CHAPTER 6

Ease of doing business score and ease of doing business ranking

Doing Business presents results for two aggregate measures: the ease of doing business score and the ease of doing business ranking, which is based on the ease of doing business score. The ease of doing business ranking compares economies with one another; the ease of doing business scores benchmark economies with respect to regulatory best practice, showing the proximity to the best regulatory performance on each Doing Business indicator. When compared across years, the ease of doing business score shows how much the regulatory environment for local entrepreneurs in an economy has changed over time in absolute terms, whereas the ease of doing business ranking shows only how much the regulatory environment has changed relative to that in other economies.

Ease of doing business score

The ease of doing business score measures an economy's performance with respect to a measure of regulatory best practice across the entire sample of 41 indicators for 10 *Doing Business* topics (the employing workers and contracting with the government indicators are excluded). For starting a business, for example, Georgia and New Zealand have the lowest number of procedures required (1). New Zealand also holds the shortest time to start a business (0.5 days), whereas Rwanda and Slovenia have the lowest cost (0.0). Australia, Colombia, and 118 other economies have no paid-in minimum capital requirement (table 6.1).

Calculation of the ease of doing business score

Calculating the ease of doing business score for each economy involves two main steps. In the first step individual component indicators are normalized to a common unit where each of the 41 component indicators y (except for the total tax and contribution rate) is rescaled using the linear transformation (worst -y)/(worst - best). In this formulation the highest score represents the best regulatory performance on the indicator across all economies since 2005 or the third year in which data for the indicator were collected. Both the best regulatory performance and the worst regulatory performance are established every five years¹ on the basis of the Doing Business data for the year in which they are established and remain at that level for the five years regardless of any changes in data in interim years. Thus an economy may establish the best regulatory performance for an indicator even though it may not have the highest score in a subsequent year. Conversely, an economy may score higher than the best regulatory performance if the economy reforms after the best regulatory performance is set. For example, the best regulatory performance for the time to get electricity is set at 18 days. In the Republic of Korea it now takes 13 days to get electricity, and in the United Arab Emirates it takes just 7 days. Although the two economies have different times, both economies score 100 on the time to get electricity because they have exceeded the threshold of 18 days.

For scores on indexes such as the strength of legal rights index or the quality of land administration index, the best regulatory performance is set at the highest possible value (although no economy has yet reached that value in the case of the latter). For the total tax and contribution rate, consistent with the use of a threshold in calculating the rankings on this indicator, the best regulatory performance is defined as the total tax and contribution rate at the 15th percentile of the overall distribution for all years included in the analysis up to and including *Doing Business 2015*. For the time to pay taxes, the best regulatory performance is defined as the lowest time recorded among all economies that levy the three major taxes: profit tax, labor taxes and mandatory contributions, and value added tax (VAT) or sales tax. For the different times to trade across borders, the best regulatory performance is defined as one hour even though in many economies the time is less than that.

