figure 1.1 Cumulative distribution of 2014 LPI scores



Source: Logistics Performance Index 2014.

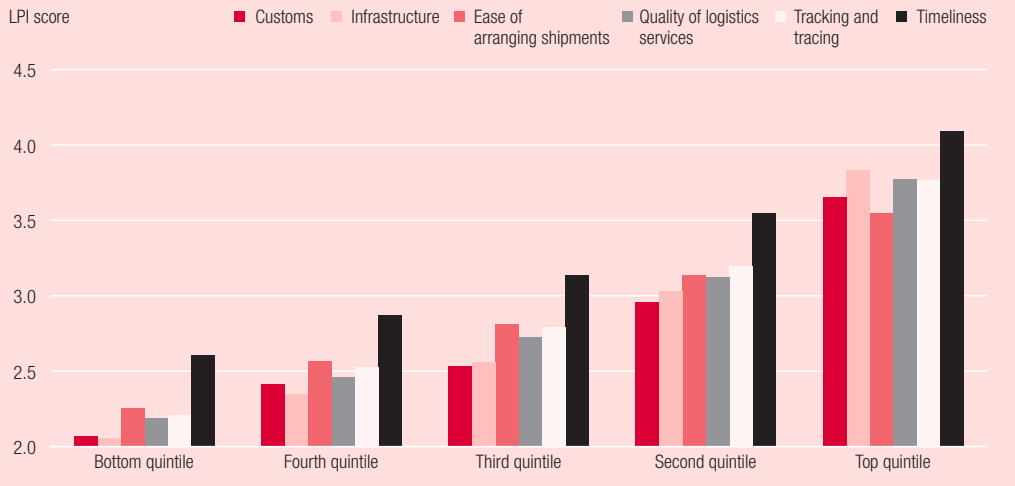
reduce trading costs and adopt policies to support trade. Reforming trade facilitation especially can help bolster trade competitiveness.[5]

The international LPI shows marked differences by component and quintile, especially the two lowest quintiles (figure 1.2). In these groups, the two lagging components are customs and infrastructure. Unlike in 2012, quality of logistics services surpasses that of infrastructure.

Conversely, timeliness and the ease of arranging shipments outperform the rest in the two lowest quintiles. And tracking and tracing fares better than the quality of logistics services and infrastructure.

As a preliminary indication of areas of relative strength and weakness in each performance group, we examined which of the six components of the international LPI are above the overall index and which below (table 1.6). A

Figure 1.2 LPI component scores, by LPI quintile



Source: Logistics Performance Index 2014.

positive entry indicates that a component score is higher than a group's overall international LPI score—vice versa for a negative entry.

Two issues stand out. In all performance groups, the timeliness dimension is notably stronger than the others, though that the LPI is based on a survey among freight forwarders (rather than shippers) might skew this slightly toward the positive. But as timeliness is the highest ranked component across all quintiles, this is testimony that logistics services have much built-in flexibility.

The main point of negative performance for all but the top-performing countries is infrastructure. In the top performers, the ease of arranging shipments tends to lower overall LPI scores, possibly because macroeconomic factors generally make services more expensive there, which may make it hard to arrange shipments perceived as competitively priced elsewhere.

Otherwise, scores on the LPI components are relatively close to the overall score.

As overall logistics performance improves, some factors move faster than others. Low- and lower middle-income countries have progressed the fastest in customs and infrastructure (figure 1.3). Streamlining border clearance procedures and ensuring physical access to markets remain necessary for low-income economies. For their part, upper middle-income countries have seemingly improved faster in the quality of logistics services. This supports the idea that middle-income countries have increasingly shifted their focus toward soft infrastructure enhancements based on regulatory reform, and less on basic hard infrastructure investments.

Changes in the logistics environment can be measured in many dimensions, including by income group and LPI quintile. When comparing the percentage of LPI survey respondents who express improvements in 2014 over 2012 in every component (table 1.7), it is clear that progress is—still—perceived as greater in the upper LPI quintiles on every component of the domestic LPI. Across components, information and communications technology (ICT)

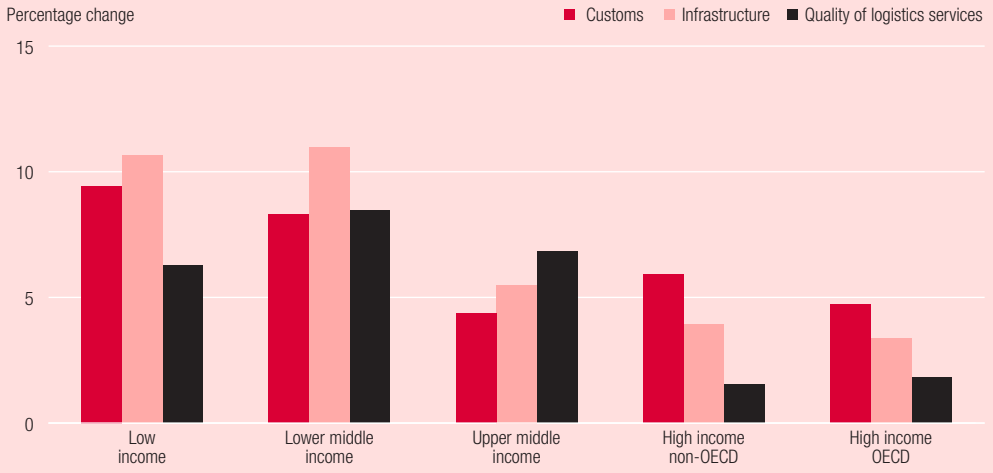
Table 1.6 Deviation of each component from overall LPI score, by LPI quintile

Percent

LPI quintile	Customs	Infrastructure	Ease of arranging shipments	Quality of logistics services	Tracking and tracing	Timeliness
Bottom quintile	−0.16	−0.18	0.00	−0.06	0.00	0.40
Fourth quintile	−0.17	−0.19	0.04	−0.07	−0.01	0.40
Third quintile	−0.25	−0.20	0.05	−0.05	0.00	0.42
Second quintile	−0.25	−0.12	−0.05	−0.07	0.05	0.43
Top quintile	−0.15	0.05	−0.22	0.00	0.02	0.32

Note: All calculations are based on the weighted average score for the LPI and its components over 2007–14.
Source: Logistics Performance Index 2014.

Figure 1.3 Percentage change in LPI scores, by LPI component and income group, 2007–14



Source: Logistics Performance Index 2007 and 2014.

Table 1.7 Respondents reporting an improved or much improved logistics environment since 2012, by LPI quintile

Percent of respondents

Component	Bottom quintile	Fourth quintile	Third quintile	Second quintile	Top quintile
Customs	43	49	45	51	63
Other border procedures	24	41	32	30	50
Transport infrastructure	44	48	37	42	53
ICT infrastructure	83	61	65	63	65
Private logistics services	66	67	57	69	66
Logistics regulation	26	35	37	24	39
Incidence of corruption	24	40	23	30	44

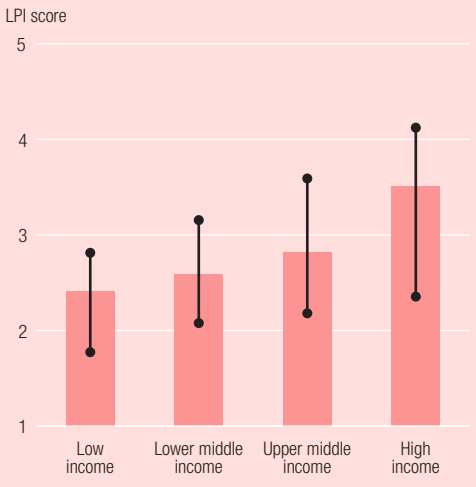
ICT is information and communications technology.
Source: Logistics Performance Index 2014.

infrastructure is the only one improving much faster in the bottom quintile. Even so, the rate of change is accelerating for the bottom quintiles and slowing in the two upper quintiles, when compared with the changes perceived in every domestic LPI component between 2010 and 2012.

An unbridged logistics gap

LPI scores remain on average much better for high-income countries (figure 1.4). High-income countries outperform low-income countries by 53 percent, lower middle-income countries by 42 percent, and upper middle-income countries by 30 percent. Among the top 30 best performing countries, 23 are Organisation for Economic Co-operation and Development (OECD) countries.

Figure 1.4 Average scores and minimum/maximum ranges on the 2014 LPI, by income group



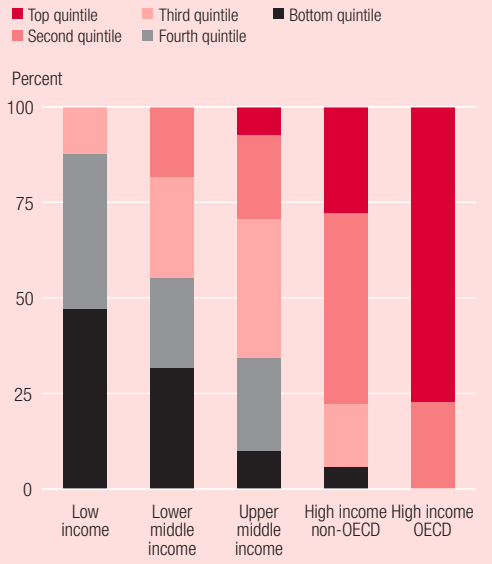
Note: Vertical rules show minimum/maximum range.
Source: Logistics Performance Index 2014.

Countries can still outperform their income group peers

Despite the persistent logistics gap, income alone cannot explain why performance varies widely among countries in certain income groups—particularly in the low- and middle-income groups. As shown in previous editions, high-income countries are heavily concentrated in the top LPI quintile, but other income groups are more dispersed. More important, upper middle-income and lower middle-income countries range from the bottom LPI quintile to the top. Even low-income countries range across all but the top quintile (figure 1.5).

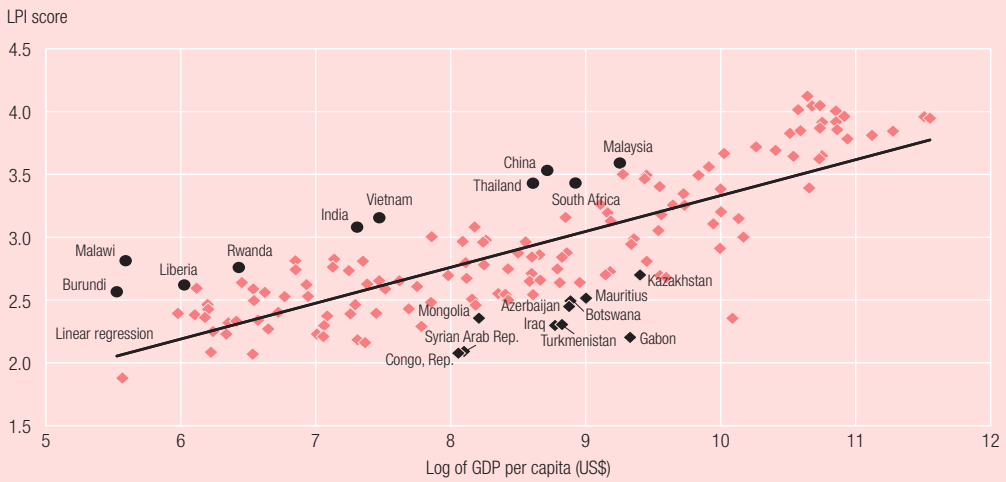
Compared with other countries in their income group, some of the overperforming non-high-income economies are Malaysia, South Africa, China, Thailand, Vietnam, and India (figure 1.6). Conversely, the most underperforming non-high-income countries are—as expected—some resource-rich economies including Iraq, Turkmenistan, Azerbaijan, Gabon, and Kazakhstan. Again, dispersion

Figure 1.5 Distribution of LPI quintiles across income groups



Source: Logistics Performance Index 2014.

Figure 1.6 LPI overperformers and underperformers



Note: Fitted values are based on an ordinary least squares regression using data for all countries. Underperformers (black diamonds) are the non-high-income countries with the 10 smallest residuals. Overperformers (black circles) are the non-high-income countries with the 10 largest residuals.
Source: Logistics Performance Index 2014.

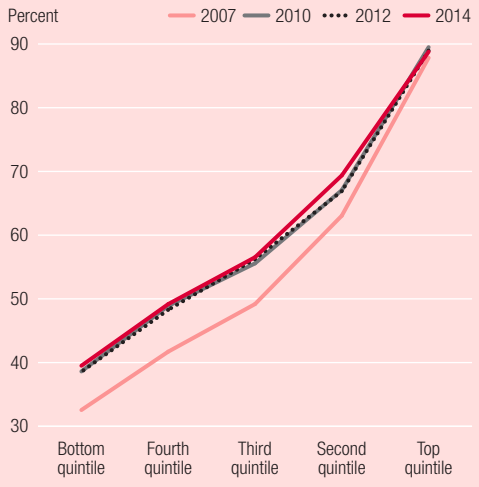
within income groups suggests that policy, as well as income, affects logistics performance.

Despite the marked variation within income groups, one should be cautious when interpreting LPI scores to identify over- and underperformers (see box 1.3 overleaf). For example, in a large, economically diverse country, a high LPI score might not indicate uniform strong performance.

Still, recognizing the importance of trade facilitation and logistics, policymakers are aiming to set up or improve performance-boosting structures (see box 1.4 overleaf). Since the World Bank launched the LPI and its component indicators in 2007, these structures have rapidly gained acceptance among policymakers and professionals—nationally, regionally, and globally.

Since the World Bank launched the LPI and its component indicators in 2007, performance-boosting structures have rapidly gained acceptance among policymakers and professionals—nationally, regionally, and globally

Figure 1.7 LPI score as percentage of highest LPI score by LPI quintile, 2007, 2010, 2012, and 2014



Source: Logistics Performance Index 2007, 2010, 2012, and 2014.

Trends over all four LPI editions

Distribution of scores and ranks

The gap between relative LPI scores—LPI scores expressed as a percentage of the leading country's score—is only a bit smaller than in 2010 and 2012.[6] In fact, the average relative score performance by quintile has been following a very similar line for the last three editions (figure 1.7). The relative lowest performer in 2014 is Somalia, with a score equal to 25 percent of the highest performer's (Germany), but the good news is that this is actually higher than the corresponding relative scores from previous years: 19 percent in 2012, 11 percent in 2010, and 7 percent in 2007. Among better performing countries, relative scores become tighter between the second quintile and the top quintile.

The correlation between the 2012 and 2014 LPI scores is 0.91, and 0.86 between ranks.

Box 1.3 How precise are LPI scores and ranks?

Although the LPI and its components now offer the most comprehensive and comparable data on country logistics and trade facilitation environments, they have a limited domain of validity.

First, the experience of international freight forwarders might not represent the broader logistics environment in poor countries, which often rely on traditional operators. International and traditional operators might differ in their interactions with government agencies, and in their service levels. Most agents and affiliates of international networks in developing countries serve large companies and perform at different levels, including on time and cost, than traditional trading networks.

Second, for landlocked countries and small island states, the LPI might reflect access problems outside the country assessed, such as transit difficulties. The rating of a landlocked country, such as Lao PDR, might not adequately reflect its trade facilitation reform efforts, as they still depend on international transit routes mainly through Thailand and Vietnam.

To account for the sampling error created by the LPI's survey-based dataset, LPI scores are presented with approximate 80 percent confidence intervals (see appendix 5). These intervals yield upper and lower bounds for a country's LPI score and rank.[1] Confidence intervals must be examined carefully to determine whether a change in score or a difference between two scores is statistically significant. An improvement in a country's performance should be considered statistically significant only if the lower bound of its 2014 LPI score exceeds the upper bound of its 2012 score.

Because of the LPI's limited domain of validity and the need for confidence intervals to account for sampling error, a country's exact ranking might be less relevant to policymakers than its proximity to others in a wider performance group or its statistically significant improvements. Still, a close examination of the distribution of changes in ranking indicates that these behave similarly across all four editions of the index.

One should thus interpret especially the ranks and changes in ranks from one LPI edition to another with caution. In the aggregate data in all four LPI surveys (see more in "Trends over all four LPI editions"), 41 countries scored 70 percent or more of the top performer. For these, the average difference per rank position was 0.023 score points. For the next 65 countries scoring 50–69 percent of the top performer, the average difference per rank was only 0.009 score points. In the 40–49 percent range with 49 countries, the average difference per rank was a mere 0.006 score points. This means that countries at similar performance levels may have substantially different ranks, especially in the middle and lower range.

Note

1. Upper bounds for LPI ranks are calculated by increasing a country's LPI score to its upper bound while maintaining all other country scores constant and then recalculating LPI ranks. An analogous procedure is adopted for lower bounds.

One should keep in mind, as in previous editions, that because the data are survey-based, sampling error necessarily occurs. Statistically significant changes can be concluded only if the confidence intervals for the 2012 and 2014 scores do not overlap, which is only the case for 12 economies (table 1.8), with negative changes mainly in high-income economies (Hong Kong SAR, China; Singapore; and United Arab Emirates), and middle-income but politically unstable countries (Syrian Arab Republic and Tunisia).

The reasons for these changes differ. Syria is obvious: armed conflict has cut its former trade corridors. In Tunisia the agency in charge of customs and logistics has suffered due to the high turnover of key personnel as a result of government policies in 2012–13. In contrast, the equivalent agencies in the Arab Republic of Egypt have been relatively protected.

For high-income Asian countries like Singapore, the interpretation is not that logistics performance regressed in absolute terms but that the European countries made more progress, as the profile of logistics-related issues has been raised in the European Union (EU) recently. Hong Kong SAR, China; Singapore; and United Arab Emirates all have very narrow confidence intervals (less than 0.07 score points in 2012 and 0.06 in 2014). So even a small change in score becomes statistically significant (see table 1.8).

Aggregated LPI scores and ranks

As a new feature in this 2014 report, the scores of the six components across the four LPI surveys were used to generate a "big picture" to better indicate country performance. This approach reduces random variation from one LPI survey to another and enables the comparison of 166 countries.

Each year's scores in each component were given weights: 6.7 percent for 2007, 13.3 percent for 2010, 26.7 percent for 2012, and 53.3 percent for 2014—the most recent data carrying the most weight.

Box 1.4 Benefits of trade facilitation—findings from the World Economic Forum's 2013 *Enabling Trade* Report

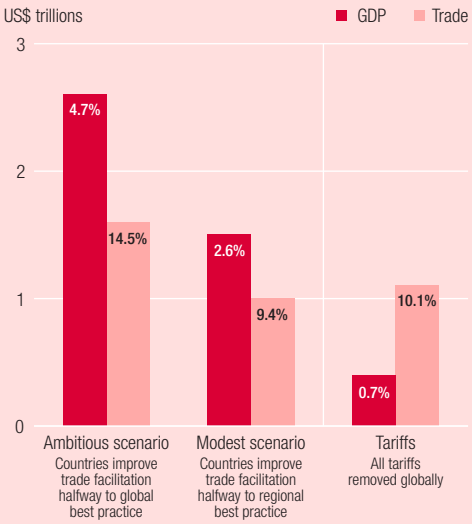
Improving only two key components of trade facilitation—border administration and transport and communications infrastructure—would lead to an increase of some $2.6 trillion (4.7 percent) in global GDP and $1.6 trillion (14.5 percent) in global trade.[1] A complete worldwide tariff elimination would only add a further $400 billion (0.7 percent) to global GDP, or $1.1 trillion (10.1 percent) to global trade.

The figure illustrates that reducing supply chain barriers has a larger effect than removing tariffs. This holds even in the scenario of a more modest improvement in trade facilitation, in which all countries raised their performance halfway to regional best practice (as opposed to halfway to international best practice—that is, Singapore in the first scenario).

What lies at the heart of the large increases in GDP after trade facilitation reforms? Reductions in supply chain trade barriers improve the efficiency of the movement of goods, thus recovering resources otherwise wasted. By contrast, most tariff reductions reallocate resources, capturing only the more modest inefficiency created by the tax.

Gains in GDP associated with trade facilitation would occur in all regions of the globe, though concentrated in those with the greatest improvements. In the more ambitious scenario, these include Sub-Saharan Africa, South Asia, and parts of Central and West Asia. Gains from tariff elimination would accrue disproportionately to the Russian Federation, China, and a few other countries.

GDP effect of reducing supply chain barriers is much higher than for tariffs



Note: Based on 2007 baseline.
Source: World Economic Forum 2013, p. 13.

Note

1. Simulated results for trade exclude oil and gas. Estimated changes in GDP and trade are expressed at constant prices.

Source: World Economic Forum 2013.

