

# Be careful when Doing Business \*

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## 1 Introduction

The World Bank report *Doing Business* is receiving a lot of attention from policy-makers around the world. Recently, the director-general of the Malaysian Industrial Development Authority was quoted saying that “Malaysia aims to move from the 24<sup>th</sup> to a top 10 position in the World Bank’s ‘Doing Business’ ranking list. We continue to ask ourselves what it will take to reach the top 10, and are we willing to do what it takes to get there.” (Asia in Focus, Jan. 8 2007). Similarly, Macedonia placed a one-page advert in the Economist’s annual forecasting report “The World in 2008”, where the key message was that Macedonia had improved their position in the World Bank’s *Doing Business* annual publication.

*Doing Business* evaluates countries’ business environment, and rank countries according to their score on an index measuring the overall soundness of the business environment. As the quotes above show, policy-makers have started not only to pay attention to this report, but even to design policies aimed at doing better on the Doing Business ranking.

While it may be straight-forward to design a policy to move up on the ranking, it is not clear that policy-initiatives that makes a country move up on the index make a real-life difference to the underlying business environment of a country.

We warn against designing policies for the purpose of improving their relative position on the ranking, as there are reasons for questioning the relationship between the ranking in the *Doing Business* report and the underlying factor, the business environment. Instead, policy-makers wishing to improve the business climate in their country should focus on those features that make the largest real difference to companies considering opening or expanding their business operations in the country. It is important to keep in mind the reasons for starting a business may have as much to do with other factors than the business environment, for example closeness to key input factors, e.g. raw materials, or to markets.

The way *Doing Business* evaluates the business environment is to pick indicators that may be considered as signals of the underlying, but non-observable, conditions for doing business. In this report we do not investigate whether *Doing Business* has chosen the best way to specify these signals. We treat the set of possible signals as given, and investigate how the index best can utilize this information to differentiate countries in a meaningful way. It should be noted, however, that there may be reasons to question the set of signals and their more detailed specifications.

Several commentators have for instance questioned whether the “employing workers indicator”, in its present format, is capturing the employment climate best suited for doing business. The indicator treats labor just as any other input, implying that extra (non-wage labor) costs and (employment) rigidities are always bad for doing business. This view may be appropriate in some cases, but certainly not in all. Some of the most efficient labor markets are in fact in some way or the other regulated or influenced by organized interests, such as unions and employers associations. The employing workers indicator might still focus only on the costs of

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such impacts and regulations, even in cases where they were designed solely in accordance with business interests.

The relationship between pay and performance is an obvious example of this. Higher wages and non-wage employment costs may promote greater employee effort and a stronger employee commitment to the business enterprise. This may raise profits directly, and in turn reduce labor turnover, which increase profits further by saving on other costs related to training and social conditions in the workplace. All in all overall efficiency may go up. Similarly, protecting employees against overwork and child labor may increase social stability and thus long run business efficiency and work performance.

There may also be an element of mutual gift exchange between fair treatment and good performance that is beneficial to doing business. In addition, several regulations and standardizations of wages induce a more stable workforce that may increase the efficiency in the use of other factors of production, such as physical and human capital. It may increase the incentives for training and education, which in turn lead to a better utilization of the existing business opportunities.

Doing business with extraordinary high profits is not necessarily the same as doing business efficiently. Some employment regulations are for instance meant to reduce firms' local monopsony power. Policies that raise the power of local workers may show up in higher wage costs in the short run, while they raise overall long run performance by reducing the underutilization of the local workforce that monopsony power entails.

We discuss the selection of indicators in section 2<sup>1</sup>. But both for the employing workers indicator and others we do not try to redefine the indicators. As the different indexes use different numbers of indicators, it is not clear why all indexes should be treated as equally important for identifying viable business climates. The reason is twofold. First, some indicators offer far more nuanced information than others. Second, some indicators measure aspects that are far more important to business than others. The method applied in *Doing Business* is very simple. This has some very real benefits. It is accessible to policy-makers. Both friends and foes of the index can make up an informed opinion about the results. While we may accept the claim by the authors of *Doing Business* that *some* more fancy, albeit standard statistical scaling method do not change the results, the second section show that *if* the uncertainty in the data is taken into account, it becomes difficult to tell most countries apart on the aggregated ranking. A move of 20 or 30 places on the ranking may not reflect any real-life improvement of the underlying business-environment of the country, it may simply be due to random noise. As the "employing workers" sub-index has been criticized by ILO and some NGOs, we report the effect of excluding this sub-index in 2.2.

In section 3 the economies are ranked using a statistical method that allows for the uncertainty in the data to be accounted for. We model the uncertainty by treating each of the indicators as an unbiased but noisy signal of the underlying business environment. By exploiting the variation in the different indicators, we are able to extract an estimate of this environment. However, as the indicators contain different amounts of noise, and since we have a finite number of indicators, the underlying business environment will be estimated with some uncertainty. The main advantage of this approach is that it allows us to evaluate to what extent countries placed at different positions on the ranking, really can be said to offer businesses different conditions. We then perform this ranking for the indicators used to rank economies in *Doing Business*. The analysis is then repeated with the employing workers indicators excluded. Finally, all indicators from the country tables are used to estimate a third ranking.

We evaluate which of the indicators that influence the ranking the most in section 4. This is done for the indicators used to create the ranking in *Doing Business* as well as for all indicators.

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<sup>1</sup>We thank the World Bank team for giving access to their data and calculations. This made it straightforward to reproduce the results and get a full overview of the coding decisions involved in this process, including which indicators are included or excluded.

The results show that some of the indicators excluded from the ranking in *Doing Business* are in fact useful when it comes to distinguishing the economies, which perhaps is the main purpose of the report.

In section 5 we compare the business environment for economies at different levels of development. We limit the discussion to three relatively coherent groups of countries, the OECD countries, countries in Latin America and Caribbean and the countries in Sub-Saharan Africa. The results show that the included indicators does a much better job at distinguishing among OECD and Sub-Saharan African countries than among countries in Latin America and the Caribbean.

