

# Appendixes

---



Village shop at dusk, lit by solar panels, Sri Lanka. Photo courtesy of Dominic Sansoni/World Bank.

This evaluation covers the period from the first DB report published in 2004 to the report published in September 2007. Data analysis is based on a download of the full data set from the DB Web site in August 2007 and, where noted, as subsequently revised in October 2007. Where appropriate, updating references are made to the 2008 report. In all, the evaluation interviewed 167 individuals: 72 Bank Group staff, 40 DB informants, 22 government officials, and 33 other stakeholders, including representatives from the private sector, international donor agencies, and academia.

The evaluation used the following methods to gather evidence:

### 1. Analysis of DB Ratings and Underlying Raw Data

(a) *Range, means, and distribution of subindicators and indicators and simulation of reforms:* The evaluation calculated the range, means, frequency distribution, and other characteristics of DB data. The pair-wise correlations among indicators and subindicators were calculated. A simulation was conducted of how rankings would vary for a given change in the underlying indicator (see appendix B for details).

(b) *Revisions in prior data:* The DB team periodically revises data for prior years. The evaluation assessed the revisions made to the data published in the DB 2007 report as part of the process of the DB 2008 report. It assessed the volume and reasons for the changes and their impact on the indicators and overall EODB ranking, as well as on the identification of reformer countries. This analysis is reflected in appendix C.

(c) *Patterns by legal system:* The evaluation analyzed patterns in the values of the subindicators for countries with particular legal systems according to legal origin. The results of this analysis are presented in appendix D.

### 2. Country Case Studies

Thirteen country case studies were used as the basis for detailed quantitative analysis and to obtain qualitative information from interviews with Bank and IFC staff, private sector representatives, government officials, and donors (see table A.1). Seven of the countries were randomly selected from the total 175 countries covered in *Doing Business 2007*. An additional 6 were randomly selected from the subset of 19 countries that DB identified as “top reformers” in the 2006 and 2007 reports.<sup>1</sup>

For all the case studies, evaluators interviewed key Bank and IFC staff and stakeholders in person, by telephone, and/or by e-mail, using uniform interview protocols developed by the evaluation team (see appendix E for a sample of the interview protocols). Telephone calls were used as appropri-

**Table A.1: Case Study Countries**

Country case studies	Top reformer case studies
Albania	China
Algeria	Netherlands
Burundi	Peru
Moldova	Rwanda
Mongolia	Tanzania
Nigeria	Vietnam
Spain	

ate to clarify and supplement information received by e-mail. In addition, the evaluation visited Moldova and conducted 12 face-to-face interviews with governmental and nongovernmental stakeholders. The mission observed the DB team's videoconference presentation of the 2008 report to an audience in Chisinau on November 2, 2007. The mission also visited the Netherlands and interviewed four country stakeholders. For the case studies, the evaluation conducted a total of 100 interviews: 55 Bank and IFC staff, 22 government officials, and 23 other stakeholders, including representatives from the private sector, international agencies, NGOs, and research think tanks. The evaluation team interviewed IFC staff working on investment climate issues in the Private Enterprise Partnership (PEP) facilities and FIAS, as well as Bank staff working on private sector development issues and relevant projects and analytical and advisory activities (AAA), as well as at least one person from the country management team. These staff directed IEG to the two to three people in the government and donor community most knowledgeable about the DB exercise.

The case studies also included reviews of Bank documents, including Country Assistance Strategies, Investment Climate Assessments, economic and sector work, and project documents related to private sector development, as well as other assessments of the business environment from the World Economic Forum, Heritage Founda-

tion, and the Economist Intelligence Unit. The team reviewed internal correspondence from operational staff commenting on the DB process and indicators for the 2007 and 2008 reports.

### 3. Validation Exercise

The evaluation reviewed the data collection process in the seven country case study countries through a review of the completed questionnaires and comparison with the final published data, and interviews with informants based on standard guidelines.

In the seven country case study countries, a total of 68 informants are listed by DB for the 5 focus indicators (see table A.2). The evaluation team made at least three attempts to contact each of them and succeeded in contacting and interviewing 59 percent (40 informants) by phone or by e-mail. Of the 28 informants who could not be contacted, 19 had unusable contact information or did not respond after repeated attempts, 7 had left their position, and 2 had died.

The evaluation also analyzed the composition and characteristics of the informants for all 175 countries in *Doing Business 2007* (see chapter 2 for details on the findings from the validation exercise).

### 4. In-Depth Analysis of Five Indicators

For assessing the relevance of the indicators to

**Table A.2: Reach of the Validation Exercise**

Country	Questionnaire informants	Supplemental informants	Total	Percent of all questionnaire informants	Percent of all informants (questionnaire and supplemental)	Percent of all informants (68 total)
Albania	5	2	7	62	88	10
Algeria	3	1	4	38	36	6
Burundi	2	2	4	33	36	6
Moldova	3	1	4	43	57	6
Mongolia	2	1	3	25	38	4
Nigeria	7	3	10	70	63	15
Spain	7	1	8	35	38	12
<b>Total</b>	<b>29</b>	<b>11</b>	<b>40</b>	<b>AVG 44</b>	<b>AVG 51</b>	<b>AVG 59</b>

countries and relevant intermediate outcomes, the evaluation focused its analysis on five broadly representative DB dimensions: *starting a business, employing workers, enforcing contracts, getting credit, and paying taxes*. The team reviewed relevant literature and interviewed 8 (non-country-specific) Bank Group staff and 10 other subject matter experts.

### 5. Portfolio Review

The evaluation reviewed the portfolio of Bank investment operations and IFC technical assistance and advisory services to identify patterns and trends in the Bank’s support of private sector development, and specifically the areas related to the 10 dimensions of the business environment measured by DB between fiscal years 2004 and 2007.

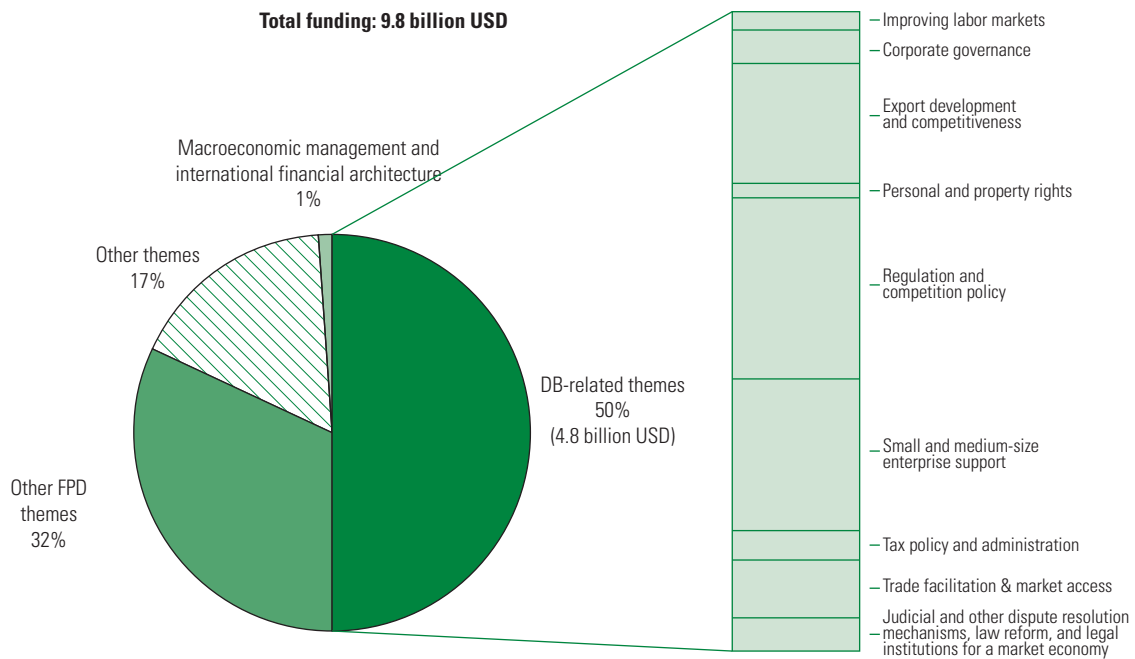
Project descriptions do not explicitly identify the costs related to the dimensions covered by DB. To estimate the volume of Bank operations related to the 10 dimensions covered by DB, the evaluation team selected 11 (of a total of 71)

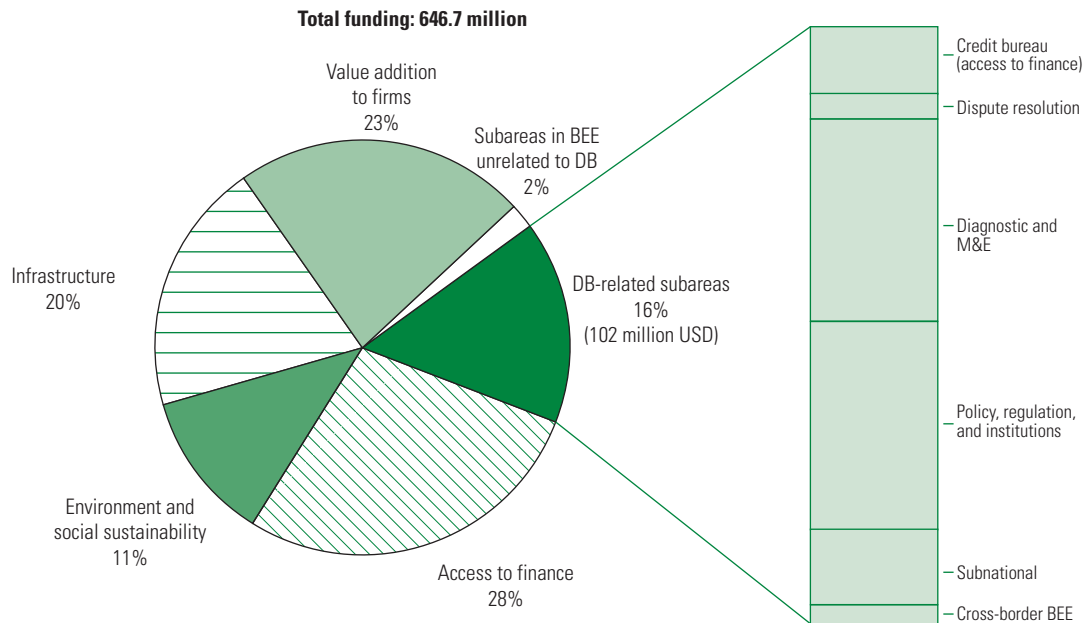
themes that correspond most directly with the investment climate issues covered by DB. As these themes cover all sectors, the review identified 130 projects that were mapped to the Financial and Private Sector Development Sector Board and approved between fiscal years 2004 and 2007.

As depicted in figure A.1, the Bank provided \$9.8 billion in loans and grants for the 130 projects mapped to the Financial and Private Sector Development (FPD) Sector Board. Not all of this funding was related to strictly DB-measured indicators. Regulation and competition policy, small and medium-size enterprise support, and export development and competitiveness have the most funding and account for nearly three-quarters (72 percent) of the total \$4.8 billion allocated to the 11 DB-related themes.

To estimate how much IFC allocated to technical assistance and advisory services for DB-related areas, the evaluation reviewed the six subareas of business lines that correspond most directly with

**Figure A.1: Financial and Private Sector Development (FPD) Sector Board Projects by Theme, Fiscal 2004–07**



**Figure A.2: IFC Technical Advisory Funding, Fiscal 2004–07**

the DB indicators. These were one from the Access to Finance business line (credit bureau) and five from the Business Enabling Environment (BEE) business line (dispute resolution, diagnostic and monitoring and evaluation [M&E], policy, regulation and institutions, subnational, and cross-border). As shown in figure A.2, of the 906 technical assistance projects undertaken by IFC between 2004 and 2007, \$102 million (16 percent of a total of \$647 million) were spent on these six subareas. Diagnostic and M&E and policy, regulation, and institutions account for more than two-thirds of this amount.

## 6. Literature Review

The evaluation commissioned a review of literature on the theoretical and empirical underpin-

nings for the approach adopted by DB. The same review also undertook a cross-country econometric analysis to: (1) assess the consistency of the indicators with other Bank and externally generated indicators of investment climate and business regulation, and (2) determine correlations between the DB indicators and the economic variables that one may expect to be affected using both aggregate and firm-level data. This background paper is available upon request and will be made available on the IEG Web site.

## 7. Use and Communications

The evaluation interviewed staff at the Bank, IFC-FIAS, and the MCC and reviewed pertinent documents in connection with how the DB indicators are used in various operational contexts.

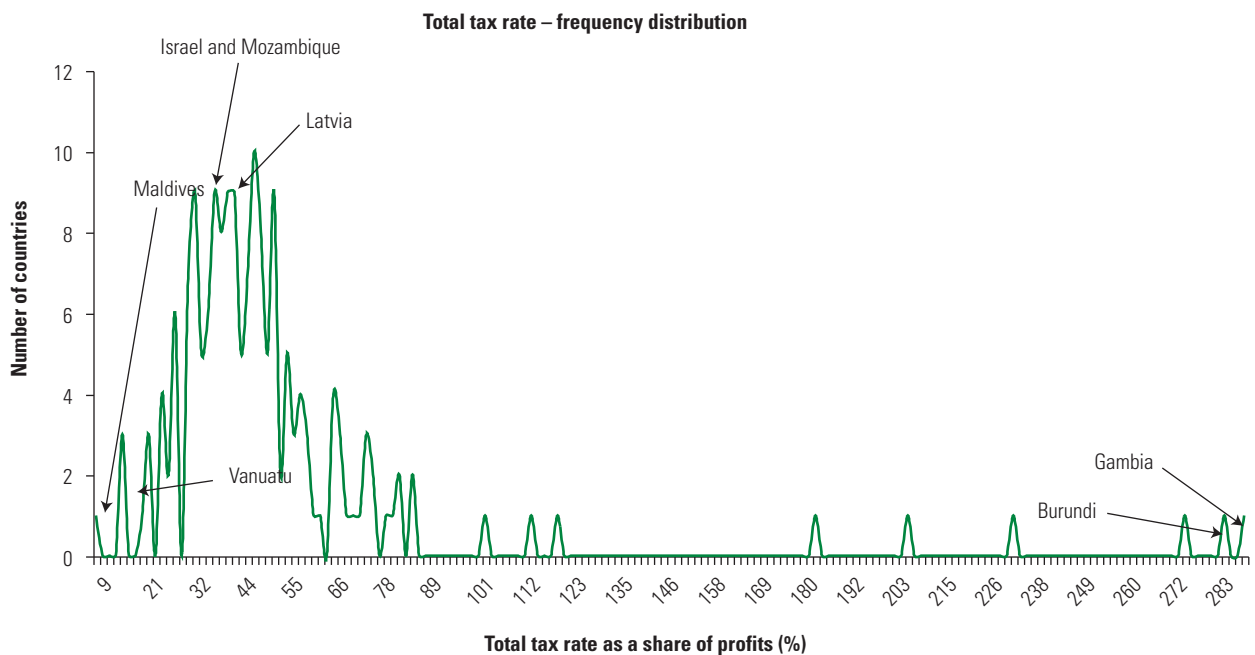
## APPENDIX B: HOW EQUITABLY DO THE RANKINGS REWARD REFORMS?

Each of DB's 10 indicators uses cardinal values for its subindicators: time, cost, number of procedures, and so on to create a ranking. These cardinal values are ranked according to their respective percentiles in each of the subindicator distributions. The subindicator percentiles are then averaged to come up with an indicator-level percentile; the 10 indicator percentiles are then averaged to generate the overall ease of doing business (EODB) ranking.<sup>1</sup>

The use of several levels of ordinal rankings obscures the underlying cardinal values. That is, the magnitude of the difference between the countries ranked, say, fifty-ninth and sixtieth is not

necessarily the same as that between those ranked first and second. Figure B.1 illustrates this point by showing the frequency distribution for the total tax rate as a share of profits, a subindicator of *paying taxes*. There is a 5.1 percentage point difference between the top performer, Maldives, and the runner-up, Vanuatu. There is a 4.7 percentage point difference between the last and next-to-last countries in the distribution, Gambia and Burundi. However, the countries ranked fifty-ninth and sixtieth, Israel and Mozambique, are separated by just 0.1 of a percentage point (39.1 percent and 39.2 percent respectively), while there are 13 other countries accompanying them in the range between 37 percent and 40.3 percent.

**Figure B.1: Difference between Ranks Can Vary**



**Table B.1: Countries in the Bottom Quartile on the *Paying Taxes* Indicator Need to Reduce Taxes More to Increase Rankings Relative to Countries in the 2nd and 3rd Quartiles**

Country	Total tax rate 2007 (%)	Total tax rate 2008 (%)	Rank <i>paying taxes</i> 2007	Simulated rank with 2008 value	Difference in <i>paying taxes</i> rank
Latvia	43	33	52	35	17
Botswana	53	17	67	18	49
Kuwait	56	14	41	8	33
Belarus	186	144	175	175	0
Sierra Leone	277	234	138	137	1

A given change in a cardinal value, such as a reduction in the time needed for a procedure, is more likely to advance a country's rank (holding other countries' actions constant) if the country starts from a more concentrated segment of the distribution than if it starts from a more dispersed section. This arithmetic means that countries at the more dispersed parts of the distribution have to work harder to see changes in their overall rankings. Put differently, countries can make significant changes that do not improve their rankings if they are at the dispersed sections of the distribution for that indicator. The following three examples illustrate this asymmetry by simulating the change in rankings for a subindicator, holding the actions of the other countries constant.

