

The Executive Opinion Survey: The Voice of the Business Community

For almost 40 years, *The Global Competitiveness Report* has been used by policymakers, business executives, and academics as a tool that contributes a valuable portrait of an economy's productivity and its ability to achieve sustained levels of prosperity and growth. Central to the *Report's* index, the Executive Opinion Survey (the Survey) is the longest-running and most extensive survey of its kind, capturing the opinions of business leaders around the world on a broad range of topics for which statistics are unreliable, outdated, or nonexistent for many countries. Thus the Survey aims to measure critical concepts—such as appetite for entrepreneurship, the extent of the skills gap, and the incidence of corruption—to complement the traditional sources of statistics and provide a more accurate assessment of the business environment and, more broadly, of the many drivers of economic development.

The indicators derived from the Survey are used in the calculation of the Global Competitiveness Index (GCI) as well as a number of other World Economic Forum indexes, such as the Networked Readiness Index, the Enabling Trade Index, the Travel & Tourism Competitiveness Index, the Gender Gap Index, and the Human Capital Index as well as several other reports, including *The Inclusive Economic Growth and Development Report* and a number of regional competitiveness studies. A truly unique source of data, the Survey has also long been used by a number of international and nongovernmental organizations, think tanks, and academia for empirical and policy work.

THE SURVEY 2017 IN NUMBERS

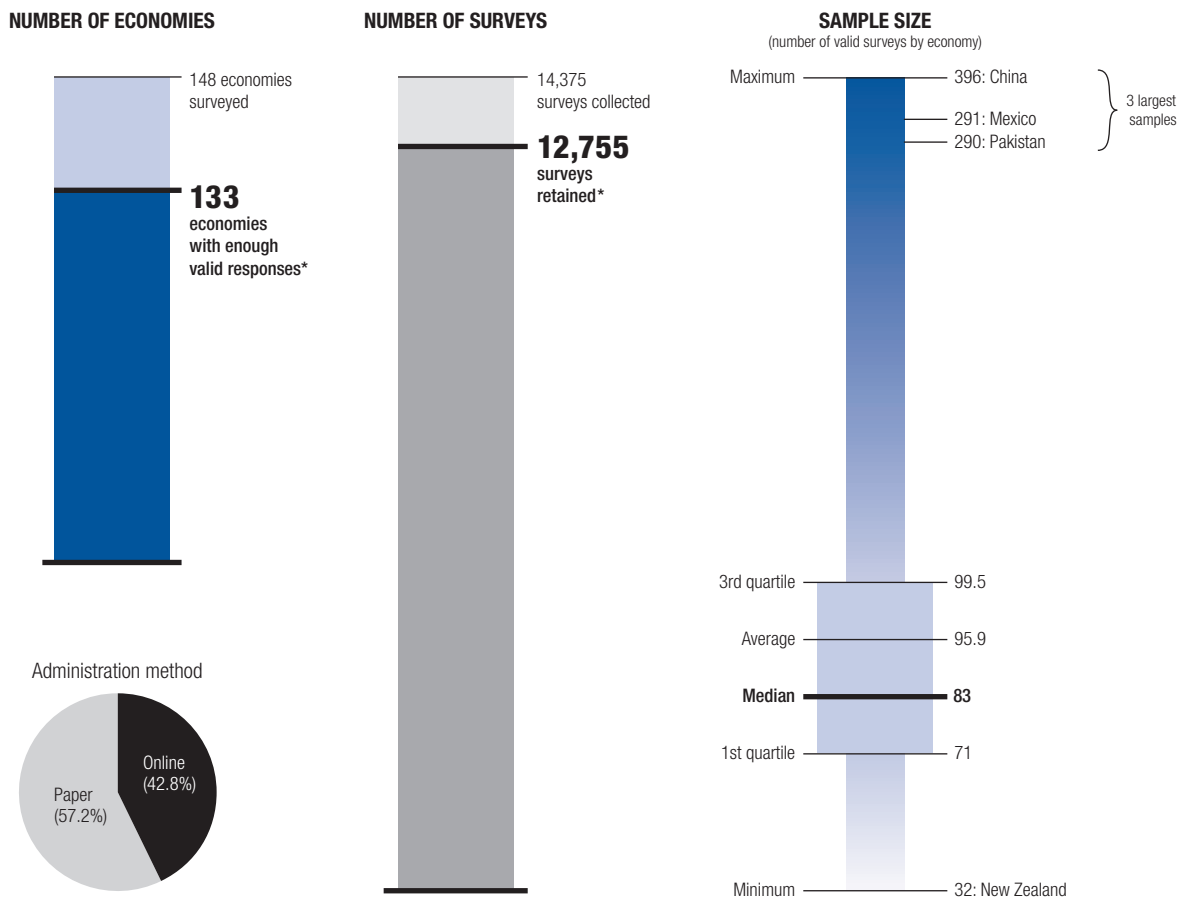
The 2017 edition captured the views of 14,375 business executives in over 148 economies between February and June 2017 (see Figure 1). Following the data editing process described below, a total of 12,775 responses from 133 economies were retained. The 2017 edition of the Survey was made available in 39 languages (see Table 1).