In this aggregated 2007–14 LPI, Germany ranked highest at 4.10, followed by Singapore (4.06), and the Netherlands (4.05); 15 of 28 EU member states and 23 of 34 OECD members were among the top 30 countries. The non-OECD economies in this group were Singapore (2nd); Hong Kong SAR, China (8th); Taiwan, China (20th); United Arab Emirates (24th); Malaysia (26th); China (27th); and South Africa (28th).

All OECD countries were in the top third, Mexico—the lowest among them—ranked 49th at 3.08 (67.3 percent of Germany's score); also in the top third are all EU member states, the lowest being Croatia ranking 55th at 3.02 (65.3 percent of the top score). Cambodia, a country showing steady improvements in the rank since 2007, now stands 96th (box 1.5). Meanwhile, Somalia at 1.63 ranked 166th at 20.2 percent of the top score (figure 1.8).

Despite the gradual convergence of countries' logistics performance since the 2007 LPI, the "logistics gap" between high- and low-income countries remains wide. As in previous LPI surveys, the countries with the weakest performance in 2014 were least developed countries—landlocked countries, small island states, and postconflict countries (box 1.6).

The convergence of performance especially in the "middle ground"—broadly the range from rank 40 to 120—makes this space more and more crowded (see figure 1.8). This trend is bound to continue as most countries' business

Table 1.8 Economies with statistically significant changes in LPI score

Statistically significant change in LPI score, 2012–14	Low income	Lower middle income	Upper middle income	High income
Positive change	Burundi Nepal	El Salvador	Thailand	Latvia Ireland United Kingdom
No change	148 countries			
Negative change		Syrian Arab Republic	Tunisia	Hong Kong SAR, China Singapore United Arab Emirates

Source: Logistics Performance Index 2012 and 2014.

Box 1.5 Improving border management, Cambodia

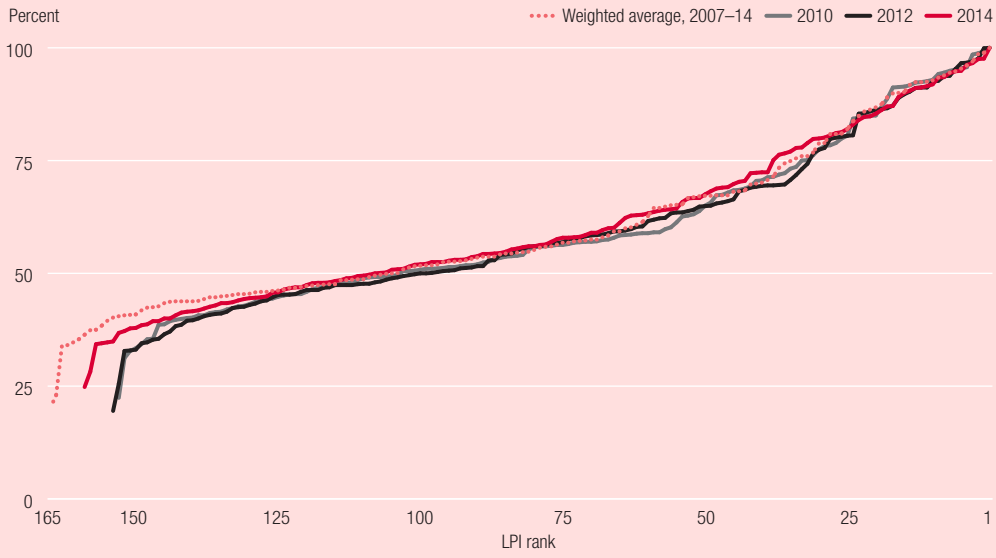
In recent years Cambodia has made real progress in reforming and modernizing its import, export, and transit operations, including by streamlining and harmonizing customs procedures to international standards.

These reforms have contributed to Cambodia improving its LPI ranking from 129th in 2010 to 101st in 2012 and to 83rd in 2014. With the introduction of automated customs procedures and much of the hard infrastructure now in place at the Port of Sihanoukville and at border posts around the country, clearance times with physical inspection of cargo have fallen from 5.9 days in 2010 to 1.4 days in 2014. Likewise, the share of consignments selected for physical inspection has fallen from 29 percent in 2010 to 17 percent in 2014, suggesting that customs' risk management capabilities are improving.

Further gains in trade facilitation will require extending the reform program of the General Directorate of Customs and Excise to other border management agencies, because advances made by customs are not being made elsewhere: 2014 LPI data rate the performance of quality/standards inspections and health/SPS agencies lower than customs. More than 120 laws, royal decrees, subdecrees, and regulations containing formal nontariff measures have been identified in a World Bank project, including various import- or export-related permits, licenses, and approvals needed to trade.

Thus with World Bank support, the government is automating application and issuance of certificates of origin, as well as improving transparency through a trade information website where all rules, regulations, fees, and procedures will be available. Other areas of collaboration include developing a blueprint to guide implementation of a national single window through which traders can conduct all their regulatory requirements. This will mean that data are submitted only once, and that processing, risk assessment, and inspection are well coordinated.

Figure 1.8 Percentage of the overall LPI score of countries as measured against the highest performer and aggregated data



Source: Logistics Performance Index 2007, 2010, 2012, and 2014.

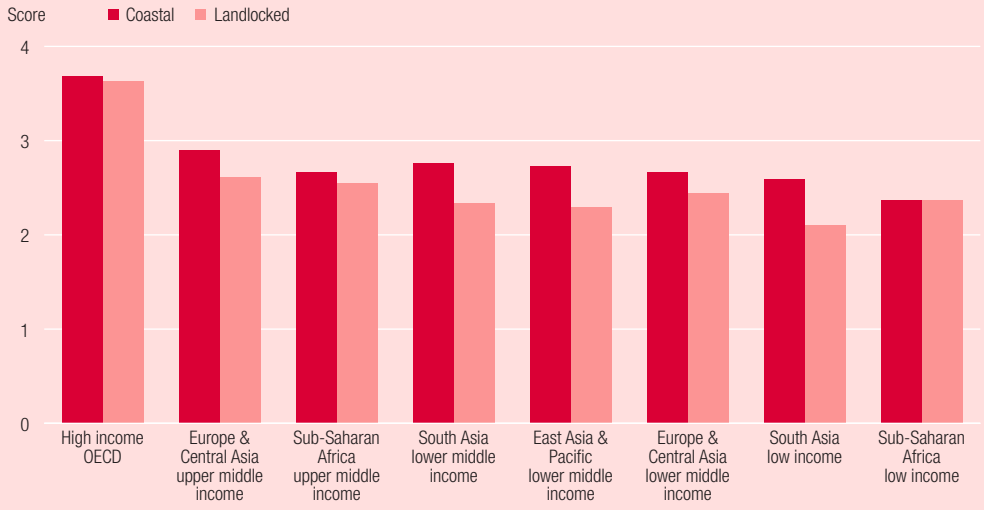
environment and policies are set to improve. Thus, countries in the middle range may witness a large change in their rank, even if the underlying score changes only little. Should the score remain the same, the rank is likely to deteriorate: a score in the 2010 LPI yielding a rank between 60 and 90 was equal to ranking between 70 and 100 in the 2014 LPI (with scores ranging roughly from 2.56 to 2.80; see table 1.9).

Box 1.6 The LPI scores of landlocked and coastal countries

In development economics generally, and in trade and transport facilitation particularly, much attention has been paid to the disadvantaged position of low- and middle-income landlocked countries. Lack of access to the sea poses persistent challenges to the growth and development of landlocked developing countries and hinders their ability to better integrate with the global trading system. The transit of export and import goods through the territory of at least one neighboring state and frequent change of transport mode lead to high transaction costs and reduced international competitiveness. The issue of landlocked developing countries has also generated much policy work such as the 2003 Almaty Programme of Action under the United Nations, which is undergoing a review after more than 10 years in existence.

The trade logistics handicap is illustrated by the average overall LPI scores for 2007–14 of landlocked and coastal countries across World Bank regions. This comparison shows a rather consistent pattern, where coastal countries score better than their landlocked peers at similar incomes. In the upper middle-income group, this difference in Europe and Central Asia was 0.29 score points. The difference was even larger for lower middle-income and low-income countries, in East Asia and the Pacific at 0.44 and South Asia at 0.42. The largest regional gap (0.49) within an income level between coastal and landlocked was among low-income countries in South Asia. But in Sub-Saharan Africa, coastal and landlocked countries performed at par within the low-income group. Also with high-income OECD countries, the difference between landlocked (3.63) and coastal countries (3.68) was almost insignificant (0.05 score points) (see figure).

Overall LPI score averages in 2007–14 of coastal and landlocked countries, by World Bank region and income group



Source: Logistics Performance Index 2007, 2010, 2012, and 2014.

Source: Almaty Declaration 2003; Arvis and others 2011; UNCTAD website; World Bank 2013.

Table 1.9 Range of scores and ranks of 166 countries in the aggregated LPI

Percentage of top performer at lower boundary	Maximum score in the range	Minimum score in the range	Interval of scores in the range	Rank range	Number of countries in the range
90	4.096	3.785	0.311	1–17	17
80	3.782	3.503	0.279	18–29	12
70	3.443	3.170	0.273	30–41	12
60	3.165	2.856	0.309	42–65	24
50	2.836	2.551	0.285	66–106	41
40	2.543	2.244	0.299	107–155	49
20	2.222	1.625	0.597	156–166	11

Note: Each year's scores are weighted as follows: 6.7 percent for 2007, 13.3 percent for 2010, 26.7 percent for 2012, and 53.3 percent for 2014.
Source: Logistics Performance Index 2007, 2010, 2012, and 2014.

SECTION 2

Unbundling logistics performance

The international LPI provides some preliminary information on the drivers of overall logistics performance. To unbundle the survey results further, however, it is necessary to refer to the domestic LPI. This section is based on the domestic LPI, where surveyed logistics professionals assess the logistics environments in the countries where they work. The domestic part thus contains more detailed information on countries' logistics environments, core logistics processes and institutions, and performance time and cost. This approach looks at the logistics constraints within countries, not just at the gateways, such as ports or borders. It analyzes country performance in four major determinants of overall logistics performance: infrastructure, services, border procedures and time, and supply chain reliability.

Infrastructure

Survey respondents in top quintile countries rated their infrastructure far more highly than others (table 2.1). Differences among the other four quintiles are less striking, especially for roads and rail. Infrastructure, though still a constraint in developing countries, seems to be improving. Since the previous LPI survey, there is a general perception that infrastructure has improved in all performance quintiles (figure 2.1), but more so in the top-performing countries. If this perception reflects a faster rate of infrastructure improvement from an already strong base in those countries, it might indicate persistence of the "logistics gap" identified in previous editions.

Satisfaction with infrastructure quality varies by infrastructure type. As in previous years, respondents in all LPI quintiles are most satisfied with ICT infrastructure. Particularly in the lower performance quintiles, the infrastructure gap has narrowed in 2014 from previous years, perhaps an indication of some catch up in other infrastructure sectors. By contrast, rail infrastructure inspires general dissatisfaction: the number of respondents rating rail infrastructure "high" or "very high" is at most only half as high as for any other type. In the bottom quintile, infrastructure generally fails to satisfy—an exception to the pattern of variation.

Similar patterns emerge when the domestic LPI data on infrastructure are disaggregated by World Bank region, excluding high-income countries (table 2.2). The highest ratings in all regions except East Asia and the Pacific are for ICT. In the 2012 report, the ICT rating in Sub-Saharan Africa lagged behind other regions, but in this edition there is evidence of more widespread satisfaction. Ratings for other types of infrastructure vary more widely by region, but two features stand out. First, satisfaction with road infrastructure is especially low in Latin America and the Caribbean. Second, satisfaction with rail infrastructure is again low in all regions, as was the case for the analysis by LPI quintile.

Table 2.1 **Respondents rating the quality of each infrastructure type "high" or "very high," by LPI quintile**

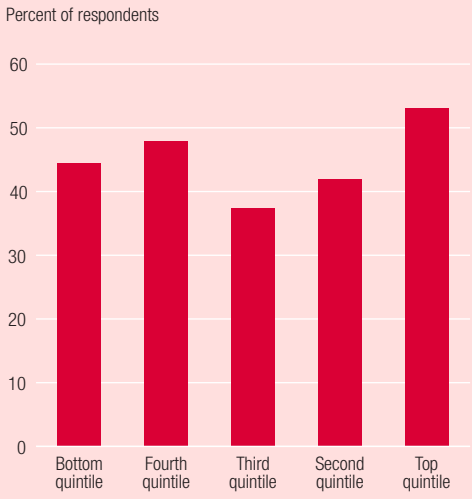
Percent of respondents

LPI quintile	Ports	Airports	Roads	Rail	Warehousing and transloading	ICT
Bottom quintile	11	13	11	0	4	17
Fourth quintile	22	25	11	6	18	37
Third quintile	25	23	13	2	18	35
Second quintile	30	29	21	12	39	55
Top quintile	61	66	57	29	68	81

ICT is information and communications technology.
Source: Logistics Performance Index 2014.

Respondents in all LPI quintiles are most satisfied with ICT infrastructure

Figure 2.1 **Respondents rating the quality of trade and transport infrastructure as "improved" or "much improved" since 2012, by LPI quintile**



Source: Logistics Performance Index 2014.

Services

The quality and competence of core logistics service providers is another important part of overall country performance. For countries in all LPI quintiles, freight forwarders are rated highly, typically at or close to the strongest scores in this category (table 2.3).[7] Ratings for the other provider types vary more widely across all quintiles—though rail transport service provision, like rail infrastructure, consistently receives low ratings (box 2.1). And as with infrastructure, countries in the top quintile receive by far the highest ratings for service provider quality and competence. Rail transport aside, service providers in all categories are rated as being of high quality and competence in the top-performing countries.

Respondents in all LPI quintiles are nearly always more satisfied with service providers than with infrastructure quality (compare table 2.1 with table 2.3). But the difference is generally smaller in the top-performing countries. Even so, in some quintiles including the top one, there is a notable difference in satisfaction between road transport service providers and road transport infrastructure.

The performance gap between services and infrastructure appears generally across World Bank regions (table 2.4). It is particularly stark for air transport in the Middle East and North Africa, and for maritime transport in South Asia. More generally, the difference in satisfaction with services and with infrastructure is especially strong in air and maritime transport and, in some regions, road and rail transport. These data suggest a need to develop transport-related infrastructure, so that positive reforms to service markets can bring maximum possible benefits to end users.

Table 2.2 **Respondents rating the quality of each infrastructure type "high" or "very high," by World Bank developing country region**

Percent of respondents

Region	Ports	Airports	Roads	Rail	Warehousing and transloading	ICT
East Asia and Pacific	24	29	16	6	20	23
Europe and Central Asia	10	27	10	4	22	32
Latin America and Caribbean	20	20	7	1	7	24
Middle East and North Africa	33	18	11	7	17	36
South Asia	28	28	27	7	24	58
Sub-Saharan Africa	23	20	19	3	22	34

ICT is information and communications technology.
Source: Logistics Performance Index 2014.

Border procedures and time

The LPI includes several indicators of border procedures and time. Breakdown of these data by region and income group is in appendix 2 and for time and cost by country in appendix 3.

Import and export time

A useful outcome measure of logistics performance is the time taken to complete trade transactions. The median import lead time[8] for port and airport supply chains, as measured for the LPI, is generally lower in higher performing groups (figure 2.2): it takes around over twice as long to import in the bottom quintile as in the top quintile. Yet this still-substantial gap is narrower than in 2012 (3.5 times), and could indicate gains in logistics and trade facilitation.

Importing in the two lowest and the highest quintiles takes longer by land than by air or sea. The correlation between land distance and import lead time (around 0.6) suggests that

Table 2.3 Respondents rating the quality and competence of each service provider type "high" or "very high," by LPI quintile

Percent of respondents

LPI quintile	Road transport	Rail transport	Air transport	Maritime transport and ports	Warehousing, transloading, and distribution	Freight forwarders	Customs brokers	Trade and transport associations	Cosignees or shippers
Bottom quintile	14	10	14	16	12	16	24	14	9
Fourth quintile	17	3	38	45	34	50	50	28	31
Third quintile	19	5	31	32	25	44	30	18	24
Second quintile	33	17	49	54	52	57	45	36	36
Top quintile	69	31	71	67	71	71	71	58	47

Source: Logistics Performance Index 2014.

Box 2.1 Rail's poor performance

Rail freight offers several advantages over road transport, including a smaller environmental footprint and potentially lower costs for shippers, at least over long or very long distances. But the nature of rail operations makes rail less flexible and potentially less reliable than trucking. In many countries, lower reliability offsets the cost benefits of rail freight, except for high-volume bulk traffic. In the domestic LPI, the quality of rail freight services was rated poorer than other transport modes, and even more so in low- and middle-income countries.

An exception to this dismal performance is in high-income countries, which are rated far higher than their developing peers, though they still show wide variation in ratings. Germany, for instance, outperforms many of its peers in Europe, while some operators in the United States, Canada, and Europe have managed to establish reliable scheduled container services that represent a viable alternative to road freight, and can even compete with maritime-based logistics solutions. Operational excellence is accessible to other countries too, if there is enough freight volume.

Innovations in this sector are emerging, catering to the needs of shippers as they adjust their supply chain strategies. For example, several large multinational companies have partnered with forwarding firms and railway operators in Europe, the Russian Federation, and Central Asia, and have established regular routes between the European Union and China through Kazakhstan (the "New Silk Road") as an alternative to shipping by sea.

One finding that persists across LPI editions is the strong correlation between quality of services and infrastructure in rail, but even then efficient operators can manage operations where the state of infrastructure is less than ideal. More often than not, management and operational challenges (especially pervasive in the developing world) contribute the most to diluting potential gains from use of rail. In less sophisticated environments, delays and complex procedures add time and cost to operations, often for landlocked developing countries, where imbalanced freight flows may create added costs due to the wait for a return load.

In some regions like Africa, railways have only a marginal role in most transit freight corridors. Among many constraints, the poor quality of infrastructure, the way the infrastructure costs have been shared between railway agencies (representing the governments) and concessionaires, and the nature of companies that have won the concessions—sometimes largely disconnected from ports, inland container depots, or container terminal operations—have harmed their competitiveness relative to road transport.

Source: Based on Arvis, Raballand, and Marteau (2010) and Arvis and others (2011).

geographic hurdles, in addition to infrastructure, service provision, and other logistics issues, are important in determining a country's ability to connect with world markets. In fact, distances for both types of supply chains are much longer in the bottom quintile than in the top quintile (four times for ports and airports, and nearly three times for land transport).

Besides geography and speed en route, another factor in import lead times is the efficiency of border processes. Time can be reduced at all stages of this process, but especially in clearing goods on arrival (see figure 2.2). Countries with low logistics performance need to reform their border management so that they can cut red tape, excessive and opaque procedural requirements, and physical inspections. Although the time to clear goods through customs is a fairly small fraction of total import time for all LPI quintiles, it rises sharply if goods are physically inspected, even in high-performing countries. Core customs procedures are similar across quintiles. But low-performing countries have a far higher prevalence of physical inspection,

Table 2.4 Difference between respondents rating services "high" or "very high" and those rating infrastructure "high" or "very high," by World Bank developing country region

Percentage points

Region	Maritime transport and ports	Air transport	Road transport	Rail transport	Warehousing, transloading, and distribution
East Asia and Pacific	9	0	4	5	9
Europe and Central Asia	22	3	14	5	14
Latin America and Caribbean	7	12	2	0	18
Middle East and North Africa	13	30	10	–1	12
South Asia	23	9	0	3	1
Sub-Saharan Africa	20	12	–4	1	9

Source: Logistics Performance Index 2014.

even subjecting the same shipment to repeated inspections by multiple agencies (table 2.5).

Export supply chains typically have a much lighter procedural burden than import supply chains, so lead times are shorter for exports than imports (figure 2.3). But export lead times display the familiar logistics gap—they are twice as long for low-income countries as for high-income countries (figure 2.4). Moreover, export times for land supply chains differ much more between low-income countries and the rest than between middle- and high-income countries. Many low-income countries have long export lead times, hurting their export competitiveness and ability to trade internationally.

Unlike lead times, which vary considerably worldwide, customs procedures are becoming more similar (see table 2.5). The largest performance gap here is between the bottom quintile and all other quintiles; the middle quintiles are more similar. Even the gap between the bottom and other quintiles is much smaller for some procedures (such as the requirement that a licensed customs broker be used for clearance) than for others (such as online processing or the use of physical inspection). Yet the bottom quintile still seems quite far from implementing key facilitation measures like processing supporting documentation online (such as certificates of origin or health certificates) as in the better performing countries. The valuation of goods still varies, with reference prices or other arbitrary uplifts often applied in countries outside the top quintile.

