

# Doing Business Indicators

## Why aggregate, and how to do it

In the past two years, more than 26 reforms have been inspired or influenced by the *Doing Business* project. Brazil, Bulgaria, China, El Salvador, Ethiopia, Indonesia, Peru, Serbia and Montenegro and Yemen have eased business entry. Jordan and Serbia and Montenegro have improved the efficiency of contract enforcement. Afghanistan and Russia have established credit registries. Georgia and Poland have reduced the number and complexity of business licenses.

Some of these and other reforms were the result of governments wanting to improve their rank on the ease of doing business.<sup>1</sup> Georgia, currently ranked 100, wants to join the top-30 list. Reforms are underway in making labor regulations more flexible, customs procedures faster, and business entry cheaper. Saudi Arabia and Thailand have targeted the top-10 list, with several administrative reforms planned. Algeria, Burkina Faso, Malawi, Mali, Morocco, São Tomé and Príncipe have all requested advice on how to improve their standings.

This illustrates the main advantage of showing a single rank: it is easily understood by politicians, journalists and development experts and therefore creates pressure to reform. As in sports, once you start keeping score everyone wants to win.

A second advantage of having a single ranking is the ability to see patterns in business regulation. For example, Nordic countries perform best as a group in the list of countries where it is easiest to do business (table 1), while the three Baltic countries—where reform started less than a decade ago—have had the most ambitious reforms. Six East Asian economies make the top-30 list, more than any other region outside Europe.

The third reason is to measure reform impact. Politicians want to know the payoff from reform. Reforms in some

areas can affect specific outcomes: for example, the number of new business registrations in Serbia and Montenegro jumped 42% after the minimum capital requirement for company start-up was cut from \$5,000 to \$500, and the number of days to open a business from 53 to 13. With a single index, broader reforms covering different types of business regulation—for example the ones undertaken in Georgia or Vietnam last year—can be shown to reduce informality (figure 1) and corruption, and increase growth.

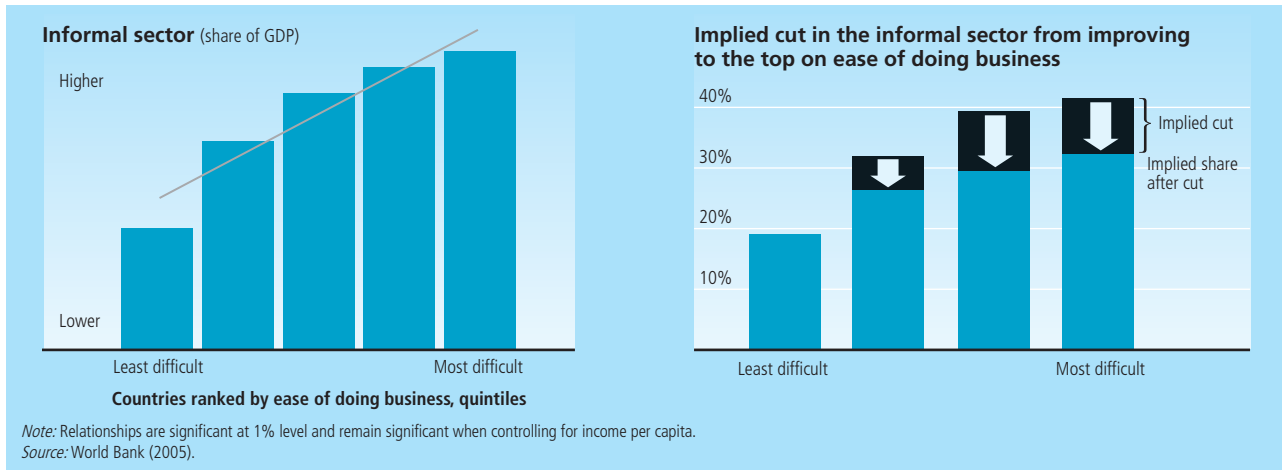
TABLE 1  
Top 30 economies on the ease of doing business