Topic and indicator	Economy establishing best regulatory performance	Best regulatory performance	Worst regulatory performance	
Starting a business				
Procedures (number)	Georgia; New Zealand	1	18ª	
Time (days)	New Zealand	0.5	100 ^b	
Cost (% of income per capita)	Rwanda; Slovenia	0.0	200.0b	
Minimum capital (% of income per capita)	Australia; Colombia; Mauritius ^c	0.0	400.0b	
Dealing with construction permits				
Procedures (number)	No economy was a best performer as of May 1, 2019.d	5	30ª	
Time (days)	No economy was a best performer as of May 1, 2019.d	26	373 ^b	
Cost (% of warehouse value)	No economy was a best performer as of May 1, 2019.d	0.0	20.0 ^b	
Building quality control index (0—15)	China; Luxembourg; United Arab Emirates ^e	15	Of	
Getting electricity				
Procedures (number)	Germany; Kenya; Republic of Korea ^g	3	9ª	
Time (days)	Republic of Korea; St. Kitts and Nevis; United Arab Emirates	18	248 ^b	
Cost (% of income per capita)	China; Japan; United Arab Emirates	0.0	8,100.0 ^b	
Reliability of supply and transparency of tariffs index (0–8)	Costa Rica; Ireland; Malaysia ^h	8	Of	
Registering property				
Procedures (number)	Georgia; Norway; Portugal ⁱ	1	13ª	
Time (days)	Georgia; Qatar	1	210 ^b	
Cost (% of property value)	Saudi Arabia	0.0	15.0 ^b	
Quality of land administration index (0–30)	No economy has reached the best performance yet.	30	Of	
Getting credit				
Strength of legal rights index (0–12)	Brunei Darussalam; Montenegro; New Zealand ^j	12	Of	
Depth of credit information index (0–8)	Ecuador; Israel; United Kingdom ^k	8	O ^f	
Protecting minority investors				
Extent of disclosure index (0–10)	China; Malaysia; United Kingdom ^l	10	Of	
Extent of director liability index (0–10)	Cambodia; Kenya; United Arab Emirates	10	Of	
Ease of shareholder suits index (0–10)	Djibouti	10	Of	
Extent of shareholder rights index (0–6)	India; Kazakhstan; Malta ^m	6	O ^f	
Extent of ownership and control index (0–7)	Bahrain; Colombia; Uzbekistan ⁿ	7	Of	
Extent of corporate transparency index (0-7)	France; Norway; Taiwan, Chinaº	7	O ^f	
Paying taxes				
Payments (number per year)	Hong Kong SAR, China	3	63 ^b	
Time (hours per year)	Singapore	49 ^p	696 ^b	
Total tax and contribution rate (% of profit)	Canada; Denmark; Singapore ^q		84.0 ^b	
Postfiling index (0–100)	No economy with both CIT and VAT has reached the best performance yet.	100	0	
Time to comply with VAT refund (hours)	Croatia; Republic of Korea; Netherlands ^s 0		50 ^b	
Time to obtain VAT refund (weeks)	Austria; Estonia	3.2	55 ^b	
Time to comply with corporate income tax correction (hours)	Estonia; Lithuania; Portugal ^t	1.5	56⁵	
Time to complete a corporate income tax correction (weeks)	Japan; Sweden; United States ^u	Ov	32 ^b	

(table continued on next page)

Topic and indicator	Economy establishing best regulatory performance	Best regulatory performance	Worst regulatory performance			
Trading across borders						
Time to export						
Documentary compliance (hours)	Canada; Poland; Spain ^w	1×	170 ^b			
Border compliance (hours)	Austria; Belgium; Denmark ^y	1×	160 ^b			
Cost to export						
Documentary compliance (US\$)	Hungary; Luxembourg; Norway ^z	0	400b			
Border compliance (US\$)	France; Netherlands; Portugal ^{aa}	0	1,060b			
Time to import						
Documentary compliance (hours)	Republic of Korea; Latvia; New Zealandbb	1×	240b			
Border compliance (hours)	Estonia; France; Germany ^{cc}	1×	280 ^b			
Cost to import						
Documentary compliance (US\$)	Iceland; Latvia; United Kingdom ^{dd}	0	700b			
Border compliance (US\$)	Belgium; Denmark; Estoniaee	0	1,200⁵			
Enforcing contracts						
Time (days)	Singapore	120	1,340 ^b			
Cost (% of claim)	Bhutan	0.1	89.0 ^b			
Quality of judicial processes index (0–18)	No economy has reached the best performance yet.	18	Of			
Resolving insolvency						
Recovery rate (cents on the dollar)	Norway	92.9	O ^f			
Strength of insolvency framework index (0–16)	No economy has reached the best performance yet.	16	Of			

Source: Doing Business database.

Note: CIT = corporate income tax; VAT = value added tax.