Even as customs procedures become gradually more similar, many countries still find their supply chain performance constrained by other border agencies, as customs is not the only agency in border management. Cooperation among all such agencies—standards, transport, veterinary, and health/sanitary and

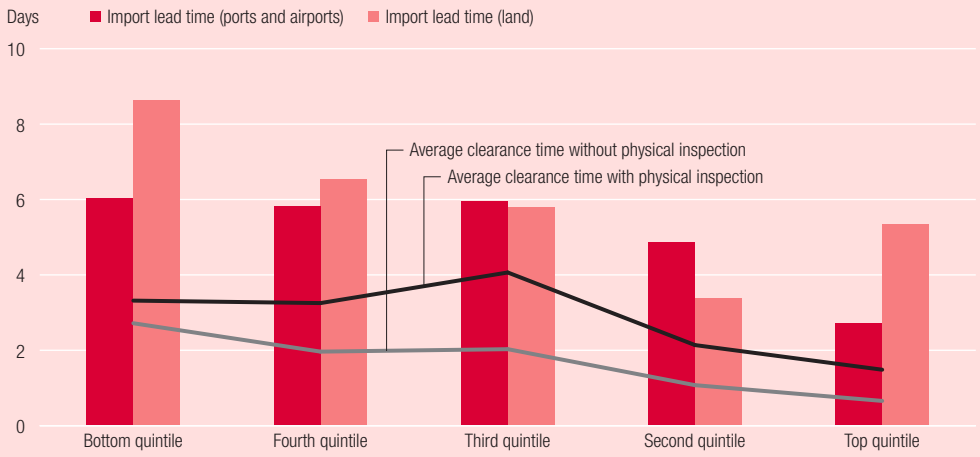
Table 2.5 Respondents reporting that listed customs procedures are available and being used, by LPI quintile

Percent of respondents unless otherwise indicated

Customs procedure	Bottom quintile	Fourth quintile	Third quintile	Second quintile	Top quintile
Online processing of supporting documentation	17	38	31	47	75
Online processing of customs declaration	50	64	72	89	99
Online publication of procedures and requirements for export/import	50	64	73	83	94
Physical inspection of import shipments (percent of shipments)	50	23	36	16	6
Availability of review/appeal	42	61	62	61	77
Choice of location of final clearance	48	58	56	76	81
Valuation using reference price or other arbitrary uplift	75	76	84	68	44
Pre-arrival processing	43	46	56	45	71
Formal dialogue process	49	59	53	62	72
Requirement that a licensed customs broker be used for clearance	79	79	79	78	66
Multiple physical inspections of import shipments	14	11	13	5	5
Release with guarantee pending final clearance	64	58	67	60	62

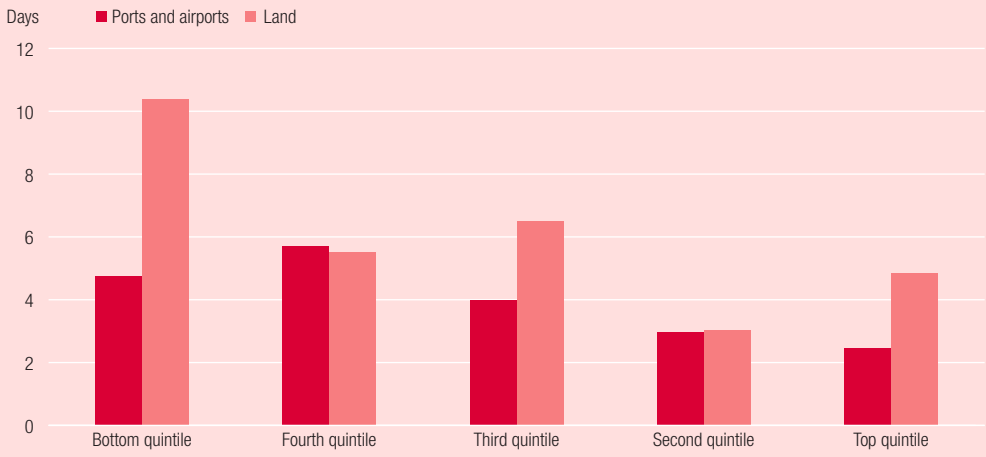
Source: Logistics Performance Index 2014.

Figure 2.2 **Median import lead time and average clearance time, by LPI quintile**



Source: Logistics Performance Index 2014.

Figure 2.3 **Median export lead time, by LPI quintile**



Source: Logistics Performance Index 2014.

Many low-income countries have long export lead times, hurting their export competitiveness and ability to trade internationally

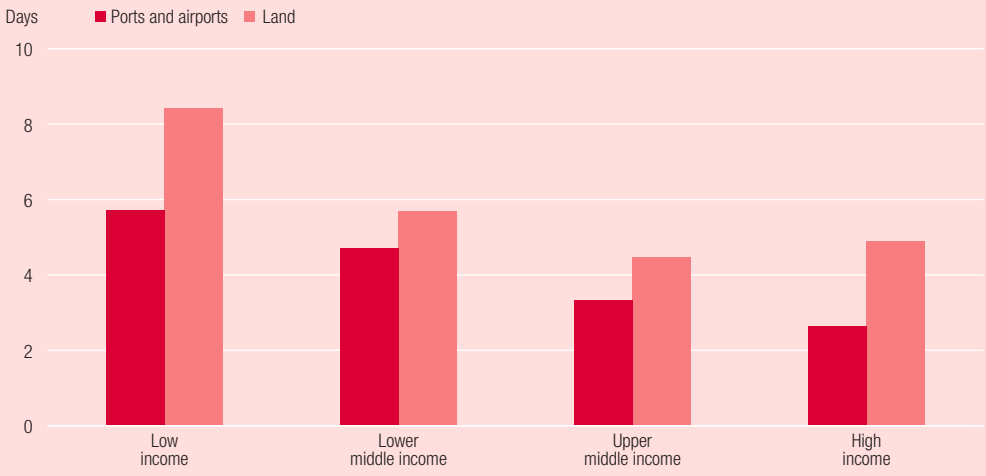
phytosanitary (SPS)—is critical to reform. So is introducing modern approaches to regulatory compliance.

Data for the 2014 LPI show that the performance gap between customs and other border agencies appears to be narrowing for quality and standards inspection agencies. But it persists for health and SPS agencies (table 2.6), which in many countries may be impeding more efficient import procedures. One reason for this difference between agencies is that fewer inspection procedures are required for products that are not perishable or time sensitive. Another is that health and SPS agencies have been slow to automate.

A glance at table 2.6 with its equivalent for the 2012 LPI (*Connecting to Compete 2012,* table 2.6) shows that matters may not be improving over time in the lowest performing countries. In the bottom quintile, the rate of satisfaction with all three border agencies has declined (customs from 18 percent to 19 percent, which is insignificant; quality and standards inspection agencies from 17 percent to 9 percent; and health/SPS agencies from 11 percent to 9 percent). By contrast, numbers for the top quintile are more stable, though some negative changes are also apparent outside the customs context.

Countries in the top quintile typically require two supporting documents for trade transactions; those in the bottom, four—a persistent logistics gap

Figure 2.4 **Median export lead time, by income group**



Source: Logistics Performance Index 2014.

Table 2.6 **Respondents rating the quality and competence of three border agencies as "high" or "very high," by LPI quintile**

Percent of respondents

LPI quintile	Customs agencies	Quality/standards inspection agencies	Health/sanitary and phytosanitary agencies
Bottom quintile	18	9	9
Fourth quintile	35	27	25
Third quintile	19	22	11
Second quintile	40	30	26
Top quintile	68	53	50

Source: Logistics Performance Index 2014.

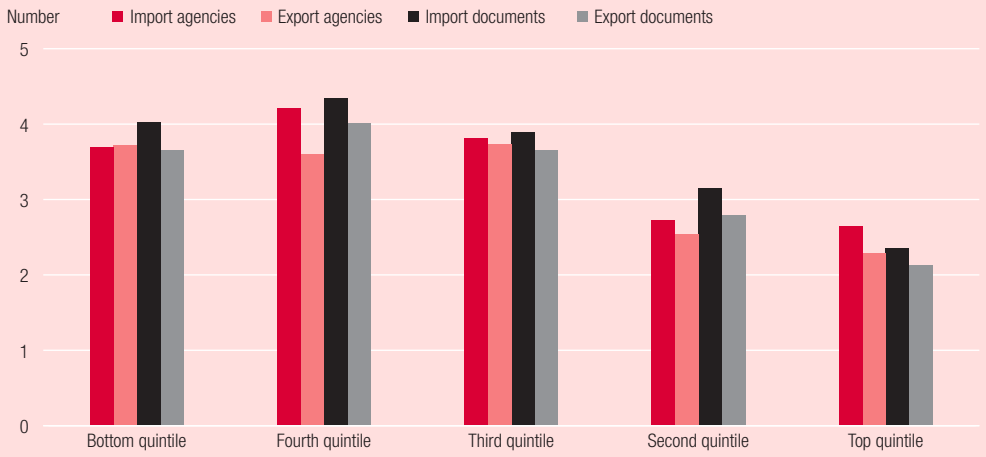
Red tape

Indicators for red tape show the same lack of border coordination, with a resultant burden on private logistics operators. In countries in the bottom quintile, operators typically deal with around 1.5 times as many government agencies as those in countries in the top quintile (figure 2.5)—a gap, though, that narrowed slightly between 2012 and 2014. For forms, countries in the top quintile typically require two supporting documents for trade transactions; those in the bottom, four—a persistent logistics gap between the previous and current LPIs.

Simplifying documentation for imports and exports has long been high on the trade facilitation agenda, prompting initiatives to bring border agencies together and to create a single window for trade. The World Bank and International Finance Corporation's *Doing Business* indicators place great weight on such simplification. Still, also needed are steps in other aspects of border management and, more generally, soft and hard trade-related infrastructure.

The reduction of procedural impediments is at the heart of the WTO's recent Trade Facilitation Agreement (box 2.2). It has a catalytic role in two areas. First, its standards are subject to the WTO's binding trade disciplines, unlike previous conventions. Second, it strengthens the delivery of technical assistance and capacity-building support for developing and least developed countries. Indeed, global experience suggests that many of the facilitation measures, such as introducing national single-window systems, are quite complex and require sustained efforts. To take in account differences in implementation capacity across countries, the Trade Facilitation Agreement has many caveats for

Figure 2.5 **Red tape affecting import and export transactions, by LPI quintile**



Source: Logistics Performance Index 2014.

Delays and unexpected costs are common in bottom quintile countries, undermining overall supply chain performance

developing and least developed countries, allowing much flexibility on implementation modalities.

Supply chain reliability

Some causes of underperformance are endogenous to a country's supply chain: the quality of service, and the costs and speed of clearance processes are examples. But other causes, such as dependence on indirect maritime routes, lie outside the domestic supply chain and are not under a country's control.

The LPI details possible causes of delay that are not directly related to how domestic services and agencies perform (table 2.7). There is, again, a striking contrast between the top and bottom LPI quintile countries. Of the five LPI delay categories, this contrast is especially large in three: informal (corrupt) payments, compulsory warehousing, and maritime transshipment. These areas are the same three identified in the 2012 LPI, so from a policy viewpoint low-performing countries need to pay more attention to these factors if they are to start catching up with the leading countries.

Delays and unexpected costs are common in bottom quintile countries, undermining overall supply chain performance. Worse, the incidence of delays is increasing across LPI quintiles—especially in the lower reaches. In the bottom quintile around 40 percent of 2014 LPI respondents report that shipments are often or nearly always delayed by compulsory warehousing, preshipment inspection, or informal payments. The first two numbers are sharply lower than in 2012, but roughly in line with those from the 2010 LPI. The informal payments number has remained steady across editions. The general pattern suggests that supply chain

Box 2.2 **WTO Agreement on Trade Facilitation**

After more than nine years of negotiations, WTO members reached consensus on a Trade Facilitation Agreement at the Ministerial Conference held in Bali, Indonesia, on December 7, 2013. The final agreement builds on the now 50-year-old trade rules covered by Articles V, VIII, and X of the General Agreement on Tariffs and Trade and contains provisions for faster and more efficient customs and border management procedures.

The key measures include commitments on publishing and making available information for traders, as well as adopting modern approaches to customs and border management. Principles include:

- Operational standards by customs agencies in terms of risk management for clearance post-audit.
- Transparency measures such as transparency of new legislation, appeals against administrative decisions, and advance rulings.
- Improved cooperation between government agencies, such as in implementing national single-window systems.
- Guidelines for streamlining international transit procedures.

In effect, the new agreement brings under the formal auspices of WTO many of the standards and best practices enshrined in other international instruments. In many respects the Bali agreement spells out minimum common standards; the full benefits of trade facilitation will be fully realized only if countries are prepared to go beyond it, for instance, with regionally integrated facilitation frameworks similar to the European Union's.

Predictable, reliable supply chains are central to good logistics performance

Table 2.7 Respondents reporting that shipments are "often" or "nearly always" delayed, by delay category and LPI quintile

Percent of respondents

LPI quintile	Compulsory warehousing	Preshipment inspection	Maritime transshipment	Theft	Informal payments
Bottom quintile	44	37	31	17	44
Fourth quintile	26	34	40	12	19
Third quintile	24	33	36	19	33
Second quintile	14	20	19	12	30
Top quintile	6	10	7	2	4

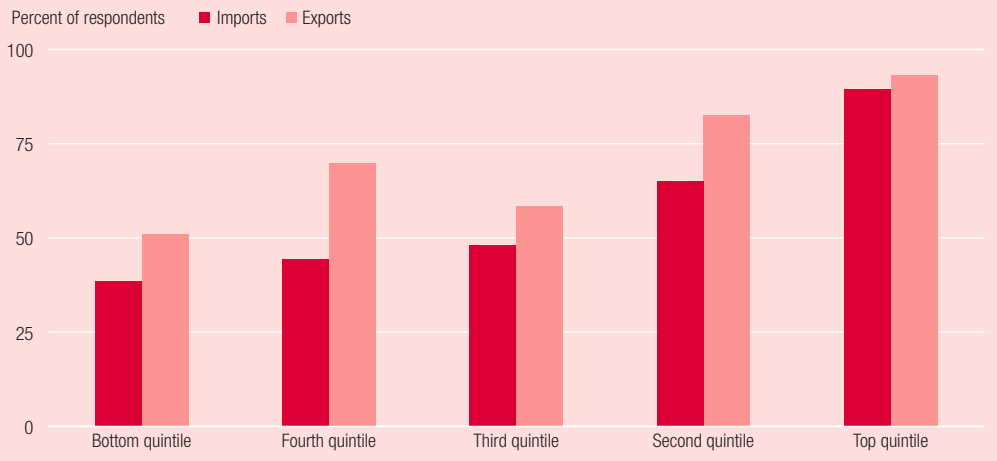
Source: Logistics Performance Index 2014.

predictability is an acute commercial problem, particularly in the lowest performing countries. The gap between the bottom and fourth quintiles is notable, suggesting that it may be possible to improve performance with relatively modest policy interventions.

Predictable, reliable supply chains are central to good logistics performance. Indeed, highly variable lead times can disrupt production and exporting, forcing firms to adopt costly strategies such as express shipments or sharply higher inventories, which with global and regional value chains that use just-in-time production can sharply erode competitiveness. Although firms can adopt other strategies, such as building in redundancies to deal with disruptions affecting one supplier, global market forces are such that providing the conditions for predictable, reliable supply chains have become imperative for countries that want their firms to join, and move up in, global and regional value chains.

An additional reason for policymakers to focus greater attention on supply chain reliability and predictability is the emerging networked structure of global and regional trade, which is linked in part to the rise of value chains. In a network, small disruptions at one point can spread rapidly and sometimes unpredictably to other points. The efficiency gains associated with networked production models thus come with increased systemic risk, in the sense that the structure itself can be vulnerable to small shocks to crucial links. The upshot is that countries that cannot provide the conditions for developing predictable and reliable supply chains will become increasingly disconnected from world markets where networked production

Figure 2.6 Respondents reporting that shipments are "often" or "nearly always" cleared and delivered as scheduled, by LPI quintile



Source: Logistics Performance Index 2014.

models are common. Low-performing countries need greater policy attention to improve their connectivity and to stem any further marginalization from the global trading system.

Supply chain reliability and predictability are further reflected in a key performance metric from the domestic LPI—timeliness of clearance and delivery (figure 2.6). Given that the frequency of delays rises sharply with declining logistics performance, it is unsurprising that the timeliness of clearance and delivery suffer as one moves down the LPI quintiles. Thus a stark difference in on-schedule arrival rates separates countries at the bottom and top of the LPI ranking. In the top quintile, most respondents report that import and export shipments "often" or "nearly always" arrive on schedule—in the bottom quintile, only around half as many. Performance in both cases is very similar to the 2012 LPI, which again highlights the importance of steps to improve predictability and reliability of supply chains in low-performing countries.

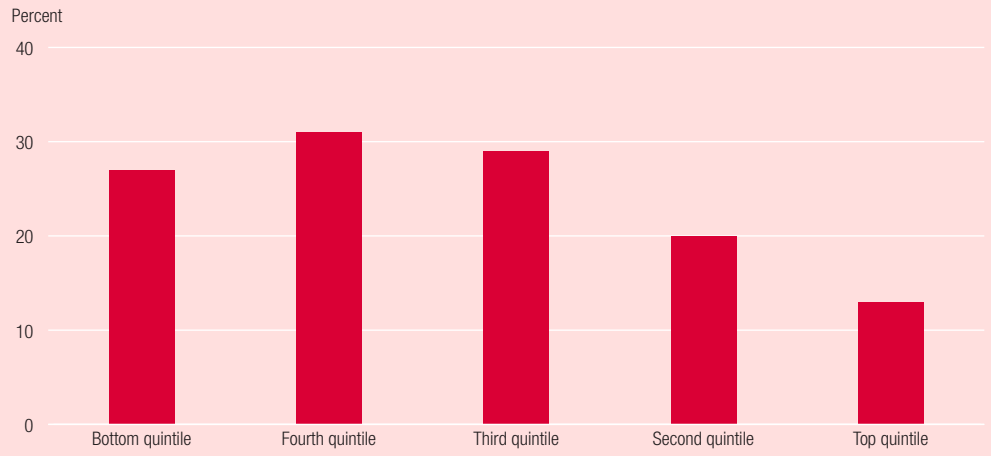
The bottom two LPI quintiles have the largest difference between on-schedule arrival rates for exports and those for imports (see

Addressing the causes of unexpected delays should be an important part of logistics reform in low-performing countries

Figure 2.7 **Respondents reporting that shipments are "often" or "nearly always" cleared and delivered as scheduled, by World Bank developing country region**

Source: Logistics Performance Index 2014.

Figure 2.8 **Shipments not meeting company quality criteria, by LPI quintile**



Source: Logistics Performance Index 2014.

figure 2.6). The much lower percentage of high ratings for imports suggests that supply chain unreliability discriminates in practice (if not in law) against foreign goods. As traditional trade barriers continue to fall around the world, policies contributing to such de facto discrimination become ever larger determinants of performance and trade outcomes. Addressing the causes of unexpected delays—including unpredictability in clearance, inland transit delays, and low service reliability—should thus be an important part of logistics reform in low-performing countries.

The patterns highlighted above are more striking in some World Bank regions than others (figure 2.7). Beyond the export–import performance gap, these data show a geographic predictability gap, with implications for competitiveness and the spread of regional supply chains and production networks. However, the data in figure 2.7 vary greatly from those in the 2012 LPI, where South Asia and the Middle East and North Africa performed much worse than other regions.

Supply chain predictability is not just a matter of time and cost. A further consideration—for private sector operators and their clients—is shipment quality, which varied widely in the 2014 LPI (figure 2.8). In the top LPI quintile, just 13 percent of shipments fail to meet company quality criteria—a proportion more than doubling in the fourth quintile to 31 percent.

The most important quality criterion in freight forwarding is delivery within the promised time window. Almost just as important is the absence of errors in cargo composition or documentation. The acceptable quality window is much narrower (and errors much less tolerated) in high-performing countries than in low-performing countries. The shipment quality gap only partly reflects these differing expectations.

SECTION 3

The way forward: New challenges in trade facilitation and logistics

"Our program is focused on how to enhance our global competitiveness, especially in logistics." . . . "The LPI is our reference to improve logistics performance." . . . "The LPI helps us to formulate our policy in logistics, pointing which sector or factor we have to improve in order to increase our competitiveness."

—Edy Putra Irawady, Deputy Minister at the Coordinating Ministry of Economic Affairs, Government of the Republic of Indonesia

Improving logistics performance is at the core of policies to bolster competitiveness and to boost trade integration. Recent trade research shows that improving logistics is where developing countries have the most potential to reduce trade costs (box 3.1). The recent WTO agreement in Bali, focusing on core trade facilitation standards, is also an example of this awareness and thrust toward implementation (see box 2.2).