Finally, we summarize the key concerns regarding the use of *Doing Business* as a policy tool in section 6. First, many of the indicators presented in the main text and in the country tables do not form the basis for neither the sub-rankings nor the overall rankings. Furthermore, the coding decisions involved in the creation of the rankings would have benefited from being more clearly spelled out so that independent replications could be facilitated. Second, the rankings hide the weak discriminating powers of the indicators. If we accept that the indicators collected by the *Doing Business* team do capture the underlying business environment, the indicators fail to conclusively distinguish between a very large proportion of the economies. This renders the firm conclusions presented in *Doing Business* regarding how particular economies are improving vis-a-vis other economies questionable. Using our method the underlying data is simply not able to clearly distinguish the quality of the business environment of an economy ranked at number 75 from one ranked at number 40 with any reasonable degree of certainty. Third, the effect of the employing workers index on the overall ranking is marginal. Fourth, the set of indicators collected is much more suited to distinguish between some sub-sets of economies than others.

## 2 Selecting the indicators

While the main body of the text and the country tables in *Doing Business* presents a wide range of indicators across ten different areas, the final ranking does not exploit the information contained in all these indicators. Unfortunately, it is not always clear from the report which indicators are included in the final ranking, and what criteria are used for including or excluding an indicator in the calculation of the ranking. One reason may be that data for some of the indicators are only available for 2007. As we will argue below, however, more indicators would give more reliable estimates.

It may be misleading that *Doing Business* gives the impression that a wide range of indicators are used to generate each particular sub-indicator, when in fact the rankings sometimes include only one, often fairly crude, measure. Consider, for example, the sub-index measuring the ease of closing of a business. Both the publicly available dataset, and the country tables in *Doing Business*, report three indicators; time, cost, and recovery rate. However, the rankings, both the sub-index and the overall ranking, are not based on these three indicators. They are based solely on the recovery rate. This information is presented in the data notes only. As the section *closing a business* also includes discussions of both time and costs in addition to the recovery rate, a reader not paying attention to the data notes may believe that the sub-index is made on the basis of all three of these indicators. This may lead some policy-makers to reach the wrong conclusions. We would hence recommend that the World Bank team made it clear, in the main text and in the country tables which indicators that formed the basis for the rankings, and the reasons for including or excluding the indicators in the rankings. This brings us to an related issue, the variation in the number of indicators.

## 2.1 Variation in the number of indicators

The number of indicators included in each of the ten indexes varies from one (for credit, investments, and closing a business) to six (for trading). Most indexes (taxes, register, license, and enforcing contracts) have three indicators, while both starting a business and employing workers have four indicators. Under the condition that the indicators under each of the indexes measure the same underlying concept, it is the case that the precision increases with the number of indicators. One would thus expect that an index with many indicators is capable of measuring the underlying concept better than an index with few indicators. By calculating the percentile in each of the indexes and then averaging them, *Doing Business* treats all indexes as equally informative *as well as* equally important as measures of a good business environment. In this report we will take the assumption that the indicators measure one underlying dimension, the “true” business environment, as given. Our method, however, unlike the method used in *Doing Business*, estimates the influence of the different indicators, rather than assuming that the indicators used in each of the ten sub-indexes together are responsible for 10% of the overall business environment.

## 2.2 Effect of selecting only a subset of the indicators

Now, compare the overall ranking produced in *Doing Business* with the ranking it would have produced if one of the sub-indexes, for example employing workers, were excluded. It is of substantial interest to see the effect of not including this set of indicators, as it has been accused being ideologically biased. We see that Norway would have ranked as number 7 rather than number 11 if the employing workers index was excluded. A western European country that benefits from the inclusion of the employing workers index is Switzerland. It would have fallen from number 16 to number 20 if the employing workers index was excluded. However, the economies that benefit the most from the inclusion of the employing workers index are countries like Afghanistan (+11), Haiti (+15), Bhutan (+12), Uganda (+14), Micronesia (+16), Nigeria (+14), Marshall Islands (+21), Palau (+24), Brunei (+23), Kiribati (+16), Samoa (+11), Maldives (+19), Tonga (+12) and Fiji (+12). Including the employing workers index moves Georgia from number 28 to number 18. The main losers from the inclusion of the employing workers index are Equatorial Guinea (-12), Sao Tome and Principe (-15), Sierra Leone (-11), Ecuador (-15), Indonesia (-11), Nepal (-12), Paraguay (-23), Croatia (-14), Ghana (-22), Serbia (-12), Montenegro (-11), Pakistan (-14), Macedonia, FYR (-12), Panama (-12), Peru (-11), and Slovenia (-12).

As stated there may be reasons to question whether the employing workers indicator in its present format is capturing the employment climate best suited for doing business. Our main point, however, is not this, but the finding that excluding the indicator does not change much the *Doing Business* Index, in contrast to what some commentators may believe.

## 3 Uncertainty in the measurement

Most data, both surveys and government statistics contain some measurement error. Here we take the view that all the indicators are measured perfectly, but that they provide a noisy signal about the underlying “true” business environment. The statistical technique we are using extract this signal by estimating the optimal weighting scheme of the indicators. We hence take the *Doing Business* assumption that the business environment in a country can be characterized by one number as given, and ask how we can utilize the information contained in the data set to extract this number in an optimal way. Since we are dealing with noisy signals, any analysis based on such data should take this uncertainty into account when concluding from the data. It is important that the reader is made aware of this uncertainty, to be able to make an informed

decision. Here we use a standard statistical approach for accounting for uncertainty.<sup>2</sup> In this section, we first replicate the result from *Doing Business* while accounting for the inherent uncertainty in the data.

### 3.1 The uncertainty of the estimates

Figure 1 plots the economies as ranked by our method. Remember, we use the same data and the same set of indicators as *Doing Business*. There are several aspects worth commenting. First, the information used in *Doing Business* do not distinguish well between the economies that are not placed near the end-points of the scale. While it clearly distinguishes the best economies from the worst, it does not do a particular good job in distinguishing between the economies that are somewhat in between. So, while the mean rankings are similar to the results presented in *Doing Business*, our estimates suggest that there are considerable uncertainty around these estimates. One should hence be careful when inferring from the mean ranking (or the ranking in *Doing Business*) to the underlying business environment. Four groups seem to be present in the figure. 1) An handful of countries that are clearly much worse for business than all other countries. 2) A group of about 25 economies that do better then the worst off group, but worse than most countries. 3) A large group of more than 100 countries, amongst which it is almost impossible to distinguish. 4) A small group of countries that clearly provides a better business environment than most economies in the third group.

