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## **Logistics Performance Index in the Arab region: components, methodology and scores**

### **Summary**

This document presents the Logistics Performance Index (LPI) methodology, drawing from the *Connecting to Compete* reports of the World Bank. It reviews the results of member States of the Economic and Social Commission for Western Asia (ESCWA) in the LPI, and offers recommendations for the improvement of logistics performance in the Arab region and of the measurement methodology.

Representatives of member States are kindly requested to take note of the LPI methodology and results, and to provide guidance on further work by the ESCWA secretariat in that area.

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## Introduction

1. Logistics refers to a series of services and activities, such as transportation, warehousing, and brokerage, which serve to move goods and establish supply chains across and within borders. The aim of logistics is to ensure the fast circulation of products from producers to customers in the best conditions.
2. Logistics chains are the backbone of international trade. Efficient and adequate logistics systems are important for the global economy. Moreover, national economies are greatly affected by the quality of logistics systems. Logistics is important for national economic growth and job creation. Inefficient or inadequate systems of transportation, logistics or trade-related infrastructure can severely impede a country's ability to compete on a global scale.
3. The performance of logistics impacts productivity in all economic sectors. Moreover, logistics can also be a sector of development in itself, enabling countries with high global or regional connectivity to play the role of a logistics and trade hub.
4. Major parts of the logistics systems are in the hands of the private sector, but the role of the public sector remains crucial. Governments are responsible for developing the hard and soft infrastructure; creating an adequate regulatory environment for operations; facilitating connectiveness to global chains; and cooperating with the private sector to enable smooth and efficient functioning of logistics. Thus, logistics performance depends on both the public and private sectors doing their parts.

### I. THE LOGISTICS PERFORMANCE INDEX

5. Measuring the performance of logistics is essential to diagnose the shortcomings in logistics chains and provide advice on how to address them. It also serves to assess the suitability of countries' business environments and their potential for international trade.
6. The Logistics Performance Index (LPI) developed by the World Bank is an interactive benchmarking tool created to help countries to identify the challenges and opportunities they face in terms of trade logistics, and to determine the actions they should undertake to improve their performance in that area.
7. The LPI is based on a worldwide survey of stakeholders on the ground, who provide feedback on the 'friendliness' of the logistics of countries in which they operate and those with which they trade. Stakeholders combine in-depth knowledge of the countries in which they operate with informed qualitative assessments of other countries where they trade. They also have experience of the global logistics environment. The participation of the multinational freight forwarders and the main express carriers is important to the credibility and quality of the LPI.
8. The World Bank reports on the LPI biennially. It has built a data set of quantitative and qualitative assessments of the logistics 'friendliness' of countries, ensuring comparability across them and over time. The LPI is composed of an international and a domestic LPI. The international LPI offers qualitative assessments of a country on six dimensions of trade by logistics professionals who work outside the country. Each respondent rates eight countries in addition to his own. The domestic LPI provides qualitative and quantitative evaluations of a country by logistics professionals who work in that country. It contains detailed information on the logistics environment, cost data, performance time, and core logistics processes and institutions.
9. The survey covers 160 countries; it is built on 5,000 country assessments by 1,000 logistics professionals. The LPI rates countries' trade logistics profiles on a scale of 1 (worst) to 5 (best). The ranking is based on the international LPI, not on the domestic one. The six LPI core components are:
  - (a) **Customs:** efficiency of customs and border management clearance (customs procedure: online processing of the customs declaration, requirement that a licensed customs broker be used for clearance, choice

of location of final clearance, release with guarantee pending final clearance, physical inspection of import shipment, multiple physical inspections of import shipments). The component covers the three types of border agencies: customs agencies, quality/standards inspection agencies, and health/sanitary and phytosanitary agencies;

(b) **Infrastructure:** ports, roads, railroads, airports, warehousing and transloading facilities, information and communications technology (ICT);

(c) **Quality of logistics services:** road transport, rail transport, air transport, maritime transport and ports, warehousing, transloading and distribution, freight forwarders, customs agencies, quality/standards inspection agencies, health/sanitary and phytosanitary agencies, customs brokers, trade and transport associations, consignees or shippers;