1	New Zealand	16	Estonia
2	Singapore	17	Switzerland
3	United States	18	Belgium
4	Canada	19	Germany
5	Norway	20	Thailand
6	Australia	21	Malaysia
7	Hong Kong, China	22	Puerto Rico
8	Denmark	23	Mauritius
9	United Kingdom	24	Netherlands
10	Japan	25	Chile
11	Ireland	26	Latvia
12	Iceland	27	Korea
13	Finland	28	South Africa
14	Sweden	29	Israel
15	Lithuania	30	Spain

*Note:* The rankings for all economies are benchmarked to January 2005. The ease of doing business averages country rankings across the 10 topics covered in *Doing Business in 2006*. This year's rankings are not comparable to last year's as three new sets of indicators—on dealing with licenses, paying taxes and trading across borders—have been included.

*Source:* World Bank (2005).

FIGURE 1  
**Greater ease of doing business is associated with less informality**



**Calculating the ease of doing business**

The ease of doing business index ranks economies from 1 to 155. The index is calculated as the ranking on the simple average of country percentile rankings on each of the 10 topics covered in *Doing Business in 2006*. The ranking on each topic is the simple average of the percentile rankings on its component indicators (table 2).

One example: The ranking on starting a business is the average of the country percentile rankings on the procedures, days, cost and paid-in minimum capital requirement to register a business. It takes 5 procedures, 5 days and 2.9% of annual income per capita in fees to open a business in Iceland. The minimum capital required amounts to 17% of income per capita. On these 4 indicators, Iceland ranks in the 7th, 1st, 8th and 48th percentiles. So on average, Iceland ranks in the 16th percentile on the ease of starting a business. It ranks in the

15th percentile on trading across borders, 8th percentile on enforcing contracts, 7th percentile on closing a business, 52nd percentile on protecting investors and so on. Higher ranks indicate simpler regulation and stronger protections of property rights. The simple average of Iceland’s percentile rankings across all topics is 22%. When all countries are ordered by their average percentile rank, Iceland is 12th (table 2).

The UNDP’s human development index uses the same method, by taking the average ranking on life expectancy, income per capita, and education. The latter is in turn calculated as the average rank in adult literacy and gross enrollment.<sup>2</sup>

Rankings based on simple averages abound in education, sports and service and product quality. The scholastic aptitude test (SAT) score for entry into US universities is the simple average of the mathematics and verbal sections. University attainment is measured by a grade point average (GPA), the average of all course grades. In gymnastics, the all-around championship is won by the athlete with highest average score in the beam, bars, floor and vault competitions. In track, the pentathlon champion has the highest average in the 100m hurdles, shot put, high jump, long jump, and 800m running. Finally, most restaurant guides rate on the basis of ambience, price, and food, all equally weighted.

**TABLE 2**  
**How is the ease of doing business calculated?**

Step 1 Calculate average percentile rankings		Step 2 Order all economies by average percentile ranking		
Indicator set	Example: Iceland’s percentile		Average percentile	Ease of doing business
Starting a business	16th	New Zealand	6th	1
Dealing with licenses	27th	Singapore	7th	2
Hiring and firing	27th	United States	12th	3
Registering property	11th	Canada	14th	4
Getting credit	12th	Norway	15th	5
Protecting investors	52nd	Australia	16th	6
Paying taxes	44th	Hong Kong (China)	16th	7
Trading	15th	Denmark	18th	8
Enforcing contracts	8th	United Kingdom	18th	9
Closing a business	7th	Japan	19th	10
<b>Average percentile (Iceland)</b>	<b>22nd</b>	<b>Iceland</b>	<b>22nd</b>	<b>12</b>