### 3.2 Employing workers

Figure 2 shows the ranking of the economies when the indicators from the “employing workers” sub-index are removed. The main message from this plot is that not much is lost by removing these indicators. The ranking is not clearly influenced by this sub-index. Several Western European countries, however, move up on the ranking. While some countries in the middle of the ranking jump or fall many places when these indicators are excluded, the differences between these countries and the countries they surpass or are overtaken by, are minor in the estimated business environment.

### 3.3 Using all of of the information

Figure 3 uses all information provided by *Doing Business* to produce the same summarizing plot. The difference between the least favorable business climates is smaller when all available information is used. However, we are better able to distinguish among the most favorable economies when using all information. The figure does provide a more gradual change in the estimated business climate than the previous figure. when using all information, it is easier to see that there is a group of some 30-40 economies that are struggling at the lower end of the scale and a group of about 25-30 countries that seem to provide a more friendly business environment than the large majority of economies.

## 4 What matters for our ranking?

This section investigates which of the indicators that matter the most in determining the rank of the economies, i.e. the positions in Figures 1-3. We simply investigate which of the indicators distinguish best between the economies. The implicit assumption in *Doing Business* is that all of the ten aspects are equally important. Our approach allow us to evaluate which indicators that matter for differentiating between the countries.

This ranking is *not* over which aspects are the most important for doing business. It is over which aspects that matter for distinguishing between the countries. Figure 4 shows to what

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<sup>2</sup>We account for the uncertainty using Bayesian methods.

## Original data

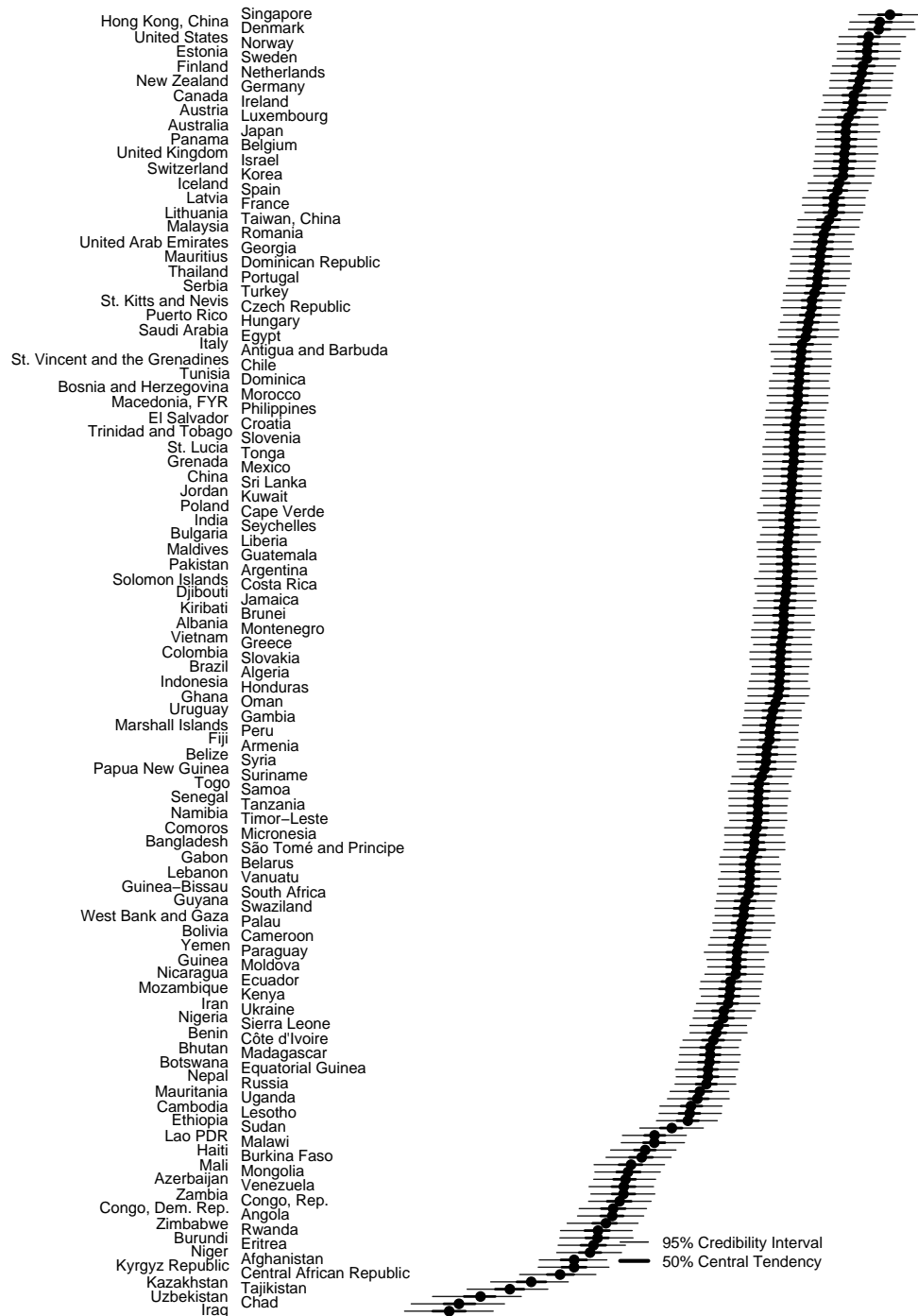


Figure 1: The figure shows the ranking of the economies. The black circle indicates the median value, the thick line gives the central tendency of their location, the thin line covers the 95 percent confidence interval.