SURVEY STRUCTURE, ADMINISTRATION, AND METHODOLOGY

The Survey comprises 150 questions divided into 15 sections. Most ask respondents to evaluate an aspect of their operating environment, on a scale of 1 (the worst possible situation) to 7 (the best). The 2017 edition of the Survey instrument is available in the Downloads section of the *Global Competitiveness Report's* page at <http://gcr.weforum.org/>.

The administration of the Survey is centralized by the World Economic Forum and conducted at the national level by the Forum's network of Partner Institutes. Partner Institutes are recognized research or academic institutes, business organizations, national competitiveness councils, or other established professional entities and, in some cases, survey

Figure 1: Descriptive statistics of the Executive Opinion Survey 2017

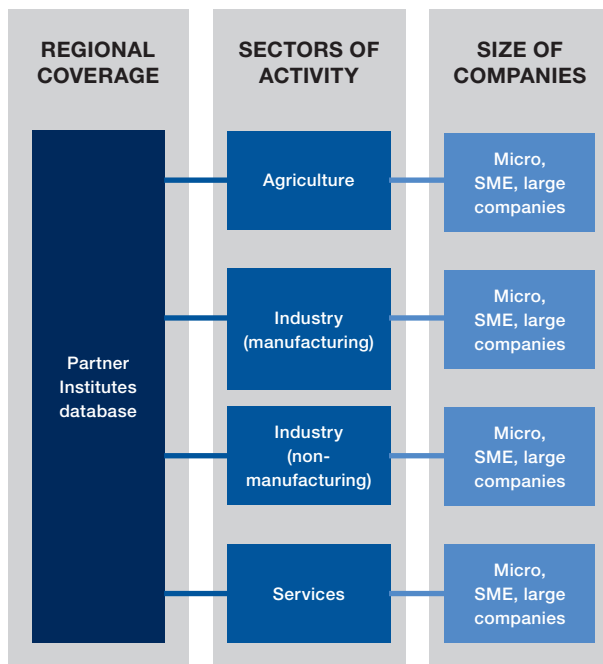


Source: World Economic Forum, Executive Opinion Survey, 2017 edition.
 Note: Not all charts are drawn to scale.
 * Following data treatment. See text for details.

Table 1: Available languages in 2017

Albanian	Croatian	Hungarian	Macedonian	Serbian
Arabic	Czech	Italian	Mongolian	Slovak
Armenian	Danish	Japanese	Montenegrin	Slovenian
Azeri	English	Khmer	Persian	Spanish
Bosnian	Estonian	Korean	Polish	Thai
Bulgarian	French	Lao	Portuguese	Turkish
Chinese	German	Latvian	Romanian	Vietnamese
Chinese traditional	Greek	Lithuanian	Russian	

Figure 2: Sample frame requirements



consultancies. These institutes have the network to reach out to the business community, are reputable organizations, and have a firm commitment to improving the competitiveness conditions of their economies. (For the full list, see the Acknowledgments section of this Report.)