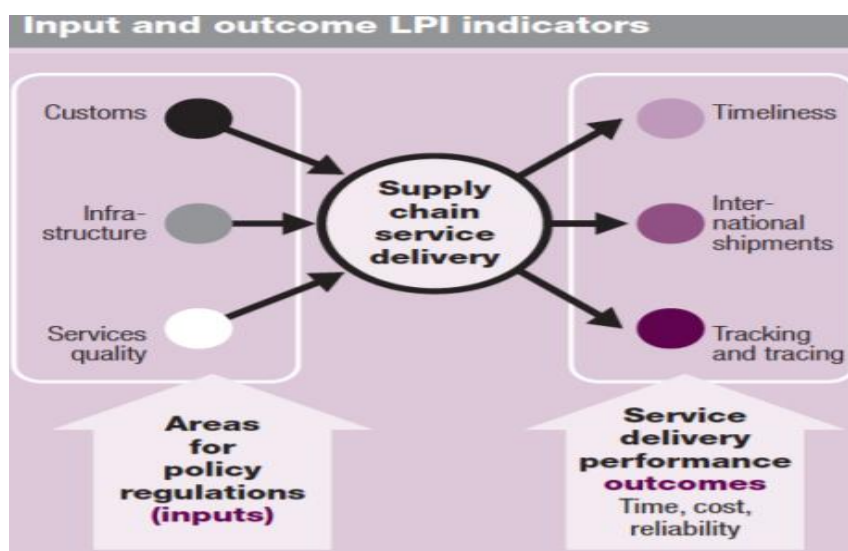
(d) **Timeliness:** timeliness of clearance and delivery (frequency with which shipments reach consignees within scheduled or expected delivery times, delay, compulsory warehousing, pre-shipment inspection, maritime trans-shipment, criminal activities, solicitation of informal payments);

(e) **Ease of arranging international shipments:** ease of arranging competitively priced shipments;

(f) **Tracking and tracing:** ability to track and trace consignments.

10. Figure 1 shows the six LPI components in two main categories: input and outcome indicators. The first category, “areas for policy regulation”, assesses the main inputs to the supply chain: customs, infrastructure, and services. The second category, “supply chain performance outcomes”, assesses timeliness and cost for international shipments, and reliability in terms of tracking and tracing.

**Figure 1. LPI input and outcome indicators**



Source: Jean-François Arvis and others, *Connecting to Compete 2012: Trade Logistics in the Global Economy – The Logistics Performance Index and Its Indicators* (Washington, D.C., The International bank for Reconstruction and Development/The World Bank, 2012), p. 7.

## II. THE LOGISTICS PERFORMANCE INDEX METHODOLOGY

11. Logistics has many dimensions. Measuring and summarizing countries' logistics performance is thus challenging. It is easy to collect the data but difficult to aggregate them into one consistent cross-country set. The main obstacle lies in the differences between the structures of supply chains in countries. In addition, process transparency and service quality, predictability and reliability cannot be assessed using time and cost information only.

### A. CONSTRUCTING THE INTERNATIONAL LPI

12. The survey begins with questions on the current work of the respondent, including on the organizational level, number of employees in the company, etc. (questions 1 to 9). The international LPI is calculated through the first part of the survey (questions 10 to 15). Every respondent rates eight overseas markets on the six core components of logistics performance. The choice of the eight countries is based on the most important export and import markets of the country where the respondent is located and on random selection. For landlocked countries, the chosen countries is based on the neighbouring countries that form part of the land bridge connecting landlocked countries with international markets (table 1).

**Table 1. Methodology of country group selection for survey respondents**

	<b>Respondents from low-income countries</b>	<b>Respondents from middle-income countries</b>	<b>Respondents from high-income countries</b>
<b>Respondents from coastal countries</b>	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 except Central Asia and countries of the Organisation for Economic Co-operation and Development (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:
<b>Respondents from landlocked countries</b>	Four most important export partner countries + Two most important import partner countries + Two land-bridge countries	The most important export partner countries + The most important import partner country + Two countries randomly, one from each country group: a. Africa, East, South and Central Asia, and Latin America b. Europe except Central Asia and OECD countries	a. Africa b. East, South and Central Asia c. Latin America d. Europe except Central Asia and OECD countries + Two countries randomly from the combined country groups a, b, c and d

Source: Jean-François Arvis and others *Connecting to Compete 2014: Trade Logistics in the Global Economy – The Logistics Performance Index and Its Indicators* (Washington, D.C., The International Bank for Reconstruction and Development/The World Bank, 2014), p. 52.