## Without EWI

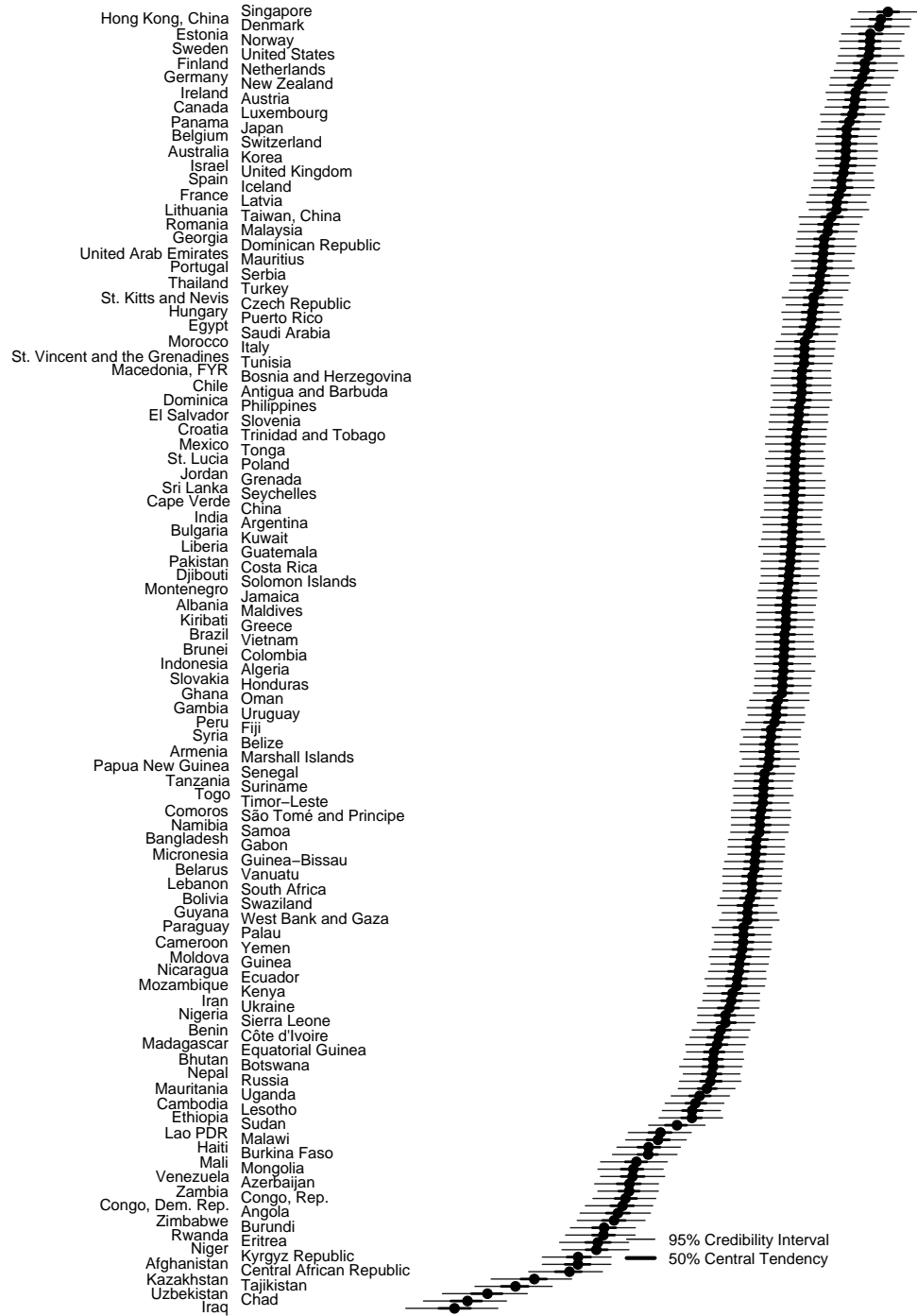


Figure 2: The figure shows the ranking of the economies. The black circle indicates the median value, the thick line gives the central tendency of their location, the thin line covers the 95 percent confidence interval.

### All available data

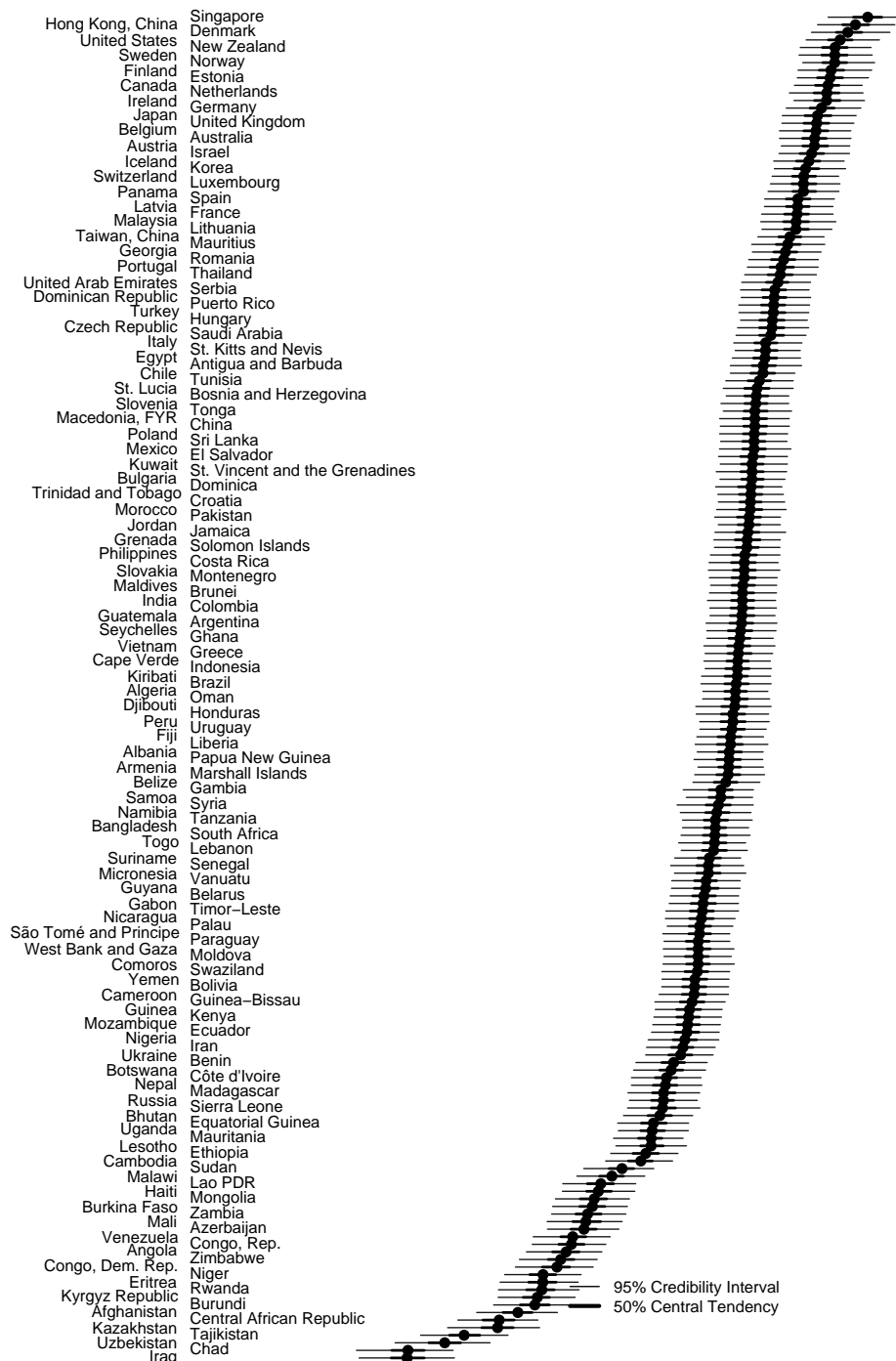


Figure 3: The figure shows the ranking of the economies. The black circle indicates the median value, the thick line gives the central tendency of their location, the thin line covers the 95 percent confidence interval.