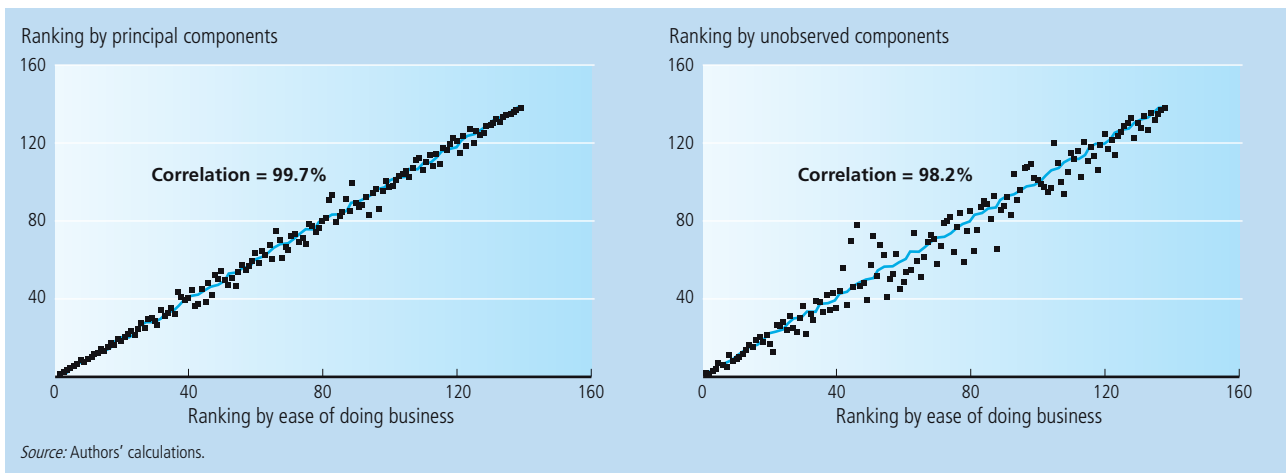
*Source: Authors’ calculations.*

**Which other aggregation methods could be used?**

Simple-average ranks are used when there is no information to judge which areas are more important than others, and by how much. For example, if the main objective of SAT scores were to indicate higher future salaries, they would give higher weight to mathematics. Alternatively, if the objective was to indicate successful future careers in politics, verbal skills would be more heavily weighted. But as the objective is to measure overall education, both are judged equally important.

Many times, however, there is additional information to

FIGURE 2

**More complex aggregation methods give similar results**

help the weighting. Two statistical methods—principal components and unobserved components—are often used; as are business opinions and analyses of economic outcomes. Each method is discussed in turn.

Using principal components analysis avoids double-counting. This method asks the question: which scores depend on the same underlying factor. For example, if a pentathlon athlete came in 1st in high and long jump, 2nd in 100m hurdles and shot put, and 9th in 800m running, the first score will carry less weight in the aggregate standing since both types of jumping depend on acceleration. The athlete is rewarded only once for her acceleration ability.

Unobserved components analysis weeds out outlier scores. Simply put, a researcher using this method asks the question: which scores do not fit the overall pattern. For example, the Robert Parker wine ratings are a weighted average of wine scores in four categories: color and appearance, aroma and bouquet, flavor and finish, overall quality and potential for further improvement. The fourth criterion varies the most across restaurants and hence carries less weight in the aggregate rating.

In calculating the ease of doing business, both principal components and unobserved components give ranks that are near-identical to the ranks produced by simple averaging (figure 2). The correlation coefficient between the simple rank and the principal-components rank is 99.7%, and between the simple rank and the unobserved-components rank—98.2%.<sup>3</sup> In other words, fancier statistical methods do not help. The reason may be that the 10 sets of *Doing Business* indicators cover sufficiently different regulatory topics—from entry to exit of firms—yet all of them capture the attitude of government towards business.

Another method for assigning weights on the *Doing Business* indicators is to use business opinion surveys. This

is analogous to the use of household consumption surveys in calculating inflation. In Tanzania, for example, household surveys in 20 major urban areas yield the weights on each basket of goods (table 3). About 4,000 households are surveyed, representing different urban locations and income groups.

Unfortunately, business surveys are still nascent and are not as representative as household surveys, which have evolved over a 30-year period. Witness the differences in opinions on the main constraints to business in two surveys done in Serbia in 2004 (figure 3). The question is identical: rank the main five constraints to doing business in your country. The first survey, conducted by the World Economic Forum (WEF), shows that 18% of businesses ranked policy uncertainty as most important. In the second survey, by the European Bank for Reconstruction and Development (EBRD), only 12% did. The EBRD survey ranked tax rates as the 2nd biggest constraint. In contrast, the WEF respondents did not consider tax rates to be a constraint. In short, the two opinion surveys differ in opinion.