13. Respondents take the survey online. The web engine incorporates the uniform sampling randomized (USR) approach to obtain the most possible responses from underrepresented countries. The 2014 survey engine was designed to build a set of countries for the survey respondents that are subject to the rule set, based on the selection methodology presented in table 1.

14. The international LPI is a summary indicator of the performance of the logistics sector. It combines data on the six core performance components into a single aggregate measure. Some respondents do not provide information for all six components, so interpolation is used to fill in the missing values, which 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.

15. To construct the international LPI, normalized scores for each of the six components are multiplied by their component loadings (weight approximately 0.40) and then summed. The component loadings represent the weight given to each original indicator upon construction of the international LPI. Since the loadings are similar for all six, the international LPI is close to a simple average of those six indicators.

#### B. CONSTRUCTING THE CONFIDENCE INTERVALS

16. To account for the sampling error created by the survey-based methodology, LPI scores are presented with approximate 80 per cent confidence intervals. These intervals provide upper and lower bounds for a country's LPI score and rank. The confidence intervals must be examined cautiously to determine if a change in score or a difference between two scores is statistically significant.

17. Two important limitations of the LPI are as follows:

(a) The experience of international freight forwarders might not represent the broader logistics environment in poor countries, which often rely on traditional operators. In addition, the international and traditional operators differ in their interactions with government agencies and their service levels;

(b) 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.

#### C. CONSTRUCTING THE DOMESTIC LPI DATABASE

18. The domestic LPI reflects the qualitative and quantitative aspects of the logistics environment in the country where the respondents work. Survey questions 17–22 ask respondents to choose one of five performance categories. For example, in question 17, 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).

### III. CRITICISM OF THE LPI

19. Since its inception, the LPI has been widely recognized as an effective tool to measure the efficiency of logistics at a global scale. Yet the tool is known to rely heavily on perceptions of people rather than real facts and figures to calculate the final score and ranking of countries. This in itself leads to remarkable variation in the ranking of countries over time in some cases, due to the change of perceptions of users or change of respondents.

20. Moreover, the tool relies heavily on the perceptions of users outside the country for the international LPI, which matters more than the domestic LPI for international investors and the ranking. Such an approach can leave out many developments on the ground and neglects the perception of local investors.

21. Finally, the tool is not discussed with the concerned countries prior to publishing. Countries are thus not given a chance to comment on the results or make any corrections.

#### IV. LPI PERFORMANCE OF ARAB COUNTRIES

22. The LPI has been instrumental for assessing the efficiency of logistics in the Arab region and directing reforms towards performance improvement. Table 2 shows that the United Arab Emirates has the highest LPI score among Arab countries, standing at 3.94 in 2016. The Syrian Arab Republic had the lowest score in 2007 and its performance is still poor, standing at 1.60 in 2016.

**Table 2. LPI ranks and scores for selected Arab countries, 2007, 2012 and 2016**

ESCWA member countries	2007 LPI		2012 LPI		2016 LPI	
	Rank	Score	Rank	Score	Rank	Score
Bahrain	36	3.15	48	3.05	44	3.31
Egypt	97	2.37	57	2.98	49	3.18
Iraq	-	-	145	2.16	149	2.15
Jordan	52	2.89	102	2.56	67	2.96
Kuwait	44	2.99	70	2.83	53	3.15
Lebanon	98	2.37	96	2.58	82	2.72
Libya	-	-	137	2.28	137	2.26
Morocco	94	2.38	50	3.03	86	2.67
Mauritania	67	2.63	127	2.40	157	1.87
Oman	48	2.92	62	2.89	48	3.23
Qatar	46	2.98	33	3.32	30	3.6
Saudi Arabia	41	3.02	37	3.18	52	3.16
State of Palestine	-	-	-	-	-	-
Sudan	64	2.71	148	2.10	103	2.53
Syrian Arab Republic	135	2.09	92	2.60	160	1.6
Tunisia	60	2.76	41	3.17	110	2.5
United Arab Emirates	20	3.73	17	3.78	13	3.94
Yemen	112	2.29	63	2.89	-	-