Logistics is not limited to transportation or trade facilitation—but part of a broader agenda that also includes services, development of facilities, infrastructure, and spatial planning. Sustainability and environmental footprints are increasingly a concern, especially when connecting to OECD countries (box 3.2). Some countries' needs, like those of landlocked countries, have to be accommodated (see box 1.6). "Humanitarian logistics" for countries in crisis is also receiving more attention.

Countries are facing more complex reforms to push through. Design and implementation ultimately occur nationally or regionally, within country groupings. Further, because the robustness of a supply chain depends on its weakest link, the benefits of progress in addressing performance bottlenecks in one area may not be felt until progress is made in other areas.

Areas of reform: No more low-hanging fruit?

The areas of reform were highlighted in the two previous sections. This section describes the main policy implications coming not only from LPI trends, but also from many streams of analytical and practical knowledge, and current projects, as seen by World Bank staff.

First, this report confirms the need for consistent action plans in view of the higher complexity found in middle-income countries. The low-hanging fruit that countries can pick off earlier is less and less easily found. Incremental reforms may not address the weakest link and they can be easily neutralized or reversed by change in the governance environment when the incentives of the people resisting changes (private or public) are not addressed at a broad level. Most successful countries are introducing far-reaching changes, combining legislative changes with investment planning and incentives for operators. Large countries like Brazil and Indonesia have created high-level interagency bodies to help manage these complexities.

While there is no change in the needs for basic infrastructure in developing countries, some infrastructure and service provision issues require more attention. The most obvious is the lack of reliable rail services across country income levels. While green transport policies emphasize the importance of a modal shift from roads to rail, influencing the demand for rail beyond captive bulk markets will require a transformational change in performance that is just not happening, except in a few high-income countries.

Further, in line with the emergence of outsourcing in logistically friendly countries,

Box 3.1 Logistics inefficiencies are a primary source of trade costs

Bilateral trade costs capture an ad valorem equivalent of all factors that drive a wedge between the price of goods at the factory or farm gate in the exporting country and the price paid by a consumer in the importing country. They thus coincide with the traditional definition of "iceberg" trade costs in standard models of international trade, and include factors such as distance, supply chain inefficiencies, and tariff and nontariff barriers. International trade costs indicate how much more it costs to sell goods internationally than domestically. The lower the trade costs, the more competitive, as well as globally and regionally integrated, a country is.

The UNESCAP–World Bank bilateral trade costs database gives trade costs by country pair for manufacturing and agriculture.[1] Arvis and others (2013) provide an estimate of the sources of trade costs. As expected, distance is a major source of trade costs, but logistics performance and connectivity are at least as important, and more so than tariffs.

And as developing countries face much higher trade costs, partly due to the importance of policy in addressing their sources, policy measures can do much to reduce them while boosting trade integration, especially through measures that improve connectivity and logistics.

Note

1. http://data.worldbank.org/data-catalog/trade-costs-dataset.

developing economies are looking increasingly to promote sectors from different angles, such as regulations of warehousing or spatial planning of logistics clusters. Service reform, as in road freight, is still their priority.

Trade facilitation remains a core agenda item, which recently came under the global spotlight due to the Bali agreement (see box 2.2). Implementation challenges have also received more attention from governments and the global development community. The pressing needs are moving toward more complicated projects with many stakeholders, and where progress is bound to be slower than in automating customs, for instance. One such area is integrating processes of border agencies as part of trade clearance. These agencies are deemed more problematic than customs, based on the results obtained in the domestic LPI (see box 1.5) including standards, transport, veterinary, and health/SPS bodies.

As noted in *Connecting to Compete 2012,* progress is also comparatively slow for regional integration of trade and transport procedures, such as transit regimes, which would generate major gains in, for instance, corridor performance for landlocked countries.

Fact-based policymaking

Policymakers are increasingly looking for the data on which to base their decisions. General cross-country benchmarks like the LPI are useful, and are complemented by connectivity indicators for specific modes, such as shipping and air. They provide international comparability but remain coarse-grained benchmarks. More detailed and greater specificity is needed to assess the impact of decisions on ports, corridors, border crossings, trucking reforms, and the like. These needs fall into two categories:

- Measures of performance outcomes on cost, time, and reliability of specific chains—corridors or ports, for instance.
- Impact of cutting logistics costs on the economy.

With automation frequent in most supply chains, raw performance data are often available. There is now an extensive body of experience in measuring, for instance, corridor performance, both in developing economies ("Transport corridor observatories" by the Sub-Saharan Africa Transport Policy Program)[9] or in high-income countries (the 2012 report presented the experience of internal freight corridor monitoring in Canada).[10]

Assessing the footprint of logistics in the economy is more complex. Several governments or national logistics associations have monitored it through specific firm surveys, including those in Germany, France, Brazil, the Nordic countries, Thailand, and Malaysia. These surveys try to estimate logistics spending in manufacturing and commerce—and to break down the operating costs of service providers. The Finnish survey model has been replicated in several countries, including Greece and Kazakhstan.[11]

Differentiated needs by country

The four-category breakdown (described in "Key findings from the 2014 LPI") remains relevant, though changes over time point to "churning" between the second and third categories (partial performers and consistent performers). The single most important characteristic of logistics friendly countries is their services'

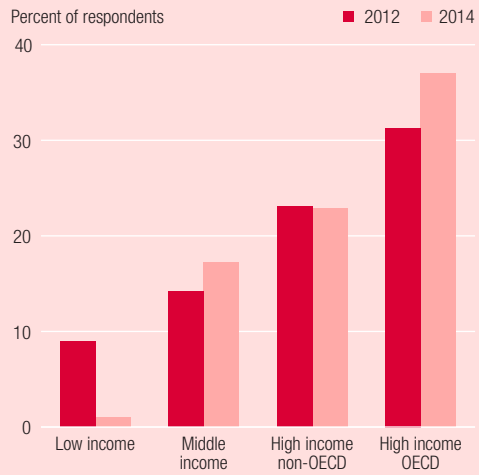
Box 3.2 **A shipper's demand for environmentally friendly supply chain solutions**

The survey for the 2014 LPI included (as in the previous edition) a question on shippers' environmental preferences: "How often do shippers ask for environmentally friendly options (e.g., in view of emission levels, choice of routes, vehicles, schedules) when shipping to . . .?"

Consistent with previous findings, the responses show that about a third of shippers are concerned about sustainability and the environmental footprint of their international supply chain when shipping to OECD countries. For shippers to low-income countries, the share is only a tenth. Compared with the previous edition, the percentage of shippers who are seemingly more environmentally conscious has increased or remained the same across every income group. OECD countries show the highest absolute change, augmenting the "sustainability gap" across income groups.

Anticipating this trend in shipper demand, large logistics service providers, notably the main express carriers (DHL, FedEx, UPS, and TNT) have developed global products and programs to meet it. These changes will likely help expand the green logistics movement from rich, already environmentally sensitive economies to developing countries. Logistics performance and sustainability are thus increasingly being seen as complementary objectives.

Respondents reporting that shippers have "often" or "almost always" asked for environmentally friendly options when shipping to particular regions, by income group



Note: Responses of 2012 LPI were reallocated based on income groups in 2014, to avoid composition effects in the sample.
Source: Logistics Performance Index 2012 and 2014.

sophistication, which allows their manufacturers to outsource logistics to third-party providers, increasing their competitiveness while focusing on their core activities. Outsourcing is much less common or even nonexistent in the other categories (box 3.3).

Countries in the logistics unfriendly category are in most need of support from the international development community and neighbors. They include countries with governance challenges (such as postconflict countries and fragile states), and countries challenged by their small economic size or geographic connectivity (such as landlocked developing countries and small island states—see box 1.6). Addressing some of the implementation challenges above, such as regional transit regimes,[12] will be key for future progress.

If countries want to be more competitive, they should encourage the development of third-party logistics functions, including those in the service sectors. To ensure that services are efficient and competitive, governments will need to make long-term policy changes that improve and maintain competitiveness of services, including logistics services that allow their countries to join global supply chains. A country's competitiveness based on low labor costs or abundant natural resources, for example, can be easily lost through inefficient logistics.

A trade logistics reform matrix

Based on the results of section 2 and World Bank project experience, the matrix of policy priorities by group of performance, presented in earlier editions, has been updated. In most cases they remain complex, and will be implemented as part of a coherent package (table 3.1).

Box 3.3 The impact of outsourcing on trade and competitiveness

Manufacturing and wholesale/retail companies (shippers) often outsource functions of product delivery to providers of "third-party logistics" (3PL is a bundle of transport, warehousing, and related logistics and information technology services). The partnership allows greater specialization: shippers focus on their core business in manufacturing or commerce, while the 3PL providers develop better ways to provide other services in the supply chain, including freight forwarding, warehousing, and transport.

Outsourcing in logistics is a sign of strong logistics performance and of a mature logistics market, and is often a direct marker of logistics sophistication. In developed logistics markets, shippers and other 3PL users generally outsource some 60 percent of their freight forwarding, 70 percent of their warehousing, and 80 percent of their transport services. The remainder is provided in house.

Outsourcing and spread of 3PL is rarer in even high-income countries that have not yet developed a mature logistics market. In peripheral European countries or emerging economies, outsourcing is typically 30 percent or less. In low-income economies as in Africa, outsourcing is negligible. While inherent demand for advanced logistics services may be low in these countries, provision of these services is also hampered by regulatory and other constraints.

In 2012, 3PL had an estimated global market of about $677 billion. Its growth has been especially rapid in the Asia-Pacific region—the largest regional market at $236 billion in 2012, followed by the United States ($170 billion) and Europe ($156 billion).

Source: Langley and Capgemini Consulting 2014; Pasadilla and Findlay 2014.

Table 3.1 Trade logistics reform matrix

LPI component	Bottom quintile	Third and fourth quintiles	Second quintile	Top quintile
Transport infrastructure	✔	✔	✔✔	✔
ICT	✔	✔		
Logistics facilities			✔	✔✔
Customs	✔✔✔	✔✔	✔	
Integration of border management	✔	✔✔✔	✔✔✔	✔
Services reforms	✔✔	✔✔✔	✔✔✔	
Regional facilitation and corridors	✔✔✔	✔✔	✔✔	
National data tools	✔	✔	✔✔✔	✔✔✔
Green logistics			✔✔	✔✔✔

✔✔✔ is very important; ✔✔ is important; ✔ is fairly important.
ICT is information and communications technology.
Source: Authors.

Notes

1 Logistics has been selected as one of the key nine sectors for development in the Netherlands: www.hollandtrade.com.

2 Indonesia has described its Vision for 2025 under the "Blueprint for National Logistics System Development" as "Locally Integrated, Globally Connected for National Competitiveness and Social Welfare."

3 Saslavsky and Shepherd 2013.

4 The responses from this question were used not to compute the LPI but as a floating question to capture trends that might be relevant.

5 Reis and Farole 2012.

6 The relative LPI score is obtained by normalizing the LPI score: Percentage of highest performer = 100 × [LPI – 1] / [LPI highest – 1]. Thus, the best performer has the maximum relative LPI score of 100 percent.

7 Although the respondents in the LPI survey are freight forwarders and express carriers, the quality and competence of service providers are assessed by their peers.

8 Lead time to import is the median time (the value for 50 percent of shipments) from port of discharge to arrival at the consignee.

9 Raballand and others 2008.

10 www.tc.gc.ca/eng/policy/anre-menu-3023.htm.

11 For example, the national logistics surveys of Estonia (Kiisler and Solakivi 2014), Finland (Solakivi and others 2012), and Greece (World Bank 2014).

12 Definition of transit system and transit regime by Arvis (McLinden and others 2011): Transit systems mean the infrastructure, legal framework, institutions, and procedures serving trade corridors (seen as a whole). Every transit system must have six components:

- The political commitment to allow transit trade—formalized in bilateral, regional, or multilateral treaties.
- The physical infrastructure for transit, including border checking facilities.
- Public and private institutions and people with certain capacities and competencies related to the movement of goods along a trade corridor. These institutions and people comprise:
  - Public agencies in the transit country supervising the flow—mainly customs and other agencies involved in controlling international trade and transportation.
  - Transportation services, including the trucking industry, customs brokers, and freight forwarders.
- Trust-building mechanisms, partnerships, and cooperative initiatives that bring together the many participants in the transit and corridor operations.
- An enabling environment for movements of vehicles and people—including vehicle registrations, the provision of trade in freight services across countries, allocation visas for drivers, mutual insurance recognition, a financial sector integrated across countries, and law enforcement.
- The provisions and procedures applicable to shipments in transit and to the carriers or traders of the goods.

The sixth and last component listed, transit provisions and procedures, is the transit regime. The transit regime is the heart of the transit system as it governs and makes possible the movements of goods from their origin (often a seaport) to their destination (such as a clearance center in the destination country).

APPENDIX 1

International LPI results

Economy	LPI rank			LPI score			% of highest performer	Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
	Rank	Lower bound	Upper bound	Score	Lower bound	Upper bound		Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Germany	1	1	1	4.12	4.07	4.17	100.0	2	4.10	1	4.32	4	3.74	3	4.12	1	4.17	4	4.36
Netherlands	2	2	5	4.05	3.97	4.12	97.6	4	3.96	3	4.23	11	3.64	2	4.13	6	4.07	6	4.34
Belgium	3	1	6	4.04	3.96	4.13	97.5	11	3.80	8	4.10	2	3.80	4	4.11	4	4.11	2	4.39
United Kingdom	4	2	5	4.01	3.96	4.07	96.6	5	3.94	6	4.16	12	3.63	5	4.03	5	4.08	7	4.33
Singapore	5	2	7	4.00	3.95	4.06	96.2	3	4.01	2	4.28	6	3.70	8	3.97	11	3.90	9	4.25
Sweden	6	1	20	3.96	3.68	4.24	94.9	15	3.75	9	4.09	3	3.76	6	3.98	7	3.98	8	4.26
Norway	7	1	19	3.96	3.69	4.22	94.8	1	4.21	4	4.19	30	3.42	1	4.19	31	3.50	5	4.36
Luxembourg	8	1	21	3.95	3.65	4.24	94.4	10	3.82	15	3.91	1	3.82	14	3.78	22	3.68	1	4.71
United States	9	6	10	3.92	3.87	3.97	93.5	16	3.73	5	4.18	26	3.45	7	3.97	2	4.14	14	4.14
Japan	10	6	12	3.91	3.85	3.97	93.4	14	3.78	7	4.16	19	3.52	11	3.93	9	3.95	10	4.24
Ireland	11	5	17	3.87	3.73	4.01	91.9	12	3.80	16	3.84	27	3.44	9	3.94	3	4.13	16	4.13
Canada	12	9	17	3.86	3.77	3.95	91.5	20	3.61	10	4.05	23	3.46	10	3.94	8	3.97	11	4.18
France	13	9	17	3.85	3.77	3.92	91.2	18	3.65	13	3.98	7	3.68	15	3.75	12	3.89	13	4.17
Switzerland	14	11	17	3.84	3.78	3.91	91.1	7	3.92	11	4.04	15	3.58	16	3.75	18	3.79	21	4.06
Hong Kong SAR, China	15	11	17	3.83	3.77	3.89	90.5	17	3.72	14	3.97	14	3.58	13	3.81	13	3.87	18	4.06
Australia	16	11	17	3.81	3.74	3.88	90.0	9	3.85	12	4.00	18	3.52	17	3.75	16	3.81	26	4.00
Denmark	17	2	28	3.78	3.52	4.05	89.1	13	3.79	17	3.82	9	3.65	18	3.74	36	3.36	3	4.39
Spain	18	17	23	3.72	3.63	3.80	87.1	19	3.63	20	3.77	21	3.51	12	3.83	26	3.54	17	4.07
Taiwan, China	19	16	23	3.72	3.62	3.81	87.0	21	3.55	24	3.64	5	3.71	25	3.60	17	3.79	25	4.02
Italy	20	18	23	3.69	3.64	3.74	86.2	29	3.36	19	3.78	17	3.54	23	3.62	14	3.84	22	4.05
Korea, Rep.	21	18	25	3.67	3.58	3.75	85.4	24	3.47	18	3.79	28	3.44	21	3.66	21	3.69	28	4.00
Austria	22	11	35	3.65	3.41	3.89	84.8	23	3.53	25	3.64	40	3.26	26	3.56	10	3.93	23	4.04
New Zealand	23	5	39	3.64	3.28	4.01	84.7	6	3.92	22	3.67	8	3.67	27	3.56	38	3.33	40	3.72
Finland	24	9	39	3.62	3.32	3.93	84.0	8	3.89	28	3.52	20	3.52	19	3.72	39	3.31	38	3.80
Malaysia	25	22	28	3.59	3.52	3.66	83.0	27	3.37	26	3.56	10	3.64	32	3.47	23	3.58	31	3.92
Portugal	26	18	39	3.56	3.34	3.78	82.0	31	3.26	31	3.37	29	3.43	20	3.71	20	3.71	35	3.87
United Arab Emirates	27	25	32	3.54	3.48	3.60	81.3	25	3.42	21	3.70	43	3.20	31	3.50	24	3.57	32	3.92
China	28	26	32	3.53	3.48	3.59	81.1	38	3.21	23	3.67	22	3.50	35	3.46	29	3.50	36	3.87
Qatar	29	20	39	3.52	3.34	3.70	80.6	37	3.21	29	3.44	16	3.55	28	3.55	32	3.47	34	3.87
Turkey	30	26	35	3.50	3.43	3.57	80.1	34	3.23	27	3.53	48	3.18	22	3.64	19	3.77	41	3.68
Poland	31	24	38	3.49	3.35	3.64	79.9	32	3.26	46	3.08	24	3.46	33	3.47	27	3.54	15	4.13
Czech Republic	32	21	39	3.49	3.31	3.67	79.8	33	3.24	36	3.29	13	3.59	29	3.51	25	3.56	39	3.73
Hungary	33	25	39	3.46	3.32	3.61	78.9	48	2.97	40	3.18	32	3.40	37	3.33	15	3.82	20	4.06
South Africa	34	24	43	3.43	3.23	3.64	77.9	42	3.11	38	3.20	25	3.45	24	3.62	41	3.30	33	3.88
Thailand	35	29	39	3.43	3.33	3.53	77.8	36	3.21	30	3.40	39	3.30	38	3.29	33	3.45	29	3.96
Latvia	36	25	44	3.40	3.20	3.61	77.0	35	3.22	51	3.03	33	3.38	42	3.21	30	3.50	19	4.06
Iceland	37	22	49	3.39	3.13	3.65	76.6	22	3.54	33	3.34	49	3.15	34	3.46	35	3.38	53	3.51
Slovenia	38	26	43	3.38	3.20	3.56	76.3	41	3.11	32	3.35	57	3.05	30	3.51	28	3.51	37	3.82
Estonia	39	20	58	3.35	3.00	3.69	75.1	26	3.40	35	3.34	34	3.34	39	3.27	47	3.20	49	3.55
Romania	40	34	54	3.26	3.08	3.44	72.4	59	2.83	64	2.77	36	3.32	43	3.20	34	3.39	27	4.00
Israel	41	36	50	3.26	3.11	3.41	72.4	43	3.10	45	3.11	96	2.71	36	3.35	46	3.20	12	4.18
Chile	42	38	50	3.26	3.12	3.39	72.3	39	3.17	41	3.17	53	3.12	44	3.19	40	3.30	44	3.59