- a. Worst performance is defined as the 99th percentile among all economies in the Doing Business sample.
- b. Worst performance is defined as the 95th percentile among all economies in the Doing Business sample.
- c. Another 117 economies also have a paid-in minimum capital requirement of 0.0.
- d. No economy was a best performer as of May 1, 2019, due to data revisions.
- e. Another three economies score 15 out of 15 on the building quality control index.
- f. Worst performance is the worst value recorded.
- g. In 25 other economies it takes no more than three procedures to get an electricity connection.
- h. Another 23 economies score 8 out of 8 on the reliability of supply and transparency of tariffs index.
- i. Two more economies record one procedure to register property.
- j. Two additional economies score 12 out of 12 on the strength of legal rights index.
- k. Another 50 economies score 8 out of 8 on the depth of credit information index.
- I. Another 10 economies score 10 out of 10 on the extent of disclosure index.
- m. Another 16 economies score 6 out of 6 on the extent of shareholders rights index.
- n. Another six economies score 7 out of 7 on the extent of ownership and control index.
- o. Another 10 economies score 7 out of 7 on the extent of corporate transparency index.
- p. Defined as the lowest time recorded among all economies in the *Doing Business* sample that levy the three major taxes: profit tax, labor taxes and mandatory contributions, and VAT or sales tax.
- q. Another 30 economies have a total tax and contribution rate equal to or lower than 26.1% of profits.
- r. Defined as the highest total tax and contribution rate among the 15% of economies with the lowest total tax and contribution rate in the *Doing Business* sample for all years included in the analysis up to and including *Doing Business 2015*.
- s. Another eight economies also have a compliance time for VAT refund of 0 hours.
- t. Another 11 economies also have a compliance time for corporate income tax correction of no more than 1.5 hours.
- u. Another 96 economies also do not impose a corporate income tax correction.
- v. Time to complete a corporate income tax correction is 0 when there is no audit measured for the economy. No audit is measured when the percentage of cases exposed to an additional review is less than 25%.
- w. Another 23 economies also have a documentary compliance time to export of no more than 1 hour.
- x. Defined as 1 hour even though in many economies the time is less.
- y. Another 16 economies also have a border compliance time to export of no more than 1 hour.
- z. Another 17 economies also have a documentary compliance cost to export of 0.0.
- aa. Another 16 economies also have a border compliance cost to export of 0.0.
- bb. Another 27 economies also have a documentary compliance time to import of no more than 1 hour.
- cc. Another 22 economies also have a border compliance time to import of no more than 1 hour.
- dd. Another 27 economies also have a documentary compliance cost to import of 0.0.
- ee. Another 25 economies also have a border compliance cost to import of 0.0.

In the same formulation, to mitigate the effects of extreme outliers in the distributions of the rescaled data for most component indicators (very few economies need 700 days to complete the procedures to start a business, but many need 9 days), the worst performance is calculated after the removal of outliers. The definition of outliers is based on the distribution for each component indicator. To simplify the process two rules were defined: the 95th percentile is used for the indicators with the most dispersed distributions (including minimum capital, number of payments to pay taxes, and the time and cost indicators), and the 99th percentile is used for number of procedures. No outlier is removed for component indicators bound by definition or construction, including legal index scores (such as the depth of credit information index, extent of disclosure index, and strength of insolvency framework index) and the recovery rate (figure 6.1).

In the second step for calculating the ease of doing business score, the scores obtained for individual indicators for each economy are aggregated through simple averaging into one score, first for each topic and then across all 10 topics: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency. More complex aggregation methods—such as principal components and unobserved components—yield a ranking nearly identical to the simple average used by *Doing Business*. Thus *Doing Business* uses the simplest method: weighting all topics equally and, within each topic, giving equal weight to each of the topic components.

An economy's score is indicated on a scale from 0 to 100, where 0 represents the worst regulatory performance and 100 the best regulatory performance. All topic ranking calculations and the ease of doing business ranking calculations are based on scores without rounding.

a. Getting electricity in Namibia b. Protecting minority investors in Namibia Getting electricity score Protecting minority investors score for procedures for extent of disclosure index Best regulatory Best regulatory 100 performance 100 performance Best regulatory performance: 75 75 3 procedures Namibia Namibia Worst regulatory Best regulatory 50 50 performance performance: 10 points 99th percentile): 9 procedures 25 25 Worst regulatory performance: 0 points 0 5 0 5 Procedures (number) Extent of disclosure index (0-10)

FIGURE 6.1 How are scores calculated for indicators?

Source: Doing Business database.

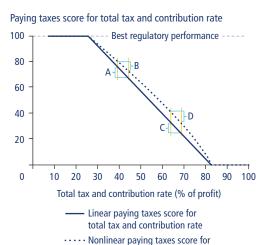
The difference between an economy's score in any previous year and its score in *Doing Business 2020* illustrates the extent to which the economy has changed in its business regulatory environment over time. In any given year, the score measures how close an economy is to the best regulatory performance at that time.

Treatment of the total tax and contribution rate

The total tax and contribution rate component of the paying taxes topic enters the score calculation in a different way than any other indicator. The score obtained for the total tax and contribution rate is transformed in a nonlinear fashion before it enters the score for paying taxes. As a result of the nonlinear transformation, an increase in the total tax and contribution rate has a smaller impact on the score for the total tax and contribution rate—and therefore on the score for paying taxes—for economies with a below-average total tax and contribution rate than it would have had before this approach was adopted in *Doing Business 2015* (line B is smaller than line A in figure 6.2). For economies with an extreme total tax and contribution rate (a rate that is very high relative to the average), an increase has a greater impact on both these scores than it would have had before (line D is bigger than line C in figure 6.2).