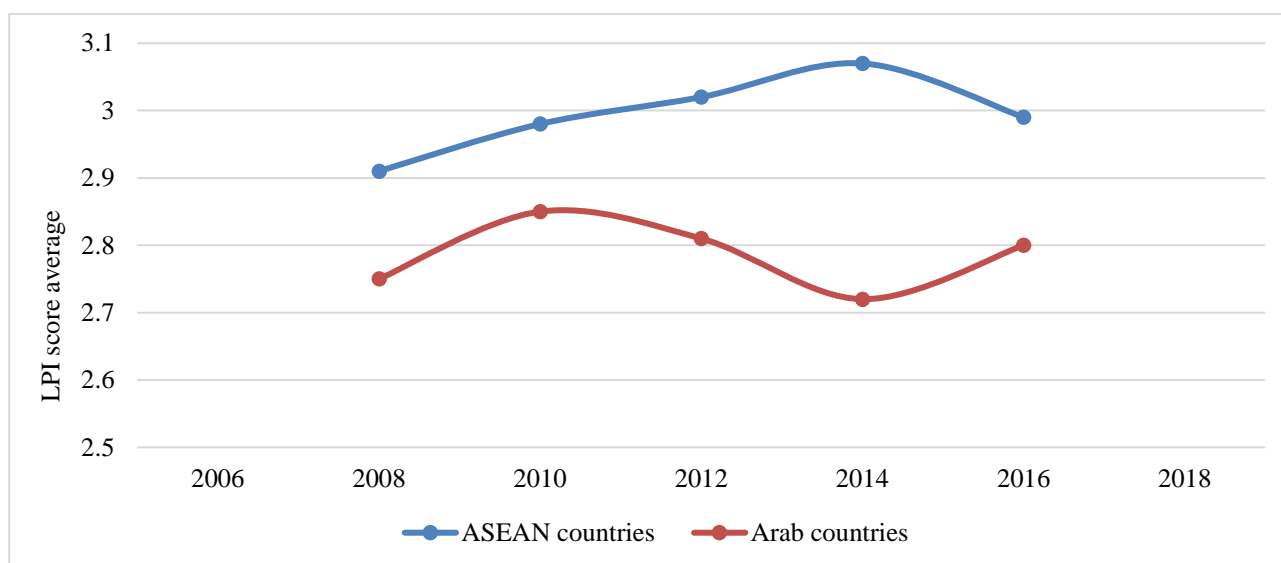
Source: Data from the World Bank International LPI database, available from <https://lpi.worldbank.org/international> (accessed 15 June 2017).

23. Arab countries registered increasing LPI scores between 2007 and 2016, except for Mauritania, the Sudan and Tunisia, which witnessed a deterioration, and the Sudan, which fluctuated but deteriorated as well. There were no data for Yemen for 2016, but the country had made good progress previously, jumping from rank 112 in 2007 to rank 63 in 2012.

24. The performance of Arab countries varies greatly from one country to another and, in some cases, from one year to another for the same country. These changes can stem from various factors, including change of users' perception, deterioration resulting from crises and change of government priorities.

25. When compared with other regions such as the Association of Southeast Asian Nations (ASEAN), the Arab region shows much less efficiency and more fluctuation of performance between 2007 and 2016.