	LPI rank			LPI score			% of highest performer	Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Rank	Lower bound	Upper bound	Score	Lower bound	Upper bound		Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Slovak Republic	43	33	55	3.25	3.03	3.48	72.2	52	2.89	37	3.22	38	3.30	46	3.16	63	3.02	30	3.94
Greece	44	40	52	3.20	3.08	3.32	70.5	28	3.36	42	3.17	62	2.97	40	3.23	61	3.03	54	3.50
Panama	45	38	57	3.19	3.00	3.38	70.3	40	3.15	52	3.00	47	3.18	68	2.87	37	3.34	42	3.63
Lithuania	46	33	66	3.18	2.88	3.47	69.8	44	3.04	39	3.18	55	3.10	57	2.99	49	3.17	43	3.60
Bulgaria	47	40	57	3.16	3.00	3.31	69.1	64	2.75	53	2.94	37	3.31	55	3.00	76	2.88	24	4.04
Vietnam	48	40	59	3.15	2.99	3.32	69.0	61	2.81	44	3.11	42	3.22	49	3.09	48	3.19	56	3.49
Saudi Arabia	49	45	51	3.15	3.10	3.20	68.8	56	2.86	34	3.34	70	2.93	48	3.11	54	3.15	47	3.55
Mexico	50	44	55	3.13	3.03	3.23	68.2	70	2.69	50	3.04	46	3.19	47	3.12	55	3.14	46	3.57
Malta	51	39	69	3.11	2.85	3.36	67.5	46	3.00	47	3.08	41	3.23	54	3.00	52	3.15	81	3.15
Bahrain	52	20	124	3.08	2.45	3.71	66.7	30	3.29	49	3.04	58	3.04	51	3.04	42	3.29	119	2.80
Indonesia	53	40	66	3.08	2.89	3.27	66.7	55	2.87	56	2.92	74	2.87	41	3.21	58	3.11	50	3.53
India	54	49	56	3.08	3.01	3.15	66.6	65	2.72	58	2.88	44	3.20	52	3.03	57	3.11	51	3.51
Croatia	55	40	76	3.05	2.80	3.30	65.8	50	2.95	55	2.92	61	2.98	56	3.00	59	3.11	62	3.37
Kuwait	56	44	77	3.01	2.79	3.23	64.4	68	2.69	43	3.16	89	2.76	59	2.96	50	3.16	60	3.39
Philippines	57	44	78	3.00	2.78	3.23	64.2	47	3.00	75	2.60	35	3.33	61	2.93	64	3.00	90	3.07
Cyprus	58	40	92	3.00	2.67	3.33	64.1	53	2.88	59	2.87	60	3.01	63	2.92	65	3.00	65	3.31
Oman	59	50	69	3.00	2.85	3.14	63.9	74	2.63	57	2.88	31	3.41	73	2.84	80	2.84	67	3.29
Argentina	60	52	68	2.99	2.87	3.10	63.6	85	2.55	63	2.83	64	2.96	62	2.93	53	3.15	55	3.49
Ukraine	61	51	71	2.98	2.84	3.11	63.3	69	2.69	71	2.65	67	2.95	72	2.84	45	3.20	52	3.51
Egypt, Arab Rep.	62	40	99	2.97	2.63	3.30	63.0	57	2.85	60	2.86	77	2.87	58	2.99	43	3.23	99	2.99
Serbia	63	47	80	2.96	2.75	3.17	62.9	113	2.37	66	2.73	54	3.12	53	3.02	69	2.94	48	3.55
El Salvador	64	51	74	2.96	2.81	3.11	62.8	51	2.93	72	2.63	45	3.20	45	3.16	66	3.00	128	2.75
Brazil	65	56	70	2.94	2.84	3.05	62.3	94	2.48	54	2.93	81	2.80	50	3.05	62	3.03	61	3.39
Bahamas, The	66	51	86	2.91	2.70	3.12	61.2	45	3.00	65	2.74	63	2.96	64	2.92	99	2.64	72	3.19
Montenegro	67	47	104	2.88	2.59	3.16	60.1	60	2.83	62	2.84	51	3.15	117	2.45	84	2.76	73	3.19
Jordan	68	56	86	2.87	2.70	3.05	60.0	78	2.60	76	2.59	65	2.96	60	2.94	96	2.67	58	3.46
Dominican Republic	69	51	102	2.86	2.61	3.11	59.6	80	2.58	73	2.61	71	2.93	65	2.91	72	2.91	76	3.18
Jamaica	70	44	125	2.84	2.45	3.24	59.0	54	2.88	61	2.84	86	2.79	84	2.72	89	2.72	83	3.14
Peru	71	60	90	2.84	2.69	2.99	59.0	96	2.47	67	2.72	69	2.94	76	2.78	83	2.81	66	3.30
Pakistan	72	55	106	2.83	2.59	3.06	58.5	58	2.84	69	2.67	56	3.08	75	2.79	86	2.73	123	2.79
Malawi	73	56	104	2.81	2.59	3.03	58.1	62	2.79	48	3.04	108	2.63	70	2.86	100	2.63	100	2.99
Kenya	74	50	120	2.81	2.48	3.14	58.0	151	1.96	102	2.40	50	3.15	90	2.65	60	3.03	45	3.58
Nigeria	75	59	100	2.81	2.62	3.00	57.9	117	2.35	83	2.56	107	2.63	85	2.70	51	3.16	57	3.46
Venezuela, RB	76	60	99	2.81	2.63	2.99	57.9	109	2.39	74	2.61	68	2.94	77	2.76	70	2.92	74	3.18
Guatemala	77	66	92	2.80	2.66	2.93	57.6	63	2.75	88	2.54	76	2.87	87	2.68	93	2.68	68	3.24
Paraguay	78	66	96	2.78	2.64	2.92	57.0	90	2.49	97	2.46	79	2.83	78	2.76	74	2.89	70	3.22
Côte d'Ivoire	79	60	112	2.76	2.53	2.99	56.4	120	2.33	101	2.41	75	2.87	95	2.62	67	2.97	64	3.31
Rwanda	80	56	120	2.76	2.49	3.03	56.3	89	2.50	113	2.32	88	2.78	92	2.64	68	2.94	63	3.34
Bosnia and Herzegovina	81	62	114	2.75	2.52	2.97	56.0	105	2.41	84	2.55	87	2.78	81	2.73	107	2.55	59	3.44
Maldives	82	56	124	2.75	2.45	3.04	56.0	49	2.95	82	2.56	72	2.92	74	2.79	92	2.70	148	2.51
Cambodia	83	56	125	2.74	2.44	3.04	55.8	71	2.67	79	2.58	78	2.83	89	2.67	71	2.92	129	2.75
São Tomé and Príncipe	84	56	124	2.73	2.46	3.01	55.5	103	2.42	78	2.59	66	2.95	109	2.50	56	3.13	125	2.77
Lebanon	85	52	135	2.73	2.36	3.10	55.3	124	2.29	89	2.53	118	2.53	67	2.89	44	3.22	108	2.89
Ecuador	86	67	112	2.71	2.53	2.89	54.8	92	2.49	94	2.50	83	2.79	97	2.61	95	2.67	77	3.18
Costa Rica	87	69	112	2.70	2.53	2.87	54.5	110	2.39	99	2.43	106	2.63	69	2.86	82	2.83	95	3.04
Kazakhstan	88	66	121	2.70	2.47	2.93	54.4	121	2.33	106	2.38	100	2.68	83	2.72	81	2.83	69	3.24

	LPI rank			LPI score			% of	Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Rank	Lower bound	Upper bound	Score	Lower bound	Upper bound	highest performer	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Sri Lanka	89	67	120	2.70	2.48	2.91	54.3	84	2.56	126	2.23	115	2.56	66	2.91	85	2.76	85	3.12
Russian Federation	90	78	103	2.69	2.60	2.79	54.3	133	2.20	77	2.59	102	2.64	80	2.74	79	2.85	84	3.14
Uruguay	91	70	115	2.68	2.51	2.85	53.8	111	2.39	90	2.51	103	2.64	100	2.58	75	2.89	91	3.06
Armenia	92	60	136	2.67	2.35	2.99	53.6	75	2.63	107	2.38	90	2.75	79	2.75	114	2.50	98	3.00
Namibia	93	64	136	2.66	2.35	2.96	53.1	125	2.27	81	2.57	97	2.70	86	2.69	106	2.56	82	3.15
Moldova	94	67	127	2.65	2.42	2.89	53.0	98	2.46	85	2.55	52	3.14	118	2.44	131	2.35	109	2.89
Nicaragua	95	67	127	2.65	2.42	2.88	53.0	72	2.66	130	2.20	98	2.69	98	2.58	104	2.58	79	3.17
Algeria	96	67	127	2.65	2.40	2.90	52.8	66	2.71	87	2.54	117	2.54	102	2.54	109	2.54	94	3.04
Colombia	97	72	125	2.64	2.45	2.83	52.5	79	2.59	98	2.44	95	2.72	91	2.64	108	2.55	111	2.87
Burkina Faso	98	60	143	2.64	2.29	2.99	52.5	88	2.50	111	2.35	105	2.63	94	2.63	115	2.49	71	3.21
Belarus	99	70	127	2.64	2.42	2.85	52.5	87	2.50	86	2.55	91	2.74	116	2.46	113	2.51	93	3.05
Ghana	100	66	138	2.63	2.33	2.93	52.1	130	2.22	70	2.67	93	2.73	121	2.37	73	2.90	113	2.86
Senegal	101	58	146	2.62	2.24	3.00	52.0	76	2.61	116	2.30	59	3.03	103	2.53	98	2.65	146	2.53
Liberia	102	67	134	2.62	2.36	2.88	51.9	83	2.57	80	2.57	114	2.57	71	2.86	105	2.57	144	2.57
Honduras	103	78	127	2.61	2.42	2.79	51.5	67	2.70	124	2.24	85	2.79	112	2.47	101	2.61	121	2.79
Ethiopia	104	49	158	2.59	2.04	3.15	51.0	102	2.42	134	2.17	121	2.50	96	2.62	97	2.67	78	3.17
Nepal	105	77	132	2.59	2.38	2.80	50.9	123	2.31	122	2.26	104	2.64	107	2.50	87	2.72	92	3.06
Solomon Islands	106	72	137	2.59	2.34	2.84	50.8	91	2.49	96	2.46	146	2.22	82	2.72	88	2.72	102	2.96
Burundi	107	61	154	2.57	2.15	2.99	50.2	77	2.60	104	2.40	111	2.60	106	2.51	112	2.51	126	2.76
Bangladesh	108	81	133	2.56	2.37	2.76	50.1	138	2.09	138	2.11	80	2.82	93	2.64	122	2.45	75	3.18
Benin	109	64	153	2.56	2.16	2.96	50.0	73	2.64	109	2.35	99	2.69	123	2.35	123	2.45	115	2.85
Tunisia	110	72	144	2.55	2.27	2.83	49.7	146	2.02	118	2.30	73	2.91	120	2.42	124	2.42	80	3.16
Fiji	111	52	158	2.55	1.99	3.10	49.5	106	2.40	95	2.47	94	2.72	139	2.22	118	2.47	101	2.97
Angola	112	77	143	2.54	2.29	2.80	49.4	114	2.37	140	2.11	84	2.79	128	2.31	103	2.59	96	3.02
Chad	113	66	154	2.53	2.14	2.92	49.0	97	2.46	112	2.33	136	2.33	125	2.34	90	2.71	97	3.02
Tajikistan	114	85	138	2.53	2.32	2.73	48.9	115	2.35	108	2.36	92	2.73	113	2.47	119	2.47	133	2.74
Mauritius	115	73	148	2.51	2.22	2.81	48.5	128	2.25	91	2.50	109	2.63	110	2.48	133	2.34	110	2.88
Georgia	116	91	138	2.51	2.33	2.69	48.3	131	2.21	100	2.42	138	2.32	119	2.44	102	2.59	87	3.09
Macedonia, FYR	117	86	143	2.50	2.28	2.71	48.0	116	2.35	92	2.50	132	2.38	105	2.51	121	2.46	118	2.81
Libya	118	86	143	2.50	2.28	2.72	47.9	104	2.41	119	2.29	140	2.29	131	2.29	78	2.85	114	2.85
Mali	119	79	148	2.50	2.22	2.77	47.9	141	2.08	129	2.20	82	2.80	142	2.20	91	2.70	106	2.90
Botswana	120	70	154	2.49	2.14	2.84	47.8	112	2.38	125	2.23	129	2.42	99	2.58	127	2.40	103	2.94
Bolivia	121	78	152	2.48	2.16	2.80	47.4	108	2.40	133	2.17	135	2.35	88	2.68	94	2.68	141	2.60
Guinea	122	91	146	2.46	2.24	2.69	46.9	119	2.34	141	2.10	125	2.47	124	2.35	126	2.41	86	3.10
Zambia	123	73	154	2.46	2.10	2.82	46.9	86	2.54	115	2.31	152	2.13	114	2.47	120	2.47	105	2.91
Guyana	124	93	144	2.46	2.26	2.66	46.7	99	2.46	105	2.40	128	2.43	133	2.27	117	2.47	131	2.74
Azerbaijan	125	81	154	2.45	2.15	2.75	46.4	82	2.57	68	2.71	113	2.57	149	2.14	148	2.14	143	2.57
Papua New Guinea	126	86	154	2.43	2.15	2.71	45.8	107	2.40	127	2.23	126	2.47	115	2.47	141	2.27	135	2.73
Guinea-Bissau	127	77	158	2.43	2.05	2.81	45.7	101	2.43	121	2.29	141	2.29	101	2.57	139	2.29	136	2.71
Comoros	128	96	153	2.40	2.15	2.65	44.9	81	2.58	117	2.30	119	2.51	134	2.26	128	2.37	154	2.37
Uzbekistan	129	94	154	2.39	2.13	2.66	44.7	157	1.80	148	2.01	145	2.23	122	2.37	77	2.87	88	3.08
Niger	130	89	155	2.39	2.09	2.70	44.6	93	2.49	143	2.08	130	2.38	132	2.28	129	2.36	127	2.76
Lao PDR	131	92	154	2.39	2.10	2.68	44.5	100	2.45	128	2.21	120	2.50	129	2.31	146	2.20	137	2.65
Madagascar	132	98	154	2.38	2.13	2.64	44.3	144	2.06	136	2.15	133	2.38	127	2.33	138	2.29	89	3.07
Lesotho	133	87	158	2.37	2.04	2.71	44.0	129	2.22	110	2.35	122	2.48	137	2.23	132	2.35	139	2.60
Central African Republic	134	72	158	2.36	1.89	2.84	43.6	95	2.47	93	2.50	149	2.16	130	2.31	137	2.31	150	2.47

	LPI rank			LPI score			% of highest performer	Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Rank	Lower bound	Upper bound	Score	Lower bound	Upper bound		Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Mongolia	135	102	155	2.36	2.09	2.62	43.4	132	2.20	120	2.29	110	2.62	126	2.33	149	2.13	147	2.51
Equatorial Guinea	136	85	158	2.35	1.98	2.73	43.4	118	2.35	139	2.11	153	2.11	143	2.20	110	2.53	112	2.86
Zimbabwe	137	87	158	2.34	1.98	2.70	42.9	154	1.89	123	2.25	143	2.25	108	2.50	143	2.22	104	2.93
Tanzania	138	108	154	2.33	2.10	2.56	42.6	135	2.19	114	2.32	137	2.32	145	2.18	150	2.11	107	2.89
Togo	139	105	158	2.32	2.04	2.59	42.2	139	2.09	145	2.07	124	2.47	150	2.14	116	2.49	140	2.60
Turkmenistan	140	107	158	2.30	2.04	2.57	41.8	122	2.31	146	2.06	116	2.56	155	2.07	134	2.32	153	2.45
Iraq	141	111	158	2.30	2.05	2.55	41.6	149	1.98	131	2.18	139	2.31	147	2.15	136	2.31	116	2.85
Cameroon	142	110	158	2.30	2.04	2.55	41.5	156	1.86	154	1.85	147	2.20	104	2.52	111	2.52	120	2.80
Bhutan	143	104	158	2.29	1.99	2.59	41.3	140	2.09	132	2.18	131	2.38	111	2.48	140	2.28	158	2.28
Haiti	144	124	156	2.27	2.08	2.46	40.7	127	2.25	151	2.00	142	2.27	148	2.14	135	2.32	138	2.63
Myanmar	145	122	158	2.25	2.02	2.48	40.0	150	1.97	137	2.14	151	2.14	156	2.07	130	2.36	117	2.83
Gambia, The	146	122	158	2.25	2.03	2.47	40.0	143	2.06	149	2.00	101	2.67	138	2.22	154	2.00	151	2.46
Mozambique	147	103	159	2.23	1.85	2.61	39.4	126	2.26	135	2.15	154	2.08	153	2.10	152	2.08	134	2.74
Mauritania	148	104	159	2.23	1.86	2.60	39.4	152	1.93	103	2.40	155	2.07	157	2.06	142	2.23	130	2.75
Kyrgyz Republic	149	122	158	2.21	1.95	2.47	38.7	145	2.03	147	2.05	127	2.43	151	2.13	145	2.20	155	2.36
Gabon	150	125	158	2.20	1.95	2.45	38.5	148	2.00	142	2.08	112	2.58	135	2.25	157	1.92	157	2.31
Yemen, Rep.	151	91	160	2.18	1.67	2.69	37.9	159	1.63	153	1.87	134	2.35	141	2.21	144	2.21	124	2.78
Cuba	152	126	158	2.18	1.91	2.45	37.8	136	2.17	155	1.84	123	2.47	154	2.08	156	1.99	152	2.45
Sudan	153	132	158	2.16	1.93	2.39	37.2	155	1.87	152	1.90	144	2.23	144	2.18	125	2.42	156	2.33
Djibouti	154	117	159	2.15	1.80	2.50	36.8	134	2.20	150	2.00	158	1.80	140	2.21	155	2.00	132	2.74
Syrian Arab Republic	155	134	159	2.09	1.81	2.37	34.9	142	2.07	144	2.08	150	2.15	159	1.82	158	1.90	145	2.53
Eritrea	156	132	159	2.08	1.78	2.39	34.7	153	1.90	159	1.68	157	1.90	136	2.23	153	2.01	122	2.79
Congo, Rep.	157	139	159	2.08	1.83	2.33	34.5	160	1.50	157	1.83	148	2.17	146	2.17	147	2.17	142	2.58
Afghanistan	158	153	158	2.07	1.97	2.16	34.3	137	2.16	158	1.82	156	1.99	152	2.12	159	1.85	149	2.48
Congo, Dem. Rep.	159	154	160	1.88	1.60	2.15	28.2	158	1.78	156	1.83	160	1.70	158	1.84	151	2.10	159	2.04
Somalia	160	149	160	1.77	1.32	2.23	24.8	147	2.00	160	1.50	159	1.75	160	1.75	160	1.75	160	1.88

Note: The LPI index is a multidimensional assessment of logistics performance, rated on a scale from 1 (worst) to 5 (best). The six core components captured by the LPI survey are rated by respondents on a scale of 1–5, where 1 is very low or very difficult and 5 is very high or very easy, except for question 15, where 1 is hardly ever and 5 is nearly always. The relative LPI score is obtained by normalizing the LPI score: Percentage of highest performer = 100 × [LPI – 1] / [LPI highest – 1]. Thus, the best performer has the maximum relative LPI score of 100 percent.
Source: Logistics Performance Index 2014.