In administering the Survey and in order to gather the strongest dataset, Partner Institutes are asked to follow detailed sampling guidelines to ensure that the sample of respondents is the most representative possible and comparable across the globe and in a specific timeframe. The sampling guidelines are based on best practices in the field of survey administration and on discussions with survey experts.

The Survey sampling guidelines specify that the Partner Institute build a “sample frame” (Figure 2)—that is, a list of potential business executives from micro companies, small and medium-sized enterprises, and large companies—from the various sectors of activity, as detailed below. Specifically, the Partner Institutes are asked to carry out the following steps:

- Prepare a “sample frame,” or large list of potential respondents, which includes firms in proportion to the share of GDP accounted for by the sector they represent: agriculture, manufacturing industry, non-manufacturing industry (mining and quarrying, electricity, gas and water supply, construction), and services.

- Separate the frame into three lists: micro companies (< 10 employees), small and medium-sized enterprises (11–250 employees), and large firms (> 251 employees), again in proportion to the overall representation of these companies in the economy, and with each list ranging over all the sectors.
- Ensure that the list of chosen companies also represents a good geographical coverage.
- To reduce bias, randomly select firms from these lists to receive the survey.

The Survey is administered in a variety of formats, including face-to-face or telephone interviews with business executives, mailed paper forms, and online surveys. For energy, time, and cost considerations, the Forum encourages the use of a dedicated online survey tool provided to the Partner Institutes.

The Partner Institutes also play an active and essential role in disseminating the findings of *The Global Competitiveness Report* and other reports published by the World Economic Forum by holding press events and workshops to highlight the results at the national level to the business community, the public sector, and other stakeholders.

DATA TREATMENT AND SCORE COMPUTATION

This section details the process whereby individual responses are edited and aggregated in order to produce the scores of each economy on each individual question of the Survey. These results, together with other indicators obtained from other sources, feed into the GCI and other research projects.

Data editing

Prior to aggregation, the respondent-level data are subjected to a careful editing process. A first series of tests is run to identify and exclude those surveys whose patterns of answers demonstrate a lack of sufficient focus on the part of the respondents. Surveys with at least 80 percent of the same answers are excluded. Surveys with a completion rate inferior to 50 percent are also excluded. The very few cases of duplicate surveys—which can occur, for example, when a survey is both completed online and mailed in—are also excluded in this phase.

In a second step, a multivariate test is applied to the data using the Mahalanobis distance method. This test estimates the probability that an individual survey in a specific country “belongs” to the sample of that country by comparing the pattern of answers of that survey against the average pattern of answers in the country sample.¹

A univariate outlier test is then applied at the country level for each question of each survey. We use the standardized score—or “z-score”—method, which