The nonlinear transformation is not based on any economic theory of an "optimal tax rate" that minimizes distortions or maximizes efficiency in an economy's overall tax system. Instead, it is mainly empirical in nature.

FIGURE 6.2 How the nonlinear transformation affects the paying taxes score for the total tax and contribution rate



Source: Doing Business database.

Note: The nonlinear paying taxes score for the total tax and contribution rate is equal to the paying taxes score for the total tax and contribution rate to the power of 0.8.

total tax and contribution rate

Change in paying taxes score

The nonlinear transformation along with the threshold reduces the bias in the indicator toward economies that do not need to levy significant taxes on companies like the Doing Business standardized case study company because they raise public revenue in other ways—for example, through taxes on foreign companies, through taxes on sectors other than manufacturing, or from natural resources (all of which are outside the scope of the methodology). In addition, it acknowledges the need of economies to collect taxes from firms.

Calculation of scores for economies with two cities covered

For each of the 11 economies in which *Doing Business* collects data for the second-largest business

TABLE 6.2 Weights used in calculating the scores for economies with two cities covered

Economy	City	Weight (%)				
Bangladesh	Dhaka	78				
	Chittagong	22				
Brazil	São Paulo	61				
	Rio de Janeiro	39				
China	Shanghai	55				
	Beijing	45				
India	Mumbai	47				
	Delhi	53				
Indonesia	Jakarta	78				
	Surabaya	22				
Japan	Tokyo	65				
	Osaka	35				
Mexico	Mexico City	83				
	Monterrey	17				
Nigeria	Lagos	77				
	Kano	23				
Pakistan	Karachi	65				
	Lahore	35				
Russian Federation	Moscow	70				
	St. Petersburg	30				
United States	New York City	60				
	Los Angeles	40				

Source: United Nations, Department of Economic and Social Affairs, Population Division, World Urbanization Prospects, 2014 Revision, "File 12: Population of Urban Agglomerations with 300,000 Inhabitants or More in 2014, by Country, 1950-2030 (thousands)," http://esa.un.org/unpd/wup/CD-ROM/Default.aspx.

city as well as the largest one, the score is calculated as the population-weighted average of the scores for these two cities (table 6.2). This calculation is done for the aggregate ease of doing business score, the scores for each topic, and the scores for all the component indicators for each topic.

Variability of economies' scores across topics

Each *Doing Business* topic measures a different aspect of the business regulatory environment. The scores and associated rankings of an economy can vary, sometimes significantly, across topics. The average correlation coefficient between the 10 topics included in the aggregate ease of doing business score is 0.50, and the coefficients between two topics range from 0.32 (between getting credit and paying taxes) to 0.68 (between dealing with construction permits and getting electricity). These correlations suggest that economies rarely score universally well or universally badly on *Doing Business* topics (table 6.3).

Consider the example of Portugal. Its aggregate ease of doing business score is 76.5. It scores 90.9 for starting a business and 100.0 for trading across borders, but only 62.0 for protecting minority investors and 45.0 for getting credit.

Figure 1.1 in chapter 1, "About *Doing Business*," illustrates the degree of variability for each economy's performance

across the different areas of business regulation covered by *Doing Business*. The figure draws attention to economies with a particularly uneven performance by showing, for each economy, the distance between the average of its highest three scores and the average of its lowest three across the 10 topics included in this year's aggregate ease of doing business score. Whereas a relatively small distance between these two averages suggests a broadly consistent approach across the areas of business regulation measured by *Doing Business*, a relatively large distance suggests a more uneven approach, with greater room for improvement in some areas than in others.

Variation in performance across topics is not at all unusual. It reflects differences in the degree of priority that government authorities give to particular areas of business regulation reform and in the ability of different government agencies to deliver tangible results in their area of responsibility.