APPENDIX 2

Domestic LPI results, by region and income group

Percent of respondents

Question	Response categories	Region						Income group			
		East Asia and Pacific	Europe and Central Asia	Latin America and Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	Low income	Lower middle income	Upper middle income	High income
Question 17: Level of fees and charges											
Port charges	High or very high	56	35	68	39	51	70	68	62	47	52
	Low or very low	9	16	3	14	12	6	19	4	7	6
Airport charges	High or very high	50	38	44	32	26	51	36	45	44	43
	Low or very low	14	4	12	15	15	8	14	10	9	13
Road transport rates	High or very high	49	23	59	25	47	68	65	46	43	37
	Low or very low	12	16	16	16	14	6	9	10	16	15
Rail transport rates	High or very high	22	43	15	9	33	46	51	28	25	37
	Low or very low	27	19	42	36	43	21	20	33	30	12
Warehousing/transloading charges	High or very high	29	16	49	26	32	49	31	40	35	41
	Low or very low	25	25	9	8	26	1	5	14	16	17
Agent fees	High or very high	9	17	22	8	10	28	11	17	22	29
	Low or very low	35	35	7	26	41	23	27	24	25	23
Question 18: Quality of infrastructure											
Ports	Low or very low	44	49	52	53	21	33	38	48	41	23
	High or very high	24	10	20	33	28	23	15	18	26	53
Airports	Low or very low	34	36	30	51	34	38	32	49	30	10
	High or very high	29	27	20	18	28	20	22	17	27	56
Roads	Low or very low	46	56	72	49	32	53	59	57	51	16
	High or very high	16	10	7	11	27	19	15	4	21	46
Rail	Low or very low	60	64	82	86	57	89	86	76	72	32
	High or very high	6	4	1	7	7	3	2	5	5	27
Warehousing/transloading facilities	Low or very low	48	39	27	20	33	44	59	51	17	10
	High or very high	20	22	7	17	24	22	10	12	26	61
Telecommunications and IT	Low or very low	11	16	23	9	6	23	25	18	14	7
	High or very high	23	32	24	36	58	34	23	27	39	77
Question 19: Quality and competence of service											
Roads	Low or very low	29	41	25	31	36	29	30	38	27	9
	High or very high	20	24	9	22	26	15	13	10	25	62
Rail	Low or very low	63	47	82	60	54	77	75	66	63	32
	High or very high	11	9	1	6	10	5	6	9	4	31
Air transport	Low or very low	10	14	13	16	9	12	13	14	11	5
	High or very high	29	31	32	48	37	31	24	26	42	63
Maritime transport	Low or very low	7	17	11	6	19	10	18	7	12	5
	High or very high	33	32	27	46	51	42	30	31	44	61
Warehousing/transloading and distribution	Low or very low	25	28	22	26	37	28	40	28	20	7
	High or very high	29	36	26	29	25	31	16	21	42	63
Freight forwarders	Low or very low	5	9	11	14	1	1	4	2	11	1
	High or very high	51	38	46	47	57	36	32	36	53	64
Customs agencies	Low or very low	18	20	28	31	8	32	25	29	23	16
	High or very high	29	32	14	32	23	30	20	23	32	61
Quality/standards inspection agencies	Low or very low	43	35	50	26	33	34	55	47	25	15
	High or very high	16	29	8	34	22	27	15	21	26	47

Question	Response categories	Region						Income group			
		East Asia and Pacific	Europe and Central Asia	Latin America and Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	Low income	Lower middle income	Upper middle income	High income
Health/sanitary and phytosanitary agencies	Low or very low	52	36	55	40	37	44	49	53	37	25
	High or very high	21	24	6	25	17	18	13	17	20	42
Customs brokers	Low or very low	19	8	22	31	32	14	18	22	16	8
	High or very high	29	52	22	37	35	37	34	31	39	65
Trade and transport associations	Low or very low	21	39	34	51	26	35	32	34	37	17
	High or very high	25	23	12	19	26	30	21	21	25	51
Consignees or shippers	Low or very low	23	19	11	28	9	8	17	11	17	11
	High or very high	22	32	14	18	47	30	17	26	30	42
Question 20: Efficiency of processes											
Clearance and delivery of imports	Hardly ever or rarely	29	21	21	20	7	22	31	17	19	5
	Often or nearly always	55	62	37	52	47	47	39	49	54	83
Clearance and delivery of exports	Hardly ever or rarely	4	4	12	5	2	18	4	8	13	8
	Often or nearly always	75	60	63	62	85	64	67	62	68	88
Transparency of customs clearance	Hardly ever or rarely	53	39	28	20	22	20	32	41	23	11
	Often or nearly always	30	48	38	31	58	38	28	35	48	80
Transparency of other border agencies	Hardly ever or rarely	51	37	41	4	20	22	38	40	22	11
	Often or nearly always	28	52	39	26	50	40	24	36	48	77
Provision of adequate and timely information on regulatory changes	Hardly ever or rarely	45	38	28	43	34	33	37	35	36	23
	Often or nearly always	23	32	23	40	35	35	25	27	35	67
Expedited customs clearance for traders with high compliance levels	Hardly ever or rarely	31	35	41	28	7	34	53	23	30	14
	Often or nearly always	34	49	35	39	38	19	20	37	38	66
Question 21: Sources of major delays											
Compulsory warehousing/ transloading	Often or nearly always	7	10	33	24	18	39	21	26	24	11
	Hardly ever or rarely	40	57	26	21	34	32	27	38	38	67
Preshipment inspection	Often or nearly always	14	10	46	44	33	36	35	23	33	13
	Hardly ever or rarely	37	79	14	16	27	24	25	34	37	67
Maritime transshipment	Often or nearly always	12	20	39	26	47	40	40	22	33	12
	Hardly ever or rarely	32	60	17	19	24	26	28	37	28	60
Criminal activities (such as stolen cargo)	Often or nearly always	10	13	36	5	24	10	20	12	19	2
	Hardly ever or rarely	57	74	43	91	49	61	48	63	66	85
Solicitation of informal payments	Often or nearly always	25	25	49	12	18	40	38	35	28	7
	Hardly ever or rarely	38	57	24	28	28	38	35	29	43	77

Question	Response categories	Region						Income group			
		East Asia and Pacific	Europe and Central Asia	Latin America and Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	Low income	Lower middle income	Upper middle income	High income
Question 22: Changes in the logistics environment since 2011											
Customs clearance procedures	Much worsened or worsened	11	10	37	20	8	18	18	10	26	12
	Improved or much improved	55	36	35	26	78	56	50	47	44	60
Other official clearance procedures	Much worsened or worsened	6	12	28	42	5	10	3	15	24	15
	Improved or much improved	57	20	29	24	47	41	37	33	35	38
Trade and transport infrastructure	Much worsened or worsened	4	8	28	38	9	9	13	13	18	10
	Improved or much improved	68	34	36	22	50	50	50	44	40	47
Telecommunications and IT infrastructure	Much worsened or worsened	1	7	12	19	1	3	0	3	12	2
	Improved or much improved	75	51	63	54	95	72	70	75	60	64
Private logistics services	Much worsened or worsened	0	7	11	2	0	1	0	2	8	1
	Improved or much improved	83	52	63	56	75	63	65	73	57	65
Regulation related to logistics	Much worsened or worsened	19	23	12	8	9	13	19	7	18	10
	Improved or much improved	35	23	30	17	56	38	33	39	27	33
Solicitation of informal payments	Much worsened or worsened	12	24	37	25	8	26	25	21	26	4
	Improved or much improved	38	20	24	19	39	32	25	34	24	41

Note: Responses are calculated at the country level and then averaged by region and income group.
Source: Logistics Performance Index 2014.

APPENDIX 3

Domestic LPI results, time and cost data

	Question 23: Export time and cost						Question 25: Import time and cost					
	Port or airport supply chain[a]			Land supply chain[b]			Port or airport supply chain[c]			Land supply chain[b]		
Economy	Distance[d] (kilometers)	Lead time (days)	Cost[e] (US$)	Distance (kilometers)	Lead time (days)	Cost[f] (US$)	Distance (kilometers)	Lead time (days)	Cost[e] (US$)	Distance (kilometers)	Lead time (days)	Cost[f] (US$)
Albania	—	1	3,000	—	2	1,732	—	1	750	—	2	2,000
Algeria	75	3	707	—	—	—	—	4	2,000	—	—	—
Angola	—	5	1,500	—	—	—	—	4	1,500	—	—	—
Argentina	—	2	1,313	535	4	1,842	—	3	1,670	792	4	2,943
Australia	—	2	1,033	—	1	1,030	—	2	1,006	75	1	806
Austria	256	2	809	335	1	728	263	2	1,024	203	2	515
Bahamas, The	—	1	2,000	—	—	—	—	2	2,000	—	—	—
Bahrain	—	1	5,000	—	1	2,000	—	1	5,000	—	1	2,000
Bangladesh	385	2	602	301	2	463	472	3	806	295	3	788
Belarus	—	—	—	43	1	250	—	—	—	474	5	274
Belgium	48	2	269	143	1	326	—	1	393	—	1	979
Benin	—	6	5,000	775	10	4,472	—	8	4,472	—	11	4,472
Bolivia	750	3	1,225	1,225	5	2,739	750	4	2,000	1,225	7	2,828
Bosnia and Herzegovina	300	1	1,500	1,250	3	2,000	300	2	500	1,250	3	2,000
Brazil	149	2	866	322	2	1,000	—	3	1,015	606	3	1,191
Bulgaria	300	1	600	342	1	508	300	1	600	220	1	454
Burundi	75	1	250	2,000	6	3,000	—	—	—	2,000	7	5,000
Cambodia	186	1	469	335	1	707	150	1	397	302	2	465
Cameroon	—	3	1,442	304	2	1,651	1,543	5	1,817	775	11	3,464
Canada	—	1	542	171	4	758	92	2	414	57	1	454
Chile	227	1	931	407	5	1,145	161	1	669	300	4	1,500
China	198	2	494	248	2	683	172	3	683	137	2	514
Colombia	272	3	1,303	1,034	3	1,351	1,409	2	1,655	1,620	4	2,178
Costa Rica	138	1	410	87	2	274	—	2	383	—	2	500
Croatia	300	2	500	300	1	500	300	3	750	300	1	500
Czech Republic	—	—	—	150	1	354	—	—	—	150	1	433
Denmark	150	1	500	75	1	500	—	1	500	—	—	—
Djibouti	750	3	2,000	—	—	—	750	3	2,000	—	—	—
Dominican Republic	75	2	433	75	1	250	106	3	553	75	2	500
Ecuador	224	3	866	750	2	4,000	177	4	274	750	2	1,000
Egypt, Arab Rep.	379	2	419	755	2	740	426	3	665	673	2	875
Estonia	75	1	500	387	2	1,000	75	1	500	2,000	4	3,000
Ethiopia	750	14	1,500	750	13	2,236	750	13	1,500	750	11	2,739
Finland	124	2	552	438	2	1,383	—	1	681	327	2	809
France	300	1	612	300	2	750	300	1	612	300	2	750
Gabon	—	1	500	—	—	—	—	1	500	—	—	—
Georgia	—	1	1,000	—	1	1,000	300	2	1,000	—	1	1,000
Germany	282	1	675	367	2	1,129	455	2	892	1,030	3	1,326
Ghana	387	4	2,259	713	9	3,129	—	5	1,856	—	9	3,976
Greece	296	5	1,225	2,000	4	3,000	—	2	500	2,000	4	4,000
Guatemala	300	2	707	—	—	—	300	2	866	—	—	—
Haiti	—	1	500	—	—	—	—	1	750	—	—	—

	Question 23: Export time and cost						Question 25: Import time and cost					
	Port or airport supply chain[a]			Land supply chain[b]			Port or airport supply chain[c]			Land supply chain[b]		
Economy	Distance[d] (kilometers)	Lead time (days)	Cost[e] (US$)	Distance (kilometers)	Lead time (days)	Cost[f] (US$)	Distance (kilometers)	Lead time (days)	Cost[e] (US$)	Distance (kilometers)	Lead time (days)	Cost[f] (US$)
Honduras	75	2	465	75	2	266	106	2	397	150	3	354
Hong Kong SAR, China	36	1	194	43	1	194	43	1	211	—	1	194
Hungary	—	1	866	474	1	612	306	3	866	150	1	274
Iceland	75	1	500	75	1	500	—	1	750	—	—	—
India	384	2	492	199	2	430	403	2	518	206	3	579
Indonesia	133	3	579	255	2	579	94	4	568	189	5	1,233
Iran, Islamic Rep.	1,462	7	655	612	6	1,225	775	3	1,000	553	5	1,500
Iraq	—	—	—	2,000	2	5,000	2,000	1	3,000	—	—	—
Italy	189	1	647	487	1	1,316	179	2	647	487	1	1,456
Jamaica	—	—	—	750	5	500	300	3	500	75	5	500
Japan	—	2	500	—	—	—	—	2	750	—	—	—
Jordan	210	2	1,078	368	2	848	245	3	976	438	3	1,149
Kenya	148	3	1,261	478	4	1,601	316	4	1,669	520	7	2,048
Korea, Rep.	300	1	500	—	—	—	300	1	500	—	—	—
Kuwait	75	1	750	—	—	—	—	2	1,500	—	—	—
Kyrgyz Republic	87	1	500	3,500	14	5,000	296	2	1,581	3,500	5	5,000
Lao PDR	750	2	2,000	—	—	—	—	—	—	750	2	2,000
Latvia	66	1	356	381	3	1,917	78	2	304	911	5	1,524
Lebanon	—	2	500	1,250	12	3,000	—	13	3,000	—	—	—
Lithuania	300	1	472	612	2	612	300	1	472	612	2	866
Luxembourg	25	1	150	—	—	—	25	1	150	—	—	—
Macedonia, FYR	—	—	—	474	1	750	—	—	—	612	2	1,061
Malaysia	512	1	3,000	—	—	—	512	1	3,000	—	—	—
Maldives	—	2	5,000	—	5	5,000	—	3	5,000	—	6	5,000
Malta	25	1	250	25	2	—	—	—	—	25	2	—
Mauritania	300	1	2,000	—	—	—	—	—	—	300	1	3,000
Mauritius	—	1	866	—	—	—	—	3	866	—	—	—
Mexico	714	2	1,348	1,300	4	1,511	586	2	1,292	1,620	3	2,060
Mongolia	25	1	250	—	4	1,145	25	1	194	348	2	1,310
Montenegro	750	7	2,000	—	—	—	1,250	12	1,500	—	—	—
Myanmar	25	1	250	—	—	—	25	1	150	—	—	—
Namibia	300	2	1,500	1,250	4	3,000	300	2	1,500	1,250	2	3,000
Nepal	—	3	5,000	381	3	1,225	—	3	3,000	—	3	1,581
Netherlands	111	1	530	199	1	447	160	2	554	164	1	419
Nicaragua	3,500	8	1,500	1,620	13	2,739	3,500	8	4,000	968	5	1,732
Nigeria	—	4	1,856	282	3	2,081	—	5	2,643	—	6	2,783
Norway	300	1	866	306	2	1,225	300	1	866	—	1	2,121
Pakistan	313	3	520	417	4	970	274	3	684	515	4	1,307
Panama	—	2	2,000	—	3	2,000	—	—	—	75	2	3,000
Peru	237	3	500	—	—	—	—	2	1,118	—	—	—
Philippines	—	2	572	—	2	1,000	—	2	630	—	2	1,000
Poland	300	1	707	3,500	46	2,000	300	2	500	3,500	46	3,000
Portugal	75	3	335	75	1	—	—	2	572	—	—	—
Qatar	—	7	1,500	—	—	—	—	5	1,500	—	—	—
Romania	750	2	866	—	—	—	474	2	707	300	1	500
Russian Federation	286	2	1,225	3,500	11	3,162	1,225	4	1,732	3,500	15	4,472
Saudi Arabia	300	8	1,000	300	8	1,000	300	9	1,000	—	—	—

	Question 23: Export time and cost						Question 25: Import time and cost					
	Port or airport supply chain[a]			Land supply chain[b]			Port or airport supply chain[c]			Land supply chain[b]		
Economy	Distance[d] (kilometers)	Lead time (days)	Cost[e] (US$)	Distance (kilometers)	Lead time (days)	Cost[f] (US$)	Distance (kilometers)	Lead time (days)	Cost[e] (US$)	Distance (kilometers)	Lead time (days)	Cost[f] (US$)
Senegal	750	1	750	775	2	1,500	750	1	1,500	137	3	866
Serbia	25	1	250	75	1	150	—	1	500	750	3	750
Singapore	30	2	323	—	2	909	—	2	266	—	2	783
Slovak Republic	750	2	1,000	968	2	1,414	750	3	1,000	750	2	1,061
South Africa	221	2	1,688	530	2	1,846	—	2	1,623	—	2	2,141
Spain	1,543	3	2,289	300	2	750	1,543	2	2,621	1,543	3	1,000
Sri Lanka	53	2	579	61	1	391	—	2	662	—	1	433
Sudan	1,250	6	5,000	1,250	7	5,000	2,000	5	5,000	2,000	6	5,000
Switzerland	—	1	1,500	750	2	3,000	—	1	1,500	750	2	3,000
Taiwan, China	300	1	500	150	1	354	150	1	354	474	1	500
Tajikistan	3,500	14	5,000	—	—	—	3,500	14	5,000	—	—	—
Tanzania	750	7	750	2,000	12	750	750	10	1,500	1,225	8	4,472
Thailand	25	1	250	—	1	1,000	—	1	500	—	1	2,000
Togo	—	3	750	—	—	—	—	3	750	—	—	—
Tunisia	—	1	500	—	1	500	—	2	866	—	3	1,000
Turkey	142	2	759	295	2	1,165	175	2	767	427	3	1,196
Uganda	—	—	—	1,250	4	1,500	—	—	—	1,250	5	4,000
Ukraine	3,500	5	5,000	750	2	750	3,500	5	5,000	750	2	750
United Arab Emirates	—	2	559	51	2	417	—	2	647	—	2	590
United Kingdom	145	2	890	383	3	825	83	2	528	183	2	913
United States	177	2	921	287	3	1,293	160	2	769	454	3	944
Uruguay	—	1	715	433	3	1,316	—	2	692	413	3	1,145
Uzbekistan	3,500	18	5,000	3,500	18	5,000	3,500	18	5,000	3,500	18	5,000
Venezuela, RB	—	8	4,000	—	7	3,000	—	10	5,000	—	—	—
Vietnam	36	1	237	43	1	274	—	1	281	—	1	354
Zambia	612	3	3,162	1,710	5	4,217	612	4	3,162	2,061	7	4,217
Zimbabwe	224	2	1,732	—	1	1,500	—	1	750	224	1	1,732

— is not available.
a. From the point of origin (the seller's factory, typically located either in the capital city or in the largest commercial center) to the port of loading or equivalent (port/airport), and excluding international shipping (EXW to FOB).
b. From the point of origin (the seller's factory, typically located either in the capital city or in the largest commercial center) to the buyer's warehouse (EXW to DDP).
c. From the port of discharge or equivalent to the buyer's warehouse (DAT to DDP).
d. Aggregates of the distance indicator for port and airport.
e. Typical charge for a 40-foot dry container or a semi-trailer (total freight including agent fees, port, airport, and other charges).
f. Typical charge for a 40-foot dry container or a semi-trailer (total freight including agent fees and other charges).
Source: Logistics Performance Index 2014.

Economy	Question 26: % of shipments meeting quality criteria	Question 27: Number of agencies		Question 28: Number of forms		Question 29: Clearance time (days)[a]		Question 31: Physical inspection	Question 32: Multiple inspection
	% of shipments	Imports	Exports	Imports	Exports	Without physical inspection	With physical inspection	% of import shipments	% of shipments physically inspected
Albania	—	5	2	5	5	1	1	2	1
Algeria	85	4	4	4	4	3	9	75	11
Angola	—	4	4	5	5	2	5	6	1
Argentina	91	5	4	5	4	3	4	12	3
Australia	92	3	1	2	2	0	2	2	1
Austria	77	2	1	2	2	0	1	5	2
Bahamas, The	88	1	1	2	1	1	3	50	1
Bahrain	93	1	1	2	1	0	1	18	1
Bangladesh	72	4	4	5	5	2	3	35	7
Belarus	87	7	3	3	3	4	4	2	4
Belgium	96	2	2	2	1	0	1	3	2
Benin	57	2	2	2	2	2	5	3	9
Bolivia	—	3	4	3	4	2	4	30	7
Bosnia and Herzegovina	—	2	2	4	4	1	1	75	18
Brazil	82	4	4	4	5	5	8	8	3
Bulgaria	84	2	2	2	3	1	1	9	3
Burundi	—	5	3	4	4	4	6	35	18
Cambodia	84	3	3	3	3	1	1	17	3
Cameroon	57	6	6	7	7	3	4	39	7
Canada	90	2	1	2	1	1	3	2	1
Chile	77	3	2	2	2	1	1	1	1
China	76	3	3	5	4	2	3	7	2
Colombia	76	5	6	5	5	1	2	5	6
Costa Rica	83	2	3	2	2	1	2	13	3
Croatia	83	3	3	3	3	1	1	18	1
Czech Republic	98	1	1	2	2	0	1	1	1
Denmark	93	2	1	1	2	0	1	3	3
Djibouti	—	3	4	5	2	—	—	3	1
Dominican Republic	73	3	3	2	2	1	2	29	4
Ecuador	57	7	7	8	8	2	5	35	25
Egypt, Arab Rep.	67	4	3	5	4	2	6	24	6
Estonia	95	2	2	2	2	0	1	1	1
Ethiopia	40	6	6	10	10	—	—	75	75
Finland	91	1	1	1	1	0	1	2	2
France	90	6	6	2	2	0	1	—	—
Gabon	83	5	5	5	5	6	12	75	35
Georgia	—	1	1	2	2	0	1	3	3
Germany	76	3	3	4	4	1	1	3	3
Ghana	67	8	5	6	4	4	6	45	16
Greece	97	3	3	3	3	2	2	6	3
Guatemala	57	3	3	4	3	1	3	61	4
Haiti	40	3	2	3	2	—	—	75	50
Honduras	86	3	3	4	4	2	4	18	12
Hong Kong SAR, China	95	4	4	4	4	0	1	1	1
Hungary	97	1	1	3	2	1	1	3	2