TABLE 3

**Weighting the components of an aggregate index****Consumer price index, Tanzania**

Component	Weight
Food, beverages, tobacco	75.6
Clothing and footwear	3.7
Rents and utilities	8.6
Furnishings, equipment, maintenance	4.0
Health	2.2
Transport	1.2
Recreation and entertainment	1.2
Education	1.5
Miscellaneous goods	2.0

Source: Statistical Office of Tanzania.

FIGURE 3

**Two surveys, two opinions**

The best method for weighting uses analyses of economic outcomes. Reforms in the business environment are done in the belief that they would increase incomes, reduce informality and decrease unemployment. Regression analysis gives the relative importance of each set of *Doing Business* indicators to each of these outcomes (table 4). For example, the ease of trading seems most important for increasing incomes, followed by the ease of contract enforcement and closing a business. For reducing informality, the most important reforms are again in easing trading, while improving the tax regime and business licensing regime come next. Finally, unemployment is best reduced by introducing flexible labor regulation, making it easier for businesses to register property and pay taxes. Governments can tailor the aggregation of indicators to the economic outcomes they want to target.

Some indicators always receive higher (lower) weights. For example, the ease of enforcing contracts consistently has more-than-equal weight. Protecting investors is always the least important in explaining outcomes. These patterns may inform the aggregate ranking, no matter which economic outcome is targeted by politicians. This is equivalent to pricing car insurance, where actuaries calculate the probability of accidents to be higher when driving red convertibles, regardless of the driver's age.

TABLE 4

**How to weight? Economic analysis of outcomes**

	Value added per worker	Size of informal sector	Unemployment
Ease of starting a business	11.8	10.9	9.4
Ease of dealing with licenses	10.8	11.8	8.0
Ease of hiring and firing	5.9	7.1	17.9
Ease of registering property	10.9	10.6	13.7
Ease of getting credit	10.6	8.9	8.6
Ease of protecting investors	4.4	5.1	0.0
Ease of paying taxes	8.7	12.0	13.1
Ease of trading	13.5	12.1	6.2
Ease of enforcing contracts	12.2	11.8	13.0
Ease of closing a business	11.3	9.7	10.1

Note: Weights reported are the regression coefficients in regressions of value added per worker, the size of the informal sector and employment on the "ease of" indicators. Higher weights indicate that the "ease of" indicators exhibit a stronger relationship with value added, the size of the informal sector or unemployment respectively.

Source: Authors' analysis.

**Which method to use**

Use the method that gives the highest chance for reform. It should be simple—if two methods yield similar results, use the easier one. It should be informed—if the main concern is high unemployment, don't go about changing corporate governance rules or customs procedures (table 4 tells you these are the least important). And it should include all policy-driven factors that influence the outcome.

The *Doing Business* methodology does well on simplicity and it is easily-adjustable to relate to specific economic targets. But it still lacks in coverage of some important topics. Because of this, some country rankings appear surprising: for example having Iraq ahead of India. Business surveys frequently rank several other factors, for example corruption in business transactions, low quality of infrastructure, and absence of law and order, as important constraints. These topics will be added in the future.

1. For a description of the ranking, see p.92 in World Bank. 2005. *Doing Business in 2006: Creating Jobs*, Washington, D.C.
2. See UNDP (United Nations Development Programme). 2005. *Human Development Report 2005*. New York: Oxford University Press.
3. The top 20 economies on the ease of doing business remain the same, except that with unobserved components Germany moves to 21st.

The Doing Business Project investigates regulations that enhance business activity and those that constrain it. New quantitative indicators on business regulations and their enforcement can be compared across 155 countries—from Afghanistan to Zimbabwe—and over time. *Doing Business in 2004: Understanding Regulation* presented indicators in 5 topics: starting a business, hiring and firing workers, enforcing contracts, getting credit and closing a business. *Doing Business in 2005: Removing Obstacles to Growth* updated these measures and added another two sets: registering property and protecting investors. *Doing Business in 2006* again updates all previous measures and adds three more sets: dealing with licenses, paying taxes and trading across borders, to create a total of 10 areas measured. The indicators are used to analyze economic outcomes and identify what reforms have worked, where, and why.

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