Table 2: Executive Opinion Survey: Descriptive statistics and weightings

Economy	Period 1			Period 2			Online (%) [†]
	Survey edition	No. of respondents	Weight (%)*	Survey edition	No. of respondents	Weight (%)*	
Albania	2016	95	48.6	2017	71	51.4	—
Algeria	2016	118	43.9	2017	130	56.1	0.8
Argentina	2016	99	45.0	2017	99	55.0	99.0
Armenia	2016	77	44.4	2017	76	55.6	100.0
Australia	2016	91	46.9	2017	78	53.1	78.2
Austria	2016	111	46.6	2017	98	53.4	75.5
Azerbaijan	2016	77	42.8	2017	92	57.2	—
Bahrain	2015	50	38.0	2016	89	62.0	n/a
Bangladesh	2016	88	46.0	2017	81	54.0	—
Belgium	2016	51	37.0	2017	99	63.0	100.0
Benin	2016	67	43.1	2017	78	56.9	—
Bhutan	2016	116	47.1	2017	98	52.9	—
Bosnia and Herzegovina	2016	112	49.8	2017	76	50.2	—
Botswana	2016	98	43.6	2017	110	56.4	0.9
Brazil	2016	128	47.7	2017	103	52.3	99.0
Brunei Darussalam	2016	80	45.5	2017	77	54.5	49.4
Bulgaria	2016	116	46.4	2017	104	53.6	5.8
Burundi	2016	96	47.1	2017	81	52.9	—
Cambodia	2016	63	43.9	2017	69	56.1	—
Cameroon	2016	95	47.0	2017	81	53.0	—
Canada	2016	137	51.7	2017	79	48.3	100.0
Cape Verde	2016	81	46.6	2017	71	53.4	—
Chad	2016	102	49.1	2017	73	50.9	—
Chile	2016	206	49.8	2017	140	50.2	99.3
China	2016	355	43.6	2017	396	56.4	—
Colombia	2016	158	47.1	2017	134	52.9	64.9
Congo, Dem. Rep.	2016	97	41.7	2017	126	58.3	—
Costa Rica	2016	79	46.5	2017	69	53.5	98.6
Croatia	2016	85	45.6	2017	81	54.4	100.0
Cyprus	2016	65	43.6	2017	73	56.4	17.8
Czech Republic	2016	106	47.9	2017	84	52.1	100.0
Denmark	2016	110	48.2	2017	85	51.8	—
Dominican Republic	2016	78	49.4	2017	54	50.6	87.0
Ecuador	2016	92	44.1	2017	99	55.9	38.4
Egypt	2016 data not available			2017	99	100.0	2.0
El Salvador	2016	50	47.5	2017	41	52.5	92.7
Estonia	2016	89	46.8	2017	77	53.2	100.0
Ethiopia	2016	89	46.5	2017	79	53.5	—
Finland	2016	47	44.2	2017	50	55.8	100.0
France	2016	94	46.9	2017	81	53.1	100.0
Gambia, The	2016	92	47.7	2017	74	52.3	—
Georgia	2016	45	45.3	2017	44	54.7	100.0
Germany	2016	103	44.0	2017	112	56.0	91.1
Ghana	2016	100	47.8	2017	80	52.2	—
Greece	2016	81	45.5	2017	78	54.5	97.4
Guatemala	2016	82	43.4	2017	93	56.6	—
Guinea	New in 2017			2017	66	100.0	—
Haiti	New in 2017			2017	52	100.0	—
Honduras	2016	92	45.3	2017	90	54.7	—
Hong Kong SAR	2016 data not available			2017	93	100.0	80.6
Hungary	2016	52	39.3	2017	83	60.7	14.5
Iceland	2016	86	47.6	2017	70	52.4	100.0
India	2016	266	48.5	2017	201	51.5	—
Indonesia	2016	86	43.9	2017	94	56.1	—
Iran, Islamic Rep.	2016	176	43.4	2017	200	56.6	100.0
Ireland	2016	38	33.3	2017	105	66.7	100.0
Israel	2016	80	44.7	2017	82	55.3	100.0
Italy	2016	122	47.7	2017	98	52.3	—
Jamaica	2016	68	44.5	2017	71	55.5	98.6
Japan	2016	120	52.8	2017	63	47.2	14.3
Jordan	2016	101	39.8	2017	154	60.2	6.5
Kazakhstan	2016	99	46.8	2017	86	53.2	—
Kenya	2016	114	45.1	2017	113	54.9	—
Korea, Rep.	2016	100	45.0	2017	100	55.0	—
Kuwait	2016	59	43.2	2017	68	56.8	63.2
Kyrgyz Republic	2016	100	45.4	2017	97	54.6	—
Lao PDR	2016	108	47.7	2017	87	52.3	—
Latvia	2016	89	50.9	2017	55	49.1	100.0
Lebanon	2016	79	45.2	2017	78	54.8	100.0

(Cont'd.)

Table 2: Executive Opinion Survey: Descriptive statistics and weightings (cont'd.)