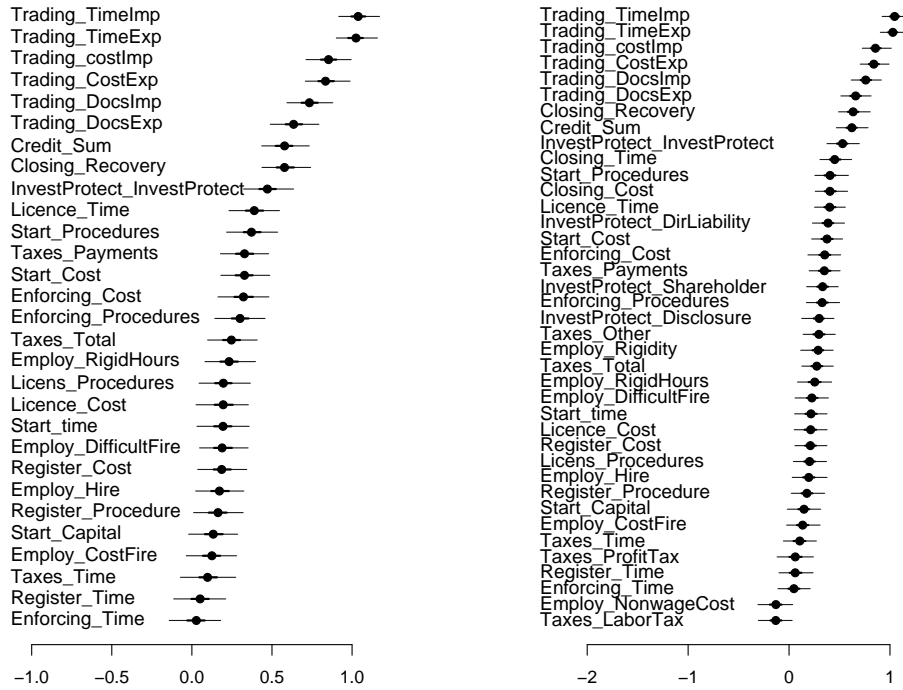


Figure 4: The figure shows which indicators that matter for the ranking of an economy, only *Doing Business* indicators.

extent the indicators matter for the positions of the economies. We see that indicators related to trading, access to credit and investor protection when closing down a business matter the most for how countries are ranked. Indicators from the other groups of indicators matter less. In fact, neither non-wage cost of employment nor labor tax seem to matter at all for how an economy is performing on our ranking. This indicates that there are several relevant dimensions to the business environment. But as *Doing Business* restricts attention to only one dimension, we do the same. As we believe that one of the main points of the report is to distinguish the business environments, it would be useful if the indicators were able to distinguish between economies along the whole scale of the underlying business environment.

## 5 Rankings within groups

In this section we focus on three subsets of countries, those in the OECD, in Latin-America, and in Sub-Saharan Africa. This allows us to evaluate to what extent the indicators differentiate between relatively “similar” countries. In other words, can the indicators help businesses make informed decisions about which countries to choose from a relatively similar group of countries. We start by investigating the OECD countries in figure 5. The figure shows that Greece, Italy, the Czech Republic, Spain and Portugal clearly provide a worse business environment than the other OECD countries, assuming that the underlying data is able to capture this. There is hardly any difference in the business environment in Denmark, Canada, the US, Ireland, and Australia. The business environment is quite similar in the large majority of OECD countries. The data are not conclusive on whether it is better conditions for business in the UK than in Germany. Figure 6 compares the Latin American countries. With a few minor exceptions, there is hardly any differences between the economies. While it is clear that Haiti and Venezuela offer a less friendly business environment than all other economies in the region, the data do not help use to distinguish the business environment in Guatemala from that in Mexico.

In figure 7, we focus on countries in Sub-Saharan Africa. We see that the the data do a

## OECD

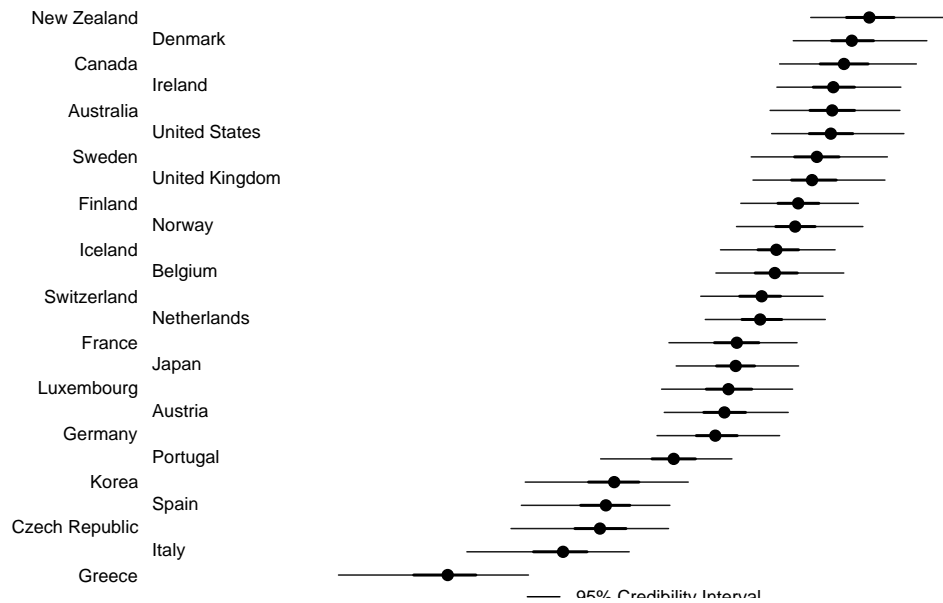


Figure 5: The figure shows the ranking of the economies, when only using OECD data. The black circle indicates the median value, the thick line gives the central tendency of their location, the thin line covers the 95 percent confidence interval.