Economy	Question 26: % of shipments meeting quality criteria	Question 27: Number of agencies		Question 28: Number of forms		Question 29: Clearance time (days)[a]		Question 31: Physical inspection	Question 32: Multiple inspection
	% of shipments	Imports	Exports	Imports	Exports	Without physical inspection	With physical inspection	% of import shipments	% of shipments physically inspected
Iceland	97	1	1	2	2	0	1	1	1
India	67	3	3	4	4	1	2	22	8
Indonesia	70	4	3	5	4	2	5	8	3
Iran, Islamic Rep.	85	4	5	8	7	3	6	52	14
Iraq	—	2	2	2	2	0	1	75	18
Italy	83	2	2	3	2	1	2	4	1
Jamaica	83	3	4	4	5	3	3	75	75
Japan	89	7	7	3	3	1	1	3	1
Jordan	67	3	2	2	2	1	3	26	6
Kenya	56	6	5	3	3	2	3	60	28
Korea, Rep.	97	2	2	2	2	1	1	18	18
Kuwait	90	3	2	2	2	1	2	75	9
Kyrgyz Republic	70	3	2	4	3	1	1	58	1
Lao PDR	—	3	3	5	5	1	1	75	1
Latvia	90	3	2	2	2	1	1	12	4
Lebanon	88	3	3	8	8	1	3	50	3
Lithuania	95	2	2	2	2	0	1	1	1
Luxembourg	97	2	2	2	2	1	1	6	1
Macedonia, FYR	83	3	3	5	3	1	1	11	6
Malaysia	97	2	2	4	4	1	2	2	1
Maldives	83	3	3	4	3	3	7	3	6
Malta	40	1	2	1	1	1	3	35	1
Mauritania	97	4	4	3	3	2	5	6	1
Mauritius	90	5	3	1	1	1	1	6	1
Mexico	80	4	3	3	2	1	2	6	6
Mongolia	65	3	3	4	3	2	2	57	16
Montenegro	83	4	4	4	4	4	5	6	6
Myanmar	40	3	2	5	5	0	1	75	3
Namibia	83	2	2	2	2	3	5	18	1
Nepal	40	5	4	6	6	1	1	9	10
Netherlands	94	2	1	2	1	0	1	3	2
Nicaragua	57	8	8	5	4	1	4	42	11
Nigeria	69	8	7	6	6	4	5	32	5
Norway	92	1	1	1	1	0	1	1	1
Pakistan	67	3	4	4	3	2	3	26	8
Panama	88	—	—	—	—	—	—	6	1
Peru	57	3	3	3	3	1	3	11	2
Philippines	71	5	4	7	4	2	5	10	4
Poland	95	2	1	1	1	0	2	2	1
Portugal	92	1	1	2	2	1	2	7	1
Qatar	—	3	3	2	2	3	5	—	—
Romania	84	3	3	2	3	1	2	9	2
Russian Federation	77	3	3	5	4	1	3	17	3
Saudi Arabia	40	3	3	5	5	3	5	35	35
Senegal	59	4	3	5	4	2	3	14	7
Serbia	88	1	1	2	1	1	1	3	1

Economy	Question 26: % of shipments meeting quality criteria	Question 27: Number of agencies		Question 28: Number of forms		Question 29: Clearance time (days)[a]		Question 31: Physical inspection	Question 32: Multiple inspection
	% of shipments	Imports	Exports	Imports	Exports	Without physical inspection	With physical inspection	% of import shipments	% of shipments physically inspected
Singapore	92	1	1	1	1	0	1	5	3
Slovak Republic	87	1	1	2	2	0	1	7	7
South Africa	83	2	2	4	4	1	4	9	2
Spain	87	3	2	2	1	0	1	8	3
Sri Lanka	76	4	4	4	3	1	3	49	5
Sudan	—	4	4	4	3	2	3	75	3
Switzerland	97	5	5	1	1	0	1	1	1
Taiwan, China	61	3	2	4	4	1	1	2	1
Tajikistan	—	3	3	6	7	1	1	50	6
Tanzania	40	3	4	6	5	5	8	51	25
Thailand	83	4	3	2	2	1	1	3	2
Togo	40	2	2	1	1	3	4	18	6
Tunisia	57	5	4	5	3	2	4	61	11
Turkey	82	4	3	4	3	1	2	10	5
Uganda	—	1	1	1	1	—	—	—	—
Ukraine	—	5	6	5	6	—	—	50	35
United Arab Emirates	88	3	3	2	2	1	1	5	2
United Kingdom	77	2	2	2	2	1	1	3	2
United States	87	4	3	3	3	1	2	4	2
Uruguay	78	4	4	2	1	1	3	14	2
Uzbekistan	—	2	3	2	4	2	4	50	3
Venezuela, RB	40	5	5	6	6	4	10	75	75
Vietnam	76	4	4	5	3	1	2	53	7
Zambia	51	5	5	3	3	2	4	9	1
Zimbabwe	—	10	10	6	5	1	2	14	42

— is not available.
a. Time taken between the submission of an accepted customs declaration and notification of clearance.
Source: Logistics Performance Index 2014.

APPENDIX 4

LPI results across four editions (2007, 2010, 2012, and 2014)

As a new feature in the 2014 Report, the scores of the six components across the four LPI surveys were used to generate a "big picture" to better indicate countries' logistics performance. This approach reduces random variation from one LPI survey to another and enables the comparison of 166 countries. Each year's scores in each component were given weights: 6.7 percent for 2007, 13.3 percent for 2010, 26.7 percent for 2012, and 53.3 percent for 2014. In this way, the most recent data carry the highest weight.

	LPI		Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score
Germany	1	4.10	2	4.01	1	4.30	3	3.72	1	4.12	1	4.14	2	4.36
Singapore	2	4.06	1	4.03	2	4.24	1	3.82	4	4.03	7	4.00	5	4.30
Netherlands	3	4.05	3	3.94	3	4.21	4	3.72	2	4.12	4	4.10	6	4.30
Belgium	4	4.00	10	3.80	7	4.09	6	3.71	3	4.07	3	4.10	4	4.32
United Kingdom	5	3.97	7	3.84	9	4.07	9	3.65	6	3.99	5	4.07	7	4.29
Sweden	6	3.95	13	3.75	6	4.09	7	3.68	5	4.00	8	3.98	8	4.28
Japan	7	3.93	11	3.77	5	4.14	13	3.56	7	3.96	6	4.01	11	4.24
Hong Kong SAR, China	8	3.92	8	3.81	12	4.02	2	3.76	11	3.90	10	3.95	14	4.14
United States	9	3.91	16	3.69	4	4.16	24	3.46	9	3.95	2	4.13	12	4.16
Luxembourg	10	3.89	12	3.76	16	3.89	5	3.71	20	3.74	18	3.77	1	4.50
Norway	11	3.87	4	3.93	8	4.08	26	3.45	8	3.95	24	3.64	9	4.28
Switzerland	12	3.86	6	3.88	10	4.05	17	3.52	14	3.83	14	3.88	16	4.09
Canada	13	3.86	19	3.63	11	4.03	23	3.48	10	3.92	11	3.94	10	4.24
Denmark	14	3.86	9	3.81	14	3.91	11	3.64	13	3.86	21	3.66	3	4.32
France	15	3.84	18	3.63	13	3.97	10	3.64	16	3.79	13	3.92	13	4.15
Australia	16	3.79	14	3.74	15	3.90	15	3.53	18	3.75	15	3.83	21	4.04
Finland	17	3.78	5	3.90	18	3.77	12	3.58	12	3.87	20	3.69	26	3.94
Ireland	18	3.78	17	3.67	23	3.69	22	3.49	15	3.82	9	3.97	17	4.09
Austria	19	3.76	20	3.61	17	3.78	19	3.50	17	3.76	12	3.93	22	4.00
Taiwan, China	20	3.71	24	3.47	24	3.67	8	3.66	23	3.62	17	3.79	20	4.04
Spain	21	3.69	21	3.51	22	3.72	21	3.49	19	3.75	23	3.64	18	4.05
Italy	22	3.67	26	3.34	20	3.74	20	3.49	22	3.65	16	3.80	19	4.04
Korea, Rep.	23	3.66	25	3.42	21	3.73	18	3.50	21	3.65	19	3.70	23	3.99
United Arab Emirates	24	3.63	22	3.49	19	3.76	30	3.37	25	3.58	22	3.64	24	3.98
New Zealand	25	3.59	15	3.74	26	3.58	16	3.53	28	3.49	31	3.47	37	3.76
Malaysia	26	3.54	27	3.31	27	3.50	14	3.54	30	3.44	28	3.53	28	3.90
China	27	3.51	30	3.20	25	3.61	25	3.45	29	3.46	30	3.50	31	3.84
South Africa	28	3.51	31	3.19	29	3.40	27	3.45	24	3.59	29	3.53	30	3.87
Portugal	29	3.50	28	3.25	31	3.34	31	3.36	26	3.56	25	3.62	29	3.88
Turkey	30	3.44	33	3.14	28	3.46	35	3.22	27	3.53	26	3.59	38	3.75
Poland	31	3.44	29	3.22	45	3.05	28	3.39	34	3.36	32	3.44	15	4.12
Czech Republic	32	3.38	32	3.15	37	3.17	29	3.38	32	3.40	33	3.44	40	3.69
Iceland	33	3.35	23	3.47	30	3.35	46	3.10	33	3.40	39	3.34	53	3.49
Qatar	34	3.35	40	3.00	35	3.24	33	3.25	36	3.30	34	3.41	27	3.92
Thailand	35	3.34	35	3.10	34	3.27	32	3.27	38	3.19	35	3.36	32	3.83
Israel	36	3.32	37	3.08	32	3.30	64	2.93	31	3.40	40	3.29	25	3.98

	LPI		Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score
Hungary	37	3.30	44	2.91	38	3.15	39	3.19	37	3.22	27	3.56	35	3.79
Slovenia	38	3.27	39	3.01	36	3.22	45	3.11	35	3.33	37	3.34	41	3.66
Chile	39	3.21	34	3.13	39	3.12	51	3.06	41	3.11	41	3.28	45	3.58
Latvia	40	3.19	41	3.00	59	2.84	38	3.20	49	3.01	38	3.34	39	3.73
Slovak Republic	41	3.17	50	2.85	41	3.09	43	3.13	39	3.12	59	3.03	34	3.80
Estonia	42	3.16	38	3.08	42	3.08	42	3.14	40	3.12	53	3.09	55	3.47
Saudi Arabia	43	3.16	51	2.84	33	3.27	60	2.96	42	3.09	45	3.18	43	3.65
Bahrain	44	3.12	36	3.10	40	3.12	53	3.01	47	3.04	36	3.35	85	3.12
Romania	45	3.11	61	2.71	65	2.63	36	3.21	48	3.01	43	3.21	33	3.82
Bulgaria	46	3.11	55	2.76	55	2.89	34	3.23	50	3.00	64	2.98	36	3.76
Lithuania	47	3.08	46	2.90	54	2.90	50	3.07	57	2.93	58	3.03	42	3.66
India	48	3.08	58	2.73	57	2.88	44	3.12	44	3.09	51	3.11	47	3.54
Mexico	49	3.08	63	2.64	47	3.00	47	3.09	45	3.06	50	3.15	46	3.55
Greece	50	3.08	42	2.96	44	3.05	68	2.89	46	3.04	54	3.09	52	3.50
Panama	51	3.08	45	2.91	53	2.92	55	3.00	63	2.85	42	3.21	44	3.59
Cyprus	52	3.08	43	2.91	50	2.96	49	3.08	54	2.96	48	3.16	62	3.38
Vietnam	53	3.07	56	2.76	56	2.88	40	3.16	56	2.94	49	3.15	51	3.51
Malta	54	3.06	48	2.88	46	3.04	41	3.15	52	2.98	61	3.01	68	3.30
Croatia	55	3.02	47	2.89	51	2.93	63	2.95	60	2.90	56	3.05	58	3.40
Argentina	56	3.02	77	2.54	58	2.85	48	3.08	55	2.95	44	3.18	54	3.48
Brazil	57	3.01	82	2.47	49	2.97	67	2.89	43	3.09	46	3.17	49	3.51
Philippines	58	3.01	52	2.83	67	2.63	37	3.21	53	2.97	52	3.10	74	3.24
Indonesia	59	3.00	59	2.71	62	2.76	65	2.90	51	2.99	55	3.08	48	3.53
Kuwait	60	3.00	57	2.74	43	3.07	81	2.77	59	2.91	47	3.16	61	3.38
Oman	61	2.94	49	2.86	52	2.93	52	3.04	71	2.74	86	2.66	59	3.39
Morocco	62	2.90	73	2.55	48	2.98	61	2.96	73	2.73	71	2.81	63	3.38
Egypt, Arab Rep.	63	2.88	64	2.63	61	2.77	77	2.83	58	2.92	62	3.00	82	3.13
Ukraine	64	2.86	79	2.50	68	2.61	75	2.84	68	2.78	57	3.05	60	3.38
Peru	65	2.86	74	2.54	63	2.70	66	2.89	67	2.79	67	2.86	65	3.32
Serbia	66	2.84	108	2.35	70	2.60	54	3.00	62	2.85	65	2.88	71	3.27
Bahamas, The	67	2.84	54	2.79	64	2.68	74	2.84	65	2.81	83	2.68	77	3.19
El Salvador	68	2.81	62	2.66	75	2.55	70	2.87	61	2.90	69	2.84	105	2.98
Uganda	69	2.80	53	2.79	107	2.33	56	2.98	92	2.58	125	2.45	50	3.51
Dominican Republic	70	2.78	75	2.54	77	2.55	78	2.82	69	2.76	75	2.79	76	3.19
Bosnia and Herzegovina	71	2.78	87	2.46	74	2.57	71	2.86	76	2.71	93	2.62	56	3.42
Pakistan	72	2.77	60	2.71	72	2.58	57	2.97	75	2.71	85	2.67	116	2.93
Jordan	73	2.77	81	2.47	73	2.58	58	2.97	78	2.68	96	2.60	69	3.29
Tunisia	74	2.77	94	2.42	81	2.52	62	2.96	88	2.60	82	2.69	64	3.35
Guatemala	75	2.76	65	2.63	85	2.50	85	2.74	77	2.70	81	2.70	72	3.26
Uruguay	76	2.76	68	2.58	69	2.61	89	2.71	79	2.68	66	2.88	88	3.08
Lebanon	77	2.74	98	2.39	78	2.54	106	2.62	64	2.83	63	2.99	90	3.08
Malawi	78	2.73	67	2.61	60	2.79	88	2.71	66	2.80	117	2.49	95	3.02
Costa Rica	79	2.73	88	2.45	87	2.49	92	2.69	72	2.73	68	2.84	79	3.16
Ecuador	80	2.72	96	2.42	84	2.51	79	2.81	86	2.62	87	2.66	67	3.30
Colombia	81	2.71	71	2.56	80	2.53	91	2.70	74	2.72	94	2.61	84	3.12
Côte d'Ivoire	82	2.70	119	2.30	103	2.36	82	2.77	85	2.63	70	2.83	73	3.24

	LPI		Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score
Venezuela, RB	83	2.69	124	2.27	89	2.46	76	2.83	87	2.61	76	2.79	80	3.15
São Tomé and Príncipe	84	2.69	97	2.41	98	2.42	69	2.87	94	2.58	60	3.01	131	2.82
Albania	85	2.69	107	2.35	102	2.38	80	2.78	97	2.57	103	2.55	57	3.41
Paraguay	86	2.68	93	2.42	95	2.44	95	2.66	84	2.65	77	2.77	83	3.12
Kazakhstan	87	2.68	100	2.37	94	2.44	87	2.72	80	2.67	78	2.77	91	3.06
Montenegro	88	2.66	69	2.57	71	2.60	84	2.76	119	2.40	91	2.64	101	2.99
Kenya	89	2.66	152	2.05	116	2.29	59	2.96	104	2.51	72	2.80	70	3.28
Benin	90	2.66	76	2.54	101	2.40	105	2.62	101	2.55	84	2.67	78	3.17
Nigeria	91	2.66	132	2.22	93	2.44	100	2.64	90	2.60	74	2.79	75	3.22
Jamaica	92	2.65	72	2.55	79	2.53	97	2.65	106	2.48	88	2.66	100	3.00
Sri Lanka	93	2.64	83	2.47	121	2.25	96	2.65	70	2.74	89	2.65	97	3.01
Russian Federation	94	2.63	145	2.13	86	2.50	104	2.63	81	2.67	79	2.75	87	3.10
Bangladesh	95	2.63	140	2.18	119	2.27	72	2.86	102	2.54	106	2.53	66	3.30
Cambodia	96	2.63	80	2.48	100	2.40	94	2.66	99	2.56	73	2.80	129	2.83
Maldives	97	2.62	66	2.62	91	2.46	90	2.70	82	2.66	99	2.57	146	2.69
Belarus	98	2.61	84	2.46	66	2.63	110	2.58	113	2.44	101	2.57	102	2.99
Honduras	99	2.60	70	2.56	114	2.29	86	2.73	110	2.47	102	2.55	107	2.96
Senegal	100	2.60	78	2.53	108	2.33	73	2.84	96	2.57	105	2.54	142	2.72
Georgia	101	2.60	90	2.43	88	2.48	123	2.49	100	2.56	95	2.61	94	3.03
Mauritius	102	2.60	99	2.38	76	2.55	98	2.65	108	2.48	114	2.50	96	3.02
Armenia	103	2.59	91	2.42	109	2.33	103	2.63	91	2.59	120	2.47	92	3.05
Nicaragua	104	2.58	86	2.46	130	2.19	102	2.63	111	2.46	109	2.52	81	3.14
Botswana	105	2.55	89	2.44	104	2.36	143	2.35	98	2.56	108	2.52	89	3.08
Macedonia, FYR	106	2.55	112	2.32	83	2.52	116	2.54	95	2.57	113	2.50	128	2.84
Ghana	107	2.54	127	2.25	90	2.46	93	2.67	116	2.42	90	2.65	135	2.78
Namibia	108	2.54	117	2.31	92	2.46	114	2.54	103	2.53	111	2.52	124	2.87
Moldova	109	2.53	116	2.32	99	2.42	83	2.76	131	2.31	119	2.47	123	2.88
Liberia	110	2.52	102	2.37	96	2.42	113	2.55	89	2.60	121	2.47	144	2.70
Algeria	111	2.51	95	2.42	113	2.29	112	2.56	125	2.35	122	2.46	112	2.95
Bolivia	112	2.51	106	2.35	124	2.23	129	2.44	93	2.58	92	2.63	133	2.79
Guinea	113	2.50	101	2.37	131	2.18	120	2.52	107	2.48	118	2.48	106	2.97
Iran, Islamic Rep.	114	2.50	133	2.21	97	2.42	124	2.49	83	2.66	123	2.46	141	2.75
Madagascar	115	2.50	118	2.31	117	2.28	126	2.47	114	2.44	124	2.45	93	3.04
Burkina Faso	116	2.47	110	2.34	120	2.27	131	2.44	115	2.44	129	2.41	114	2.94
Azerbaijan	117	2.47	115	2.32	82	2.52	107	2.59	150	2.18	132	2.39	130	2.83
Solomon Islands	118	2.47	105	2.35	115	2.29	152	2.28	112	2.46	116	2.49	110	2.95
Rwanda	119	2.47	126	2.25	153	2.06	109	2.58	130	2.31	98	2.58	111	2.95
Niger	120	2.46	92	2.42	135	2.16	119	2.52	128	2.34	134	2.38	117	2.93
Central African Republic	121	2.46	85	2.46	110	2.31	155	2.24	105	2.49	133	2.39	122	2.88
Ethiopia	122	2.46	125	2.26	146	2.11	125	2.49	120	2.39	115	2.49	108	2.96
Uzbekistan	123	2.45	159	1.98	142	2.14	145	2.33	124	2.38	80	2.74	86	3.11
Fiji	124	2.45	130	2.22	111	2.30	108	2.59	149	2.19	136	2.37	104	2.98
Tanzania	125	2.44	136	2.20	118	2.28	118	2.52	133	2.31	141	2.35	115	2.93
Yemen, Rep.	126	2.43	160	1.95	139	2.15	115	2.54	121	2.38	112	2.51	98	3.01
Angola	127	2.43	121	2.28	136	2.16	111	2.57	146	2.20	128	2.41	121	2.89