Economy	Period 1			Period 2			
	Survey edition	No. of respondents	Weight (%)*	Survey edition	No. of respondents	Weight (%)*	Online (%)†
Lesotho	2016	83	43.7	2017	92	56.3	—
Liberia	2016	69	47.8	2017	55	52.2	—
Lithuania	2016	121	45.5	2017	116	54.5	62.9
Luxembourg	2016	62	49.5	2017	43	50.5	100.0
Madagascar	2016	84	47.6	2017	68	52.4	—
Malawi	2016	57	41.6	2017	75	58.4	42.7
Malaysia	2016	101	45.6	2017	96	54.4	7.3
Mali	2016	98	50.1	2017	65	49.9	—
Malta	2016	74	48.0	2017	58	52.0	89.7
Mauritania	2016	96	42.4	2017	118	57.6	—
Mauritius	2016	57	44.2	2017	61	55.8	98.4
Mexico	2016	304	45.5	2017	291	54.5	83.5
Moldova	2016	126	44.4	2017	132	55.6	—
Mongolia	2016	80	44.5	2017	82	55.5	59.8
Montenegro	2016	93	46.9	2017	80	53.1	—
Morocco	2016	105	47.1	2017	89	52.9	100.0
Mozambique	2016	110	46.8	2017	95	53.2	—
Namibia	2016	78	45.7	2017	74	54.3	—
Nepal	2016	99	46.1	2017	91	53.9	—
Netherlands	2016	75	44.5	2017	78	55.5	100.0
New Zealand	2016	39	47.5	2017	32	52.5	100.0
Nicaragua	2016 data not available			2017	47	100.0	85.1
Nigeria	2016	106	47.7	2017	85	52.3	—
Norway	2016	32	42.5	2017	39	57.5	100.0
Oman	2015	79	42.2	2016	99	57.8	n/a
Pakistan	2016	236	42.4	2017	290	57.6	4.5
Panama	2016	120	48.7	2017	89	51.3	69.7
Paraguay	2016	79	40.8	2017	111	59.2	45.9
Peru	2016	88	44.7	2017	90	55.3	85.6
Philippines	2016	84	50.2	2017	55	49.8	83.6
Poland	2016	206	45.1	2017	204	54.9	99.0
Portugal	2016	220	50.6	2017	140	49.4	92.9
Qatar	2016	130	48.6	2017	97	51.4	9.3
Romania	2016	100	44.6	2017	103	55.4	42.7
Russian Federation	2016	293	46.1	2017	268	53.9	—
Rwanda	2016	120	48.3	2017	92	51.7	1.1
Saudi Arabia	2016	96	38.5	2017	164	61.5	60.4
Senegal	2016	99	47.7	2017	80	52.3	—
Serbia	2016	99	45.1	2017	98	54.9	—
Seychelles	New in 2017			2017	47	100.0	—
Sierra Leone	2016	97	47.6	2017	79	52.4	—
Singapore	2016	146	44.8	2017	148	55.2	76.4
Slovak Republic	2016	109	44.9	2017	110	55.1	100.0
Slovenia	2016	85	44.4	2017	89	55.6	83.1
South Africa	2016	44	29.5	2017	170	70.5	100.0
Spain	2016	104	49.1	2017	75	50.9	84.0
Sri Lanka	2016	100	48.6	2017	75	51.4	48.0
Swaziland	New in 2017			2017	50	100.0	—
Sweden	2016	54	41.6	2017	71	58.4	100.0
Switzerland	2016	43	41.4	2017	52	58.6	100.0
Taiwan, China	2016	126	45.5	2017	121	54.5	62.0
Tajikistan	2015	101	46.3	2016	91	53.7	n/a
Tanzania	2016	98	47.5	2017	80	52.5	—
Thailand	2016	148	48.1	2017	115	51.9	100.0
Trinidad and Tobago	2016	116	51.2	2017	70	48.8	100.0
Tunisia	2016	95	44.1	2017	102	55.9	87.3
Turkey	2015	83	45.3	2016	81	54.7	n/a
Uganda	2016	95	46.2	2017	86	53.8	—
Ukraine	2016	106	45.9	2017	99	54.1	—
United Arab Emirates	2016	111	48.3	2017	85	51.7	18.8
United Kingdom	2016	73	43.4	2017	83	56.6	100.0
United States	2016	485	53.0	2017	249	47.0	100.0
Uruguay	2016	89	47.8	2017	71	52.2	87.3
Venezuela	2016	70	49.9	2017	47	50.1	100.0
Vietnam	2016	100	46.3	2017	90	53.7	3.3
Yemen	2016	51	42.0	2017	65	58.0	—
Zambia	2016	77	47.9	2017	61	52.1	—
Zimbabwe	2016	52	47.4	2017	43	52.6	58.1

Note: All statistics are computed following the editing of the data; see text for details. "n/a" indicates that this information is not provided for economies for which 2017 data are not available; "—" indicates that there was no online administration of the Survey.