## Latin America & Caribbean

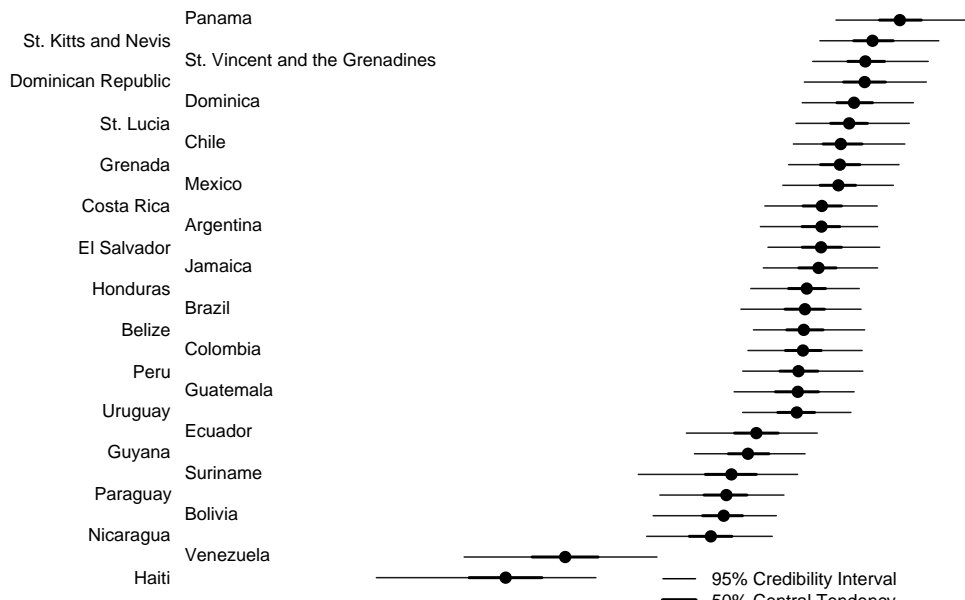


Figure 6: The figure shows the ranking of the economies when the model is estimated using only Latin America and the Caribbean. The black circle indicates the median value, the thick line gives the central tendency of their location, while the thin line cover the ranks that the economy had more than 5% of being located between.

very good job in identifying differences in the business environment. We see that Chad and the Central African Republic offer a rather unfriendly business environment compared to all other countries in the region. Mauritius and Liberia offer the best business environments in Sub-Saharan Africa. We also see that the index is able to distinguish between two relatively large groups of countries within this region. All in all, the underlying data collected by the *Doing Business* team are not equally good at discriminating between countries in different regions. The data do a better job in Sub-Saharan Africa than in the OECD area, and the worst job in Latin America.

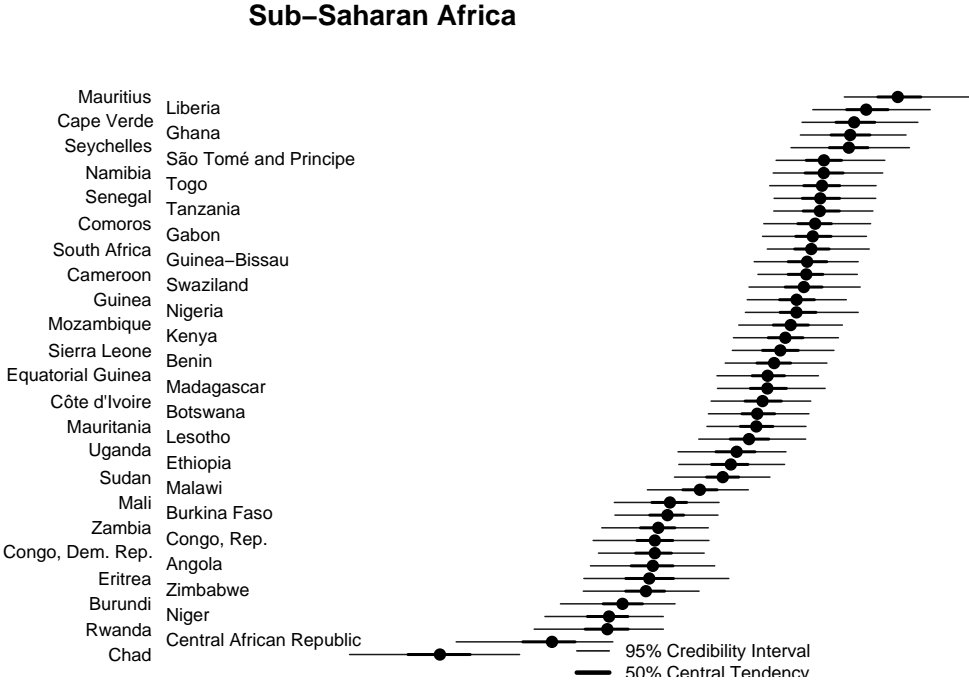


Figure 7: The figure shows the ranking of the economies when the model is estimated using only countries in the Sub-Saharan Africa. The black circle indicates the median value, the thick line gives the central tendency of their location, the thin line covers the 95 percent confidence interval.

## 6 Summary and Conclusion

Our report evaluates the methodology behind *Doing Business*. It pays particular attention to two aspects:

- the uncertainty in the ability of the indicators to capture the underlying business climate, and
- the effect of the controversial “employing workers” sub-index on the overall ranking.

By not taking uncertainty into account, we show that the rankings hide the weak discriminating powers of the indicators. If we accept that the indicators collected by the *Doing Business* team do capture the underlying business environment, the indicators fail to distinguish between a large proportion of the economies. We also find that the effect of excluding the employing workers index is marginal. Furthermore, we show that:

- several of the indicators presented in *Doing Business* are not used for rankings, and that
- coding-decisions taken before calculating the rankings are not transparent.

Several of the indicators presented and elaborated on in the main text and in the country tables of *Doing Business*, neither form the basis for the sub-rankings nor the overall rankings they present. In addition, the coding decisions involved in the creation of the rankings would have benefited from being more clearly spelled out so that independent replication of the results could more easily be done. For example, firing costs (weeks of wages), a sub-indicator in the employing workers category, are truncated at 8 weeks, but there is no reference to this in the report.