	LPI		Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score	Rank	Mean score
Togo	128	2.42	139	2.19	138	2.15	101	2.64	142	2.24	97	2.59	149	2.67
Lao PDR	129	2.42	103	2.37	127	2.21	122	2.50	129	2.33	145	2.29	134	2.79
Guinea-Bissau	130	2.42	111	2.33	112	2.29	134	2.43	118	2.40	146	2.28	140	2.76
Papua New Guinea	131	2.41	134	2.21	133	2.16	128	2.45	126	2.34	137	2.36	119	2.90
Libya	132	2.41	122	2.27	144	2.13	137	2.38	136	2.28	100	2.57	132	2.79
Cameroon	133	2.40	151	2.08	156	2.00	147	2.32	109	2.47	104	2.54	103	2.98
Tajikistan	134	2.40	120	2.28	128	2.20	117	2.53	127	2.34	144	2.30	147	2.69
Turkmenistan	135	2.39	129	2.23	141	2.15	130	2.44	148	2.20	139	2.35	113	2.94
Mali	136	2.39	149	2.09	147	2.10	121	2.51	152	2.17	110	2.52	120	2.90
Zambia	137	2.38	104	2.36	149	2.10	154	2.26	134	2.28	126	2.44	126	2.86
Zimbabwe	138	2.38	157	2.01	137	2.16	139	2.36	123	2.38	135	2.38	99	3.01
Guyana	139	2.37	114	2.32	123	2.24	141	2.35	139	2.26	140	2.35	145	2.70
Nepal	140	2.36	131	2.22	152	2.06	144	2.34	132	2.31	127	2.43	138	2.77
Gambia, The	141	2.36	141	2.18	155	2.02	99	2.64	122	2.38	148	2.27	153	2.58
Bhutan	142	2.35	143	2.14	140	2.15	133	2.43	117	2.41	130	2.39	156	2.56
Equatorial Guinea	143	2.35	109	2.35	145	2.11	159	2.11	147	2.20	107	2.53	125	2.86
Chad	144	2.35	128	2.24	134	2.16	153	2.27	151	2.17	142	2.34	118	2.92
Mauritania	145	2.35	146	2.13	105	2.34	151	2.29	141	2.25	138	2.36	136	2.78
Comoros	146	2.34	113	2.32	143	2.14	146	2.32	138	2.27	131	2.39	152	2.59
Lesotho	147	2.32	137	2.20	126	2.22	136	2.39	137	2.27	156	2.15	148	2.68
Syrian Arab Republic	148	2.31	138	2.19	122	2.24	140	2.36	159	2.10	157	2.13	127	2.85
Kyrgyz Republic	149	2.31	135	2.21	132	2.17	135	2.41	145	2.21	149	2.26	154	2.57
Mongolia	150	2.30	150	2.08	129	2.20	127	2.46	153	2.17	153	2.20	150	2.63
Myanmar	151	2.27	154	2.04	151	2.07	156	2.23	156	2.15	143	2.30	137	2.78
Gabon	152	2.26	153	2.05	150	2.08	132	2.43	135	2.28	159	2.10	155	2.57
Mozambique	153	2.26	144	2.13	148	2.10	138	2.37	155	2.16	155	2.15	151	2.61
Burundi	154	2.26	123	2.27	125	2.23	149	2.31	143	2.22	154	2.18	164	2.32
Haiti	155	2.24	147	2.10	157	1.97	150	2.30	162	2.07	147	2.28	143	2.71
Iraq	156	2.22	161	1.94	154	2.02	148	2.31	157	2.15	158	2.12	139	2.76
Sudan	157	2.19	158	1.99	159	1.94	157	2.17	140	2.26	150	2.26	160	2.48
Cuba	158	2.16	148	2.10	160	1.92	142	2.35	161	2.08	161	2.07	161	2.40
Congo, Rep.	159	2.16	165	1.68	165	1.64	158	2.14	144	2.21	151	2.25	109	2.95
Congo, Dem. Rep.	160	2.13	156	2.03	158	1.95	162	2.02	158	2.15	152	2.24	163	2.36
Afghanistan	161	2.10	142	2.16	162	1.83	161	2.06	163	2.07	164	1.93	159	2.51
Djibouti	162	2.07	155	2.04	161	1.91	164	1.90	160	2.09	162	1.97	157	2.56
Sierra Leone	163	2.06	163	1.78	106	2.34	163	1.91	164	1.92	160	2.07	162	2.36
Eritrea	164	2.05	162	1.83	163	1.70	160	2.07	154	2.16	163	1.93	158	2.55
Timor-Leste	165	1.71	166	1.63	164	1.67	166	1.50	166	1.60	165	1.67	165	2.25
Somalia	166	1.63	164	1.76	166	1.51	165	1.59	165	1.62	166	1.52	166	1.75

Source: Logistics Performance Index 2007, 2010, 2012, and 2014.

APPENDIX 5

The LPI methodology

Because logistics has many dimensions, measuring and summarizing performance across countries is challenging. Examining the time and costs associated with logistics processes—port processing, customs clearance, transport, and the like—is a good start, and in many cases this information is readily available. But even when complete, this information cannot be easily aggregated into a single, consistent cross-country dataset, because of structural differences in countries' supply chains. Even more important, many critical elements of good logistics—such as process transparency and service quality, predictability, and reliability—cannot be assessed using only time and cost information.

Constructing the international LPI

The first part of the LPI survey (questions 10–15) provides the raw data for the international LPI. Each survey respondent rates eight overseas markets on six core components of logistics performance. The eight countries are chosen based on the most important export and import markets of the country where the respondent is located, on random selection, and—for landlocked countries—on neighboring countries that form part of the land bridge connecting them with international markets. The method used to select the group of countries rated by each respondent varies by the characteristics of the country where the respondent is located (table A5.1).

Respondents take the survey online. The web engine for 2014 is the same as the new engine put in place in 2012. It incorporates the Uniform Sampling Randomized (USR) approach to gain the most possible responses from underrepresented countries. Because the survey engine relies heavily on a specialized country selection methodology for survey respondents based on high trade volume between countries, the USR can help countries with lower trade volumes rise to the top during country selection.

The 2014 survey engine builds a set of countries for the survey respondents that are subject to the rule set (see table A5.1). After 200 surveys, the USR is introduced into the engine's process for country selection. For each new survey respondent, the USR solicits a response from a country chosen at random but with nonuniform probability—with weights chosen to evolve the sampling toward uniform probability. Specifically, a country i is chosen with a probability $(N-ni) / 2N$, where ni is the sample size of country i so far, and N is the total sample size.

The international LPI is a summary indicator of logistics sector performance, combining data on six core performance components into a single aggregate measure. Some respondents did not provide information for all six components, so interpolation is used to fill in missing values. The missing values are replaced with the country mean response for each question, adjusted by the respondent's average deviation from the country mean in the answered questions.

The six core components are:

- *The efficiency of customs and border clearance*, rated from "very low" (1) to "very high" (5) in survey question 10.
- *The quality of trade and transport infrastructure*, rated from "very low" (1) to "very high" (5) in survey question 11.
- *The ease of arranging competitively priced shipments*, rated from "very difficult" (1) to "very easy" (5) in survey question 12.

- *The competence and quality of logistics services*, rated from "very low" (1) to "very high" (5) in survey question 13.
- *The ability to track and trace consignments*, rated from "very low" (1) to "very high" (5) in survey question 14.
- *The frequency with which shipments reach consignees within scheduled or expected delivery times*, rated from "hardly ever" (1) to "nearly always" (5) in survey question 15.

The LPI is constructed from these six indicators using principal component analysis (PCA), a standard statistical technique used to reduce the dimensionality of a dataset. In the LPI, the inputs for PCA are country scores on questions 10–15, averaged across all respondents providing data on a given overseas market. Scores are normalized by subtracting the sample mean and dividing by the standard deviation before conducting PCA. The output from PCA is a single indicator—the LPI—that is a weighted average of those scores. The weights are chosen to maximize the percentage of variation in the LPI's original six indicators that is accounted for by the summary indicator.

Full details of the PCA procedure are in tables A5.2 and A5.3. The first line of table A5.2 shows that the first (principal) eigenvalue of the correlation matrix of the six core indicators is greater than one—and much larger than any other eigenvalue. Standard statistical tests, such as the Kaiser Criterion and the eigenvalue scree plot, suggest that a single principal component be retained to summarize the underlying data. This principal component is the international LPI. Table A5.2 shows that the international LPI accounts for 92 percent of the variation in the six components.

To construct the international LPI, normalized scores for each of the six original indicators are multiplied by their component loadings (table A5.3) and then summed. The component loadings represent the weight given to each original indicator in constructing the international LPI. Since the loadings are similar for all six, the international LPI is close to a simple average of the indicators. Although PCA is re-run for each version of the LPI, the weights remain very steady from year to year. There is thus a high degree of comparability across the various LPI editions.

Table A5.1 Methodology for selecting country groups for survey respondents

	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 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, South, and Central Asia c. Latin America d. Europe less Central Asia and OECD	Two countries randomly from a 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, South, and Central Asia c. Latin America d. Europe less Central Asia and OECD + Two countries randomly from the combined country groups a, b, c, and d
Respondents from landlocked countries	Four most important export partner countries + Two most important import partner countries + Two land-bridge countries	Three most important export partner countries + The most important import partner country + Two land-bridge countries + Two countries randomly, one from each country group: a. Africa, East, South, and Central Asia, and Latin America b. Europe less Central Asia and OECD	

Source: Logistics Performance Index 2014.

Constructing the confidence intervals

To account for the sampling error created by the LPI's survey-based methodology, LPI scores are presented with approximate 80 percent confidence intervals. These intervals make it possible to provide upper and lower bounds for a country's LPI score and rank. To determine whether a change in score or a difference between two scores is statistically significant, confidence intervals must be examined carefully. For example, a statistically significant improvement in a country's performance should not be concluded unless the lower bound of the country's 2014 LPI score exceeds the upper bound of its 2012 score.

Despite being the most comprehensive data source for country logistics and trade facilitation, the LPI has two important limitations. First, the experience of international freight forwarders might not represent the broader logistics environment in poor countries, which often rely on traditional operators. And the international and traditional operators might differ in their interactions with government agencies—and in their service levels. Second, for landlocked countries and small island states, the LPI might reflect access problems outside the country assessed, such as transit difficulties. The low rating of a landlocked country might not adequately reflect its trade facilitation efforts, which depend on the workings of complex international transit systems. Landlocked countries cannot eliminate transit inefficiencies with domestic reforms.

To calculate the confidence interval, the standard error of LPI scores across all respondents is estimated for a country. The upper and lower bounds of the confidence interval are then

$$LPI \pm \frac{t_{(0.1, N-1)} S}{\sqrt{N}},$$

where LPI is a country's LPI score, N is the number of survey respondents for that country, s is the estimated standard error of each country's LPI score, and t is Student's t-distribution. As a result of this approach, confidence intervals and low-high ranges for scores and ranks are larger for small markets with few respondents, since these estimates are less certain.

The high and low scores are used to calculate upper and lower bounds on country ranks. The upper bound is the LPI rank a country would receive if its LPI score were at the upper bound of the confidence interval rather than at the center. The lower bound is the LPI rank a country would receive if its LPI score were at the lower bound of the confidence interval rather than at the center. In both cases the scores of all other countries are kept constant.

The average confidence interval on the 1–5 scale is 0.23, or about 8 percent of the average country's LPI score. Because of the bunching of LPI scores in the middle of the distribution, the confidence interval translates into an average of 20 rank places, using upper and lower rank bounds as calculated above. Caution must be taken when interpreting small differences in LPI scores and rankings.

Table A5.2 Results of principal component analysis for the international LPI

			Variance proportion	
Component	Eigenvalue	Difference	Individual	Cumulative
1	5.45	5.25	0.91	0.91
2	0.20	0.04	0.03	0.94
3	0.16	0.06	0.03	0.97
4	0.10	0.06	0.02	0.98
5	0.05	0.00	0.01	0.99
6	0.05	na	0.01	1.00

na is not applicable.
Source: Authors' analysis.

Table A5.3 Component loadings for the international LPI

Component	Weight
Customs	0.40
Infrastructure	0.42
International shipments	0.40
Logistics quality and competence	0.42
Tracking and tracing	0.41
Timeliness	0.40

Source: Authors' analysis.

Constructing the domestic LPI database

The second part of the LPI survey instrument is the domestic LPI, in which respondents provide qualitative and quantitative information on the logistics environment in the country where they work.

Questions 17–22 ask respondents to choose one of five performance categories. In question 17, for example, they can describe port charges in their country as "very high," "high," "average," "low," or "very low." As in the international LPI, these options are coded from 1 (worst) to 5 (best). Appendix 2 displays country averages of the percentage of respondents rating each aspect of the logistics environment as 1–2 or 4–5.

With a few exceptions, questions 23–34 ask respondents for quantitative information on their countries' international supply chains, offering choices in a dropdown menu. When a response indicates a single value, the answer is coded as the logarithm of that value. When a response indicates a range, the answer is coded as the logarithm of the midpoint of that range. For example, export distance can be indicated as less than 50 kilometers, 50–100 kilometers, 100–500 kilometers, and so forth—so a response of 50–100 kilometers is coded as log(75). Full details of the coding matrix are available on request.

Country scores are produced by exponentiating the average of responses in logarithms across all respondents for a given country. This method is equivalent to taking a geometric average in levels. Scores for regions, income groups, and LPI quintiles are simple averages of the relevant country scores.

APPENDIX 6

Respondent demographics

The vital aspects of logistics performance are best assessed by operators on the ground. So the LPI uses a structured online survey of logistics professionals at multinational freight forwarders and at the main express carriers.

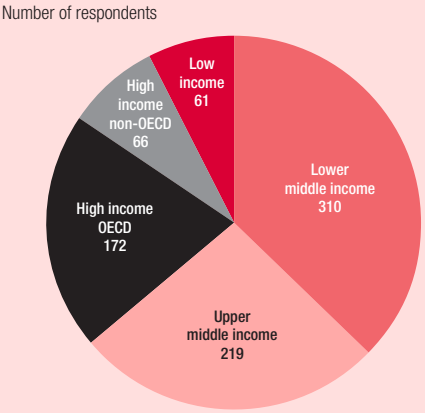
The 2014 LPI data are based on a survey conducted between October and December 2013, answered by 1,000 respondents at international logistics companies in 143 countries. The number of respondents is about the same as for the other editions of the LPI.

Geographic dispersion of respondents

The location of respondents for the 2014 LPI reflects the growing importance of trade facilitation for the developing world. Among the respondents, 70 percent are in either low-income countries (7 percent) or middle-income countries (63 percent). The overall number is similar to the 2012 LPI, but it is more heavily skewed toward middle-income countries. The relative lack of representation of low-income countries is due to their more marginal role in world trade, and the difficulty of communicating effectively with operators on the ground. Even so, the survey is based on a sample of experience in both the developing and developed world (figure A6.1).

Among developing countries, all regions are well represented (figure A6.2). In the 2014 survey, responses are somewhat skewed toward South Asia because of strong involvement from local freight forwarding associations there. Representation of other regions is relatively similar. Increasing involvement of local associations and operators will hopefully help build response rates in the future in other regions.

Figure A6.1 **2014 LPI survey respondents, by World Bank income group**



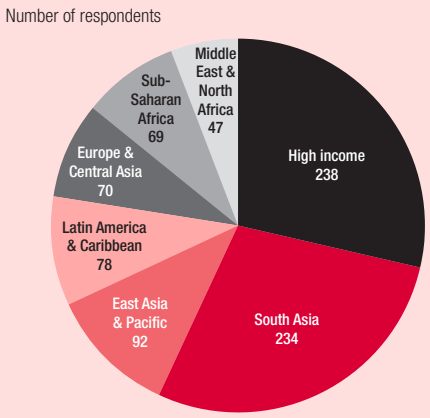
Source: Logistics Performance Index 2014.

Respondents' positions in their companies

The LPI assesses both large companies and small and medium enterprises. Large companies (those with 250 employees or more) account for around 23 percent of responses, which is slightly higher than in 2012. Most of the responses are thus from small and medium enterprises.

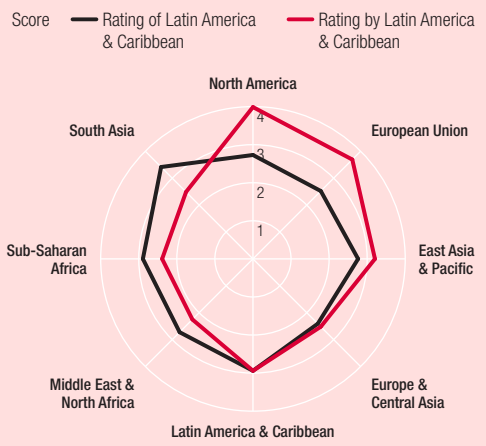
Knowledgeable senior company members are important to the survey. The 2014 respondents include senior executives (47 percent), area or country managers (15 percent), and department managers (21 percent). These groups of professionals have oversight of, or are directly involved in, day-to-day operations, not only from company headquarters but also from country offices. The relative seniority of respondents is quite stable from 2012 to 2014. Almost two-thirds of respondents are at corporate or regional headquarters (41 percent) or at country branch offices (22 percent). The rest are at local branch offices (11 percent) or independent firms (26 percent).

Figure A6.2 2014 LPI survey respondents, by World Bank region



Note: World Bank regions do not include high-income countries, so they are included as a separate category.
Source: Logistics Performance Index 2014.

Figure A6.3 Latin America and Caribbean, ratings of and by other regions



Source: Logistics Performance Index 2014.

The majority of respondents (44 percent) are involved in providing a range of logistics services as their main line of work. Such services include warehousing and distribution, customer-tailored logistics solutions, courier services, bulk or break bulk cargo transport, and less-than-full container, full-container, or full-trailer load transport. By contrast, just 31 percent of respondents are at companies with business models based on full-container or full-trailer load transport (19 percent) or on customer-tailored logistics solutions (12 percent).

Among all respondents, 40 percent deal with multimodal transport, 24 percent with maritime transport, and 15 percent with air transport. Whereas 35 percent usually oversee both domestic and international operations, another 32 percent deal exclusively with international shipping (both exports and imports). And whereas 24 percent work with most of the world's regions, others concentrate their work in Asia (27 percent), Europe (25 percent), or the Americas (13 percent).

Bilateral perception issues

Bilateral issues might play a role in driving survey respondents' perceptions when rating their respective regions. Consider Latin America and the Caribbean (LAC; figure A6.3). The regions that LAC rated highest on the total LPI score are North America and the European Union (EU)—higher than LAC's self-rating, suggesting that trade with the former two regions is easier than within LAC. Indeed, a size and attractiveness effect of these markets is definitely at play here (made easier by language, for example). Moreover, these ratings are not symmetrical: the EU's perception of LAC is quite unfavorable, ranking it sixth of the eight regions. North America's and East Asia and the Pacific's (EAP; LAC's main import partners in 2012) ratings of LAC are lower than LAC's ratings of them, but they are relatively good compared with how other regions have been rated: LAC comes third for North America, after North America itself and the EU, and fourth for EAP, after North America, the EU, and EAP itself.

It is not particularly surprising that South Asia (SAR) and Sub-Saharan Africa (SSA) rate LAC the highest, given that both tend to rate other regions quite highly in general, while ranking themselves last. These regions are indeed relatively isolated and exhibit poor logistics performance (2.6 for SAR and 2.5 for SSA). There is some degree of reciprocity in assessments: SSA actually rates LAC seventh of the eight regions. This finding puts into perspective SSA's high rating of LAC as compared with other regions, and the fact that looking at LAC's rankings alone, SSA almost comes last.

Moreover, where average performing regions such as LAC and Europe and Central Asia rate each other, their ratings are about the same.

Together these findings reinforce the suggestion that perception does not seem to bias scores, and thus does not endanger the reliability of the survey: there might be some idiosyncratic effects, but despite slight subjectivity, the ratings are relatively tightly bunched around the average score.

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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 160 countries, the index can help countries identify challenges and opportunities and improve their logistics performance. The World Bank conducts the survey every two years.

Reliable logistics is indispensable to integrate global value chains—and reap the benefit of trade opportunities for growth and poverty reduction. The ability to connect to the global logistics web depends on a country's infrastructure, service markets, and trade processes. Government and the private sector in many developing countries should improve these areas—or face the large and growing costs of exclusion.

Logistics Performance Index

International Federation for Freight Forwarders Associations

GFP

Global Facilitation Partnership for Transportation and Trade

GEA Global Express Association

Turun yliopisto
University of Turku

THE WORLD BANK

This is the fourth edition of *Connecting to Compete,* a report summarizing the findings from the new dataset for the 2014 Logistics Performance Index (LPI) and its component indicators. The 2014 LPI also provides expanded data on import and export supply chains in 116 countries, including information on time, cost, and reliability and ratings on domestic infrastructure quality, the performance of core services, and the friendliness of trade clearance procedures. The 2014 LPI and its indicators encapsulate the firsthand knowledge of movers of international trade. This information is relevant for policymakers and the private sector seeking to identify priorities for reform of their "soft" and "hard" trade and logistics infrastructure. Findings include:

- The gap between the best and worst performers is slowly narrowing, thanks to improvements in infrastructure and border clearance.
- A mature logistics services market is distinctive of the high-performing countries.
- To achieve efficient border clearance, improvements are needed in customs and other control agencies.
- Countries that implement sound reforms tend to outperform their peers at a given development stage.
- A new generation of reforms tends to be more complex and span across many sectors.
- The attention to green logistics is growing but remains concentrated in high-income countries.