* Weight applied to the country score in that edition of the Survey. See Box 1 for details.

† Share of surveys completed online (2017 only).

Box 1: Country score calculation

This box presents the method applied to compute the scores for the vast majority of economies included in *The Global Competitiveness Report 2017–2018* (see text for exceptions).

For any given Survey question i , country c 's final score, $q_{i,c}^{2016-17}$, is given by:

$$q_{i,c}^{2016-17} = w_c^{2016} \times q_{i,c}^{2016} + w_c^{2017} \times q_{i,c}^{2017} \quad (1)$$

where

$q_{i,c}^t$ is country c 's score on question i in year t , with $t = 2016, 2017$, as computed following the approach described in the text; and

w_c^t is the weight applied to country c 's score in year t (see below).

The weights for each year are determined as follows:

$$w_c^{2016} = \frac{(1-\alpha) + \frac{N_c^{2016}}{N_c^{2016} + N_c^{2017}}}{2} \quad (2a) \quad \text{and} \quad w_c^{2017} = \frac{\alpha + \frac{N_c^{2017}}{N_c^{2016} + N_c^{2017}}}{2} \quad (2b)$$

where N_c^t is the sample size (i.e., the number of respondents) for country c in year t , with $t = 2016, 2017$. α is a discount factor. Its value is set at 0.6. That is, the 2016 score of country c is given 2/3 of the weight given to the 2017 score.

Plugging Equations (2a) and (2b) into (1) and rearranging yields:

$$q_{i,c}^{2016-17} = \frac{1}{2} \times \left[\underbrace{(1-\alpha) \times q_{i,c}^{2016} + \alpha \times q_{i,c}^{2017}}_{\text{discounted-past weighted average}} \right] + \frac{1}{2} \times \left[\underbrace{\frac{N_c^{2016}}{N_c^{2016} + N_c^{2017}} \times q_{i,c}^{2016} + \frac{N_c^{2017}}{N_c^{2016} + N_c^{2017}} \times q_{i,c}^{2017}}_{\text{sample-size weighted average}} \right]. \quad (3)$$

In Equation (3), the first component of the weighting scheme is the discounted-past weighted average. The second component is the sample-size weighted average. The two components are given half-weight each. One additional characteristic of this approach is that it prevents a country sample that is much larger in one year from overwhelming the smaller sample from the other year.

EXCEPTIONS

As noted in the text, there are a number of exceptions to the approach described above. In illustrating them below, we use actual years—rather than letters—in equations for the sake of concreteness.

In the case of Survey questions that were introduced in 2017, where, by definition, no past data exist, full weight is given to the 2017 score. For newly covered economies, this treatment applied to all questions.

For countries whose 2017 data were discarded, the results from the previous editions of the *Report* are used instead. In some countries, with a small sample of respondents, for some questions the number of answers is below the threshold of 30. In this case, the same treatment applies. Formally, we have: $q_{i,c}^{2016, 2017} \equiv q_{i,c}^{2015, 2016} = w_c^{2015} \times q_{i,c}^{2015} + w_c^{2016} \times q_{i,c}^{2016}$.