The main message is that many countries may find it easier to change their ranking in *Doing Business* than changing the underlying business environment. However, as the underlying data distinguish rather poorly between a very large group of the economies, government and other policy makers should refrain from letting themselves be seduced by their numerical ranking.

We recommend that the World Bank

- make it clear, in the main text and in the country tables, which indicators that form the basis for the rankings, and the reasons for including or excluding indicators in the rankings,
- make the coding choices more transparent, by referring the alterations made to indicators before using them in the final ranking in the main text,
- consider including the results of a standard factor analysis in the report, as the way the index is built up is perfectly suited for this kind of analysis.

On the basis of our factor analysis, we find that

- it is very hard to distinguish a large group of countries, when taking estimation uncertainty into account,
- it seems that indicators related to trade and credit are really important for distinguishing the economies, while some of the other indicators have no power.

One might ask:

- is it possible to reform some of the indicators to better distinguish countries?

## A Effect of removing “employing workers” from the ranking

|    | Economy                        | RANK | Excluding Workers | Difference |
|----|--------------------------------|------|-------------------|------------|
| 1  | Singapore                      | 1    | 1                 | 0          |
| 2  | New Zealand                    | 2    | 2                 | 0          |
| 3  | United States                  | 3    | 4                 | 1          |
| 4  | Hong Kong, China               | 4    | 3                 | -1         |
| 5  | Denmark                        | 5    | 6                 | 1          |
| 6  | United Kingdom                 | 6    | 5                 | -1         |
| 7  | Canada                         | 7    | 9                 | 2          |
| 8  | Ireland                        | 8    | 8                 | 0          |
| 9  | Australia                      | 9    | 11                | 2          |
| 10 | Iceland                        | 10   | 10                | 0          |
| 11 | Norway                         | 11   | 7                 | -4         |
| 12 | Japan                          | 12   | 14                | 2          |
| 13 | Finland                        | 13   | 12                | -1         |
| 14 | Sweden                         | 14   | 13                | -1         |
| 15 | Thailand                       | 15   | 17                | 2          |
| 16 | Switzerland                    | 16   | 20                | 4          |
| 17 | Estonia                        | 17   | 15                | -2         |
| 18 | Georgia                        | 18   | 28                | 10         |
| 19 | Belgium                        | 19   | 22                | 3          |
| 20 | Germany                        | 20   | 16                | -4         |
| 21 | Netherlands                    | 21   | 18                | -3         |
| 22 | Latvia                         | 22   | 19                | -3         |
| 23 | Malaysia                       | 23   | 25                | 2          |
| 24 | Saudi Arabia                   | 24   | 27                | 3          |
| 25 | Austria                        | 25   | 24                | -1         |
| 26 | Lithuania                      | 26   | 21                | -5         |
| 27 | Mauritius                      | 27   | 30                | 3          |
| 28 | Puerto Rico                    | 28   | 31                | 3          |
| 29 | Israel                         | 29   | 29                | 0          |
| 30 | Korea                          | 30   | 23                | -7         |
| 31 | France                         | 31   | 26                | -5         |
| 32 | Slovakia                       | 32   | 32                | 0          |
| 33 | Chile                          | 33   | 34                | 1          |
| 34 | St. Lucia                      | 34   | 39                | 5          |
| 35 | South Africa                   | 35   | 37                | 2          |
| 36 | Fiji                           | 36   | 48                | 12         |
| 37 | Portugal                       | 37   | 33                | -4         |
| 38 | Spain                          | 38   | 35                | -3         |
| 39 | Armenia                        | 39   | 42                | 3          |
| 40 | Kuwait                         | 40   | 45                | 5          |
| 41 | Antigua and Barbuda            | 41   | 46                | 5          |
| 42 | Luxembourg                     | 42   | 36                | -6         |
| 43 | Namibia                        | 43   | 50                | 7          |
| 44 | Mexico                         | 44   | 38                | -6         |
| 45 | Bulgaria                       | 45   | 49                | 4          |
| 46 | Hungary                        | 46   | 44                | -2         |
| 47 | Tonga                          | 47   | 59                | 12         |
| 48 | Romania                        | 48   | 40                | -8         |
| 49 | Oman                           | 49   | 56                | 7          |
| 50 | Taiwan, China                  | 50   | 41                | -9         |
| 51 | Botswana                       | 51   | 52                | 1          |
| 52 | Mongolia                       | 52   | 54                | 2          |
| 53 | Italy                          | 53   | 55                | 2          |
| 54 | St. Vincent and the Grenadines | 54   | 57                | 3          |
| 55 | Slovenia                       | 55   | 43                | -12        |
| 56 | Czech Republic                 | 56   | 58                | 2          |
| 57 | Turkey                         | 57   | 51                | -6         |
| 58 | Peru                           | 58   | 47                | -11        |
| 59 | Maldives                       | 59   | 78                | 19         |
| 60 | Belize                         | 60   | 64                | 4          |
| 61 | Samoa                          | 61   | 72                | 11         |
| 62 | Vanuatu                        | 62   | 60                | -2         |
| 63 | Jamaica                        | 63   | 67                | 4          |
| 64 | St. Kitts and Nevis            | 64   | 73                | 9          |
| 65 | Panama                         | 65   | 53                | -12        |
| 66 | Colombia                       | 66   | 61                | -5         |
| 67 | Trinidad and Tobago            | 67   | 76                | 9          |
| 68 | United Arab Emirates           | 68   | 68                | 0          |
| 69 | El Salvador                    | 69   | 66                | -3         |
| 70 | Grenada                        | 70   | 75                | 5          |
| 71 | Kazakhstan                     | 71   | 87                | 16         |
| 72 | Kenya                          | 72   | 71                | -1         |
| 73 | Kiribati                       | 73   | 89                | 16         |
| 74 | Poland                         | 74   | 69                | -5         |
| 75 | Macedonia, FYR                 | 75   | 63                | -12        |
| 76 | Pakistan                       | 76   | 62                | -14        |
| 77 | Dominica                       | 77   | 81                | 4          |
| 78 | Brunei                         | 78   | 101               | 23         |
| 79 | Solomon Islands                | 79   | 85                | 6          |
| 80 | Jordan                         | 80   | 86                | 6          |
| 81 | Montenegro                     | 81   | 70                | -11        |
| 82 | Palau                          | 82   | 106               | 24         |
| 83 | China                          | 83   | 78                | -5         |
| 84 | Papua New Guinea               | 84   | 94                | 10         |
| 85 | Lebanon                        | 85   | 90                | 5          |
| 86 | Serbia                         | 86   | 74                | -12        |
| 87 | Ghana                          | 87   | 65                | -22        |
| 88 | Tunisia                        | 88   | 79                | -9         |
| 89 | Marshall Islands               | 89   | 110               | 21         |
| 90 | Seychelles                     | 90   | 82                | -8         |
| 91 | Vietnam                        | 91   | 88                | -3         |
| 92 | Moldova                        | 92   | 84                | -8         |
| 93 | Nicaragua                      | 93   | 92                | -1         |
| 94 | Kyrgyz Republic                | 94   | 93                | -1         |