**Figure 2. LPI scores, Arab region versus ASEAN, 2007-2016**



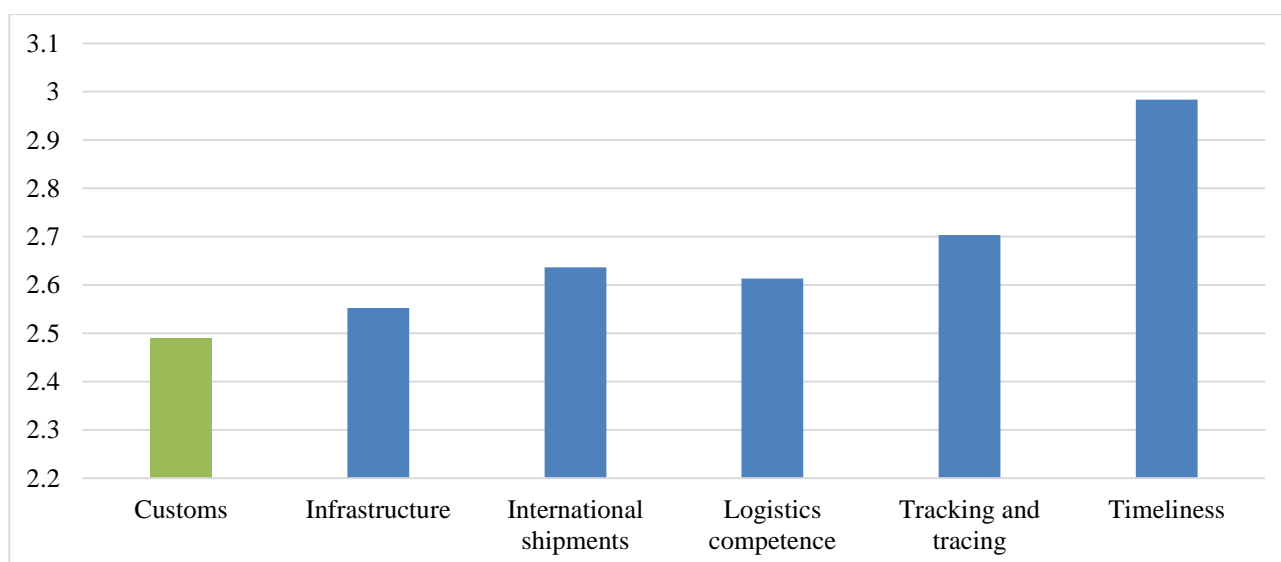
Source: Based on data from the World Bank International LPI database, available from <https://lpi.worldbank.org/international> (accessed 15 June 2017).

**V. HOW TO IMPROVE ON LOGISTICS PERFORMANCE?**

26. While many Arab countries have shown progress over the years, the region’s overall logistics performance has not improved noticeably in the past decade. Trade costs remain high compared with those of other regions, despite the various endowments that should have played an effective role in lowering those costs, such as cheap oil, cheap labour and proximity to eastern and western international markets.

27. High trade costs are believed to be resulting mainly from inefficiency. Therefore, improving logistics efficiency is a priority to improve the role of trade in economic development in the region.

**Figure 3. Logistics performance in the Arab region, 2016**



Source: Based on data from the World Bank International LPI database, available from <https://lpi.worldbank.org/international> (accessed 15 June 2017).



28. In the Arab region, customs is the lowest performer among the logistics components covered by the LPI. Customs' performance is also below the global average and that of comparable blocks around the world, such as ASEAN. Customs are believed to be the cause of much of the delays and costs of trade, and should thus be addressed in priority.

## VI. CONCLUSION AND RECOMMENDATIONS

29. Logistics are crucial for the modern global economy. Trade analysts, policymakers and practitioners need tools to measure the efficiency of logistics within and across countries to be able to make informed trade decisions. The LPI has been widely used and recognized by the private sector and by government and international entities as an important tool for measuring countries' logistics efficiency. The World Bank and other international organizations are increasingly using it in their activities on trade facilitation in developing countries. The LPI allows stakeholders in government, the business sector and civil society to better assess the competitive advantage created by good logistics and to understand the importance of different interventions.

30. The partial subjectivity and bias of the LPI have been highlighted by specialists. It has been sometimes criticized for lacking actual evidence of the status of logistics in a country. It is thus highly recommended that countries pay attention to the methodology used in constructing the index and engage in serious discussions with the responsible agencies and other participants in the survey to accurately assess and sharpen the results.

31. To obtain results that better reflect the real state of affairs, countries are required to get to know their evaluators and address their concerns to the greatest possible extent.

32. It is also recommended that, after each edition of the LPI, countries give enough consideration to finding explanations for what may have caused deterioration in their results and make plans to address the identified causes.

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