EXAMPLE OF SCORE COMPUTATION

For this example, we compute the score of Uruguay for the indicator Burden of government regulation, which is included in the Global Competitiveness Index (indicator 1.09) and derived from the following Survey question: "In your country, how burdensome is it for companies to comply with public administration's requirements (e.g., permits, regulations, reporting)? [1 = extremely burdensome; 7 = not burdensome at all]." This question is not a new Survey question and therefore the normal treatment applies, using Equation (1). Uruguay's Survey score was 3.03 in 2016 and 2.72 in 2017. The weighting scheme described above indicates how the two scores are combined. In Uruguay, the size of the sample was 89 in 2016 and 71 in 2017. Using $\alpha = 0.6$ and applying Equations (2a) and (2b) yields weights of 47.8 percent for 2016 and 52.2 percent for 2017 (see Table 2). The final country score for this question is therefore:

$$\underbrace{0.478 \times 3.03}_{2016} + \underbrace{0.522 \times 2.72}_{2017} = 2.87.$$

This is the final score used in the computation of the GCI. Although numbers are rounded to two decimal places in this example and to one decimal place in the Uruguay country profile, exact figures are used in all calculations.

indicates by how many standard deviations any one individual answer deviates from the mean of the country sample. Individual answers with a standardized score greater than 3 are dropped.

Aggregation and computation of country averages

We use a simple average to compute scores at the economy level. That is, for a given question, all individual answers carry the same weight.

Formally, the country average of a Survey indicator i for country c , denoted $q_{i,c}$, is computed as follows:

$$q_{i,c} = \frac{\sum_j^{N_{i,c}} q_{i,c,j}}{N_{i,c}}$$

where

$q_{i,c,j}$ is the answer to question i in country c from respondent j ; and

$N_{i,c}$ is the number of respondents to question i in country c .

Once responses have been aggregated at the country level, a test to detect statistically excessive perception bias is run. We leverage the strong relationship between the indicators derived from the Survey on one hand and other statistical indicators used in the Global Competitiveness Index on the other hand. A linear regression is used to predict the average score in Survey indicators from the average performance in the other indicators. Survey scores that lie outside the 95 percent confidence interval around the predicted values are automatically corrected by a factor derived from the difference between the observed value and the limit of the confidence interval.

Finally, an analysis to assess the reliability and consistency of the Survey data over time is carried out. As part of this analysis, an inter-quartile range test, or IQR test, is performed to identify large swings—positive and negative—in the results. More specifically, for each country we compute the year-on-year difference, d , in the average score of a core set of 66 Survey questions. We then compute the inter-quartile range (i.e., the difference between the 25th percentile and the 75th percentile). Any value d lying outside the range bounded by the 25th percentile minus 1.5 times the IQR and the 75th percentile plus 1.5 times the IQR is identified as a potential outlier. This test is complemented by a series of additional empirical tests, including an analysis of five-year trends and a comparison of changes in the Survey results with changes in other indicators capturing similar concepts. We interview local experts and consider the latest developments in a country in order to assess the plausibility of the Survey results. Based on the result of this test and additional qualitative analysis, and in light

of the developments in these respective countries, the data collected in 2017 in Bahrain, Oman, Tajikistan, and Turkey were not used. In those cases, the Survey results from the previous edition are used instead (see Exceptions in Box 1).

Moving average and computation of country scores

We then proceed to compute moving averages. The moving average technique consists of taking a weighted average of the most recent year's Survey results together with a discounted average of the previous year. There are several reasons for doing this. First, it makes results less sensitive to the specific point in time when the Survey is administered. Second, it increases the amount of available information by providing a larger sample size. Additionally, because the Survey is carried out during the first quarter of the year, the average of the responses in the first quarter of 2016 and the first quarter of 2017 better aligns the Survey data with many of the data indicators from sources other than the Survey, which are often year-average data.

To calculate the moving average, we use a weighting scheme composed of two overlapping elements. On one hand, we want to give each response an equal weight and, therefore, place more weight on the year with the larger sample size. At the same time, we would like to give more weight to the most recent responses because they contain more updated information. That is, we also “discount the past.” Table 2 reports the exact weights used in the computation of the scores of each country, while Box 1 details the methodology and provides a clarifying example.

NOTE

- 1 For a more detailed formal description of the various tests presented here, see Browne et al. 2016.

REFERENCE

Browne, C., A. Di Batista, T. Geiger, and S. Verin. 2016. “The Executive Opinion Survey: The Voice of the Business Community.” *The Global Competitiveness Report 2016–2017*. Geneva: World Economic Forum.