|     | Economy                  | RANK | Excluding Workers | Difference |
|-----|--------------------------|------|-------------------|------------|
| 95  | Swaziland                | 95   | 103               | 8          |
| 96  | Azerbaijan               | 96   | 97                | 1          |
| 97  | Croatia                  | 97   | 83                | -14        |
| 98  | Uruguay                  | 98   | 98                | 0          |
| 99  | Dominican Republic       | 99   | 95                | -4         |
| 100 | Greece                   | 100  | 91                | -9         |
| 101 | Sri Lanka                | 101  | 96                | -5         |
| 102 | Ethiopia                 | 102  | 105               | 3          |
| 103 | Paraguay                 | 103  | 80                | -23        |
| 104 | Guyana                   | 104  | 108               | 4          |
| 105 | Bosnia and Herzegovina   | 105  | 102               | -3         |
| 106 | Russia                   | 106  | 107               | 1          |
| 107 | Bangladesh               | 107  | 104               | -3         |
| 108 | Nigeria                  | 108  | 122               | 14         |
| 109 | Argentina                | 109  | 100               | -9         |
| 110 | Belarus                  | 110  | 119               | 9          |
| 111 | Nepal                    | 111  | 99                | -12        |
| 112 | Micronesia               | 112  | 128               | 16         |
| 113 | Yemen                    | 113  | 116               | 3          |
| 114 | Guatemala                | 114  | 111               | -3         |
| 115 | Costa Rica               | 115  | 115               | 0          |
| 116 | Zambia                   | 116  | 109               | -7         |
| 117 | West Bank and Gaza       | 117  | 114               | -3         |
| 118 | Uganda                   | 118  | 132               | 14         |
| 119 | Bhutan                   | 119  | 131               | 12         |
| 120 | India                    | 120  | 121               | 1          |
| 121 | Honduras                 | 121  | 117               | -4         |
| 122 | Brazil                   | 122  | 118               | -4         |
| 123 | Indonesia                | 123  | 112               | -11        |
| 124 | Lesotho                  | 124  | 127               | 3          |
| 125 | Algeria                  | 125  | 123               | -2         |
| 126 | Egypt                    | 126  | 124               | -2         |
| 127 | Malawi                   | 127  | 126               | -1         |
| 128 | Ecuador                  | 128  | 113               | -15        |
| 129 | Morocco                  | 129  | 120               | -9         |
| 130 | Tanzania                 | 130  | 125               | -5         |
| 131 | Gambia                   | 131  | 137               | 6          |
| 132 | Cape Verde               | 132  | 130               | -2         |
| 133 | Philippines              | 133  | 134               | 1          |
| 134 | Mozambique               | 134  | 129               | -5         |
| 135 | Iran                     | 135  | 133               | -2         |
| 136 | Albania                  | 136  | 136               | 0          |
| 137 | Syria                    | 137  | 138               | 1          |
| 138 | Uzbekistan               | 138  | 143               | 5          |
| 139 | Ukraine                  | 139  | 144               | 5          |
| 140 | Bolivia                  | 140  | 135               | -5         |
| 141 | Iraq                     | 141  | 147               | 6          |
| 142 | Suriname                 | 142  | 152               | 10         |
| 143 | Sudan                    | 143  | 140               | -3         |
| 144 | Gabon                    | 144  | 139               | -5         |
| 145 | Cambodia                 | 145  | 145               | 0          |
| 146 | Djibouti                 | 146  | 146               | 0          |
| 147 | Comoros                  | 147  | 141               | -6         |
| 148 | Haiti                    | 148  | 163               | 15         |
| 149 | Madagascar               | 149  | 142               | -7         |
| 150 | Rwanda                   | 150  | 150               | 0          |
| 151 | Benin                    | 151  | 151               | 0          |
| 152 | Zimbabwe                 | 152  | 155               | 3          |
| 153 | Tajikistan               | 153  | 154               | 1          |
| 154 | Cameroon                 | 154  | 159               | 5          |
| 155 | Côte d'Ivoire            | 155  | 162               | 7          |
| 156 | Mauritania               | 156  | 161               | 5          |
| 157 | Mali                     | 157  | 165               | 8          |
| 158 | Afghanistan              | 158  | 169               | 11         |
| 159 | Togo                     | 159  | 157               | -2         |
| 160 | Sierra Leone             | 160  | 149               | -11        |
| 161 | Senegal                  | 161  | 156               | -5         |
| 162 | Burkina Faso             | 162  | 158               | -4         |
| 163 | São Tomé and Príncipe    | 163  | 148               | -15        |
| 164 | Lao PDR                  | 164  | 167               | 3          |
| 165 | Equatorial Guinea        | 165  | 153               | -12        |
| 166 | Guinea                   | 166  | 168               | 2          |
| 167 | Angola                   | 167  | 160               | -7         |
| 168 | Timor-Leste              | 168  | 171               | 3          |
| 169 | Niger                    | 169  | 166               | -3         |
| 170 | Liberia                  | 170  | 172               | 2          |
| 171 | Eritrea                  | 171  | 175               | 4          |
| 172 | Venezuela                | 172  | 164               | -8         |
| 173 | Chad                     | 173  | 174               | 1          |
| 174 | Burundi                  | 174  | 177               | 3          |
| 175 | Congo, Rep.              | 175  | 173               | -2         |
| 176 | Guinea-Bissau            | 176  | 170               | -6         |
| 177 | Central African Republic | 177  | 176               | -1         |
| 178 | Congo, Dem. Rep.         | 178  | 178               | 0          |

Table 1: The effect of excluding the Employing Workers Index on the overall ranking of economies.