TABLE 6.3 Correlations between economy scores for <i>Doing Business</i> topics									
	Dealing with construction permits	Getting electricity	Registering property	Getting credit	Protecting minority investors	Paying taxes	Trading across borders	Enforcing contracts	Resolving insolvency
Starting a business	0.50	0.46	0.39	0.37	0.51	0.55	0.40	0.38	0.45
Dealing with construction permits		0.68	0.50	0.41	0.56	0.49	0.52	0.43	0.44
Getting electricity			0.51	0.45	0.61	0.57	0.65	0.51	0.58
Registering property				0.46	0.51	0.50	0.50	0.60	0.52
Getting credit					0.53	0.32	0.41	0.36	0.51
Protecting minority investors						0.52	0.50	0.52	0.64
Paying taxes							0.56	0.51	0.46
Trading across borders								0.49	0.54
Enforcing contracts									0.45

Source: Doing Business database.

Change in the score gap

Many topics assess the impact of data changes on the basis of the absolute change in the overall score of the indicator set and the change in the relative score gap. The change in the score gap—or the distance to the best regulatory performance—is defined as $(\text{score}^{prior\ year} - \text{score}^{current\ year})/(100 - \text{score}^{prior\ year})$, where "score" is the aggregate score for the specific topic. For indicators using macroeconomic variables, such as the cost of starting a business as a percentage of income per capita, the macroeconomic data for the prior year are used to control for exogenous factors such as a change in income per capita. For example, in 2018/19 Papua New Guinea reduced the time and cost to trade across borders, resulting in an improvement in its aggregate score for trading across borders from 60.5 to 65.8. This improved the overall score by 65.8 - 60.5 or 5.3 points, and reduced the score gap for Papua New Guinea by (60.5 - 65.8)/(100 - 60.5) or 13.4% on trading across borders in *Doing Business* 2020. For a complete discussion of the methodology for classifying changes as reforms, see the *Doing Business* website.

Economies improving the most across three or more *Doing Business* topics in 2018/19

Doing Business 2020 uses a simple method to calculate which economies improved the ease of doing business score the most. First, it selects the economies that in 2018/19 implemented regulatory reforms making it easier to do business in 3 or more of the 10 topics included in this year's aggregate ease of doing business score.⁴ Forty-two economies meet this

criterion: Armenia; Azerbaijan; The Bahamas; Bahrain; Bangladesh; Cabo Verde; China; Colombia; the Democratic Republic of Congo; Djibouti; the Arab Republic of Egypt; Eswatini; Gabon; India; Indonesia; Israel; Jordan; Kenya; Kosovo; Kuwait; the Kyrgyz Republic; Mauritius; Moldova; Morocco; Myanmar; Nigeria; Oman; Pakistan; Philippines; Qatar; the Russian Federation; Rwanda; Saudi Arabia; Serbia; Tajikistan; Togo; Tunisia; Ukraine; United Arab Emirates; United States; Uzbekistan; and Zimbabwe. Second, *Doing Business* sorts these economies on the increase in their ease of doing business score over the previous year, and the scores for both years are calculated using the same macroeconomic data (such as income per capita and currency conversion rates) to remove the effect of changes in these variables.

Selecting the economies that implemented regulatory reforms in at least three topics and had the biggest improvements in their ease of doing business scores is intended to highlight economies with ongoing, broad-based reform programs. The improvement in the ease of doing business score is used to identify the top improvers because it allows a focus on the absolute improvement—in contrast with the relative improvement shown by a change in rankings—that economies have made in their regulatory environment for business.

Ease of doing business ranking

The ease of doing business ranking ranges from 1 to 190. The ranking of economies is determined by sorting the aggregate ease of doing business scores.

Notes

- 1. The next update will be published in *Doing Business 2021* along with several other methodological changes such as the introduction of the contracting with the government indicators.
- 2. See Djankov and others 2005. Principal components and unobserved components methods yield a ranking nearly identical to that from the simple average method because both these methods assign roughly equal weights to the topics, because the pairwise correlations among topics do not differ much. An alternative to the simple average method is to give different weights to the topics, depending on which are considered of more or less importance in the context of a specific economy.
- 3. For getting credit and protecting minority investors, indicators are weighted proportionally, according to their contribution to the total score. The getting credit indicator weighs 60% assigned to the strength of legal rights index and 40% to the depth of credit information index. For protecting minority investors, the extent of disclosure index, the extent of director liability index, and the ease of shareholder suits index are each assigned a weight of 20%, whereas the extent of shareholder rights index

has a weight of 12% and the extent of ownership and control index and the extent of corporate transparency index each weigh 14%. Indicators for all other topics are assigned equal weights.

4. Changes making it more difficult to do business are subtracted from the total number of those making it easier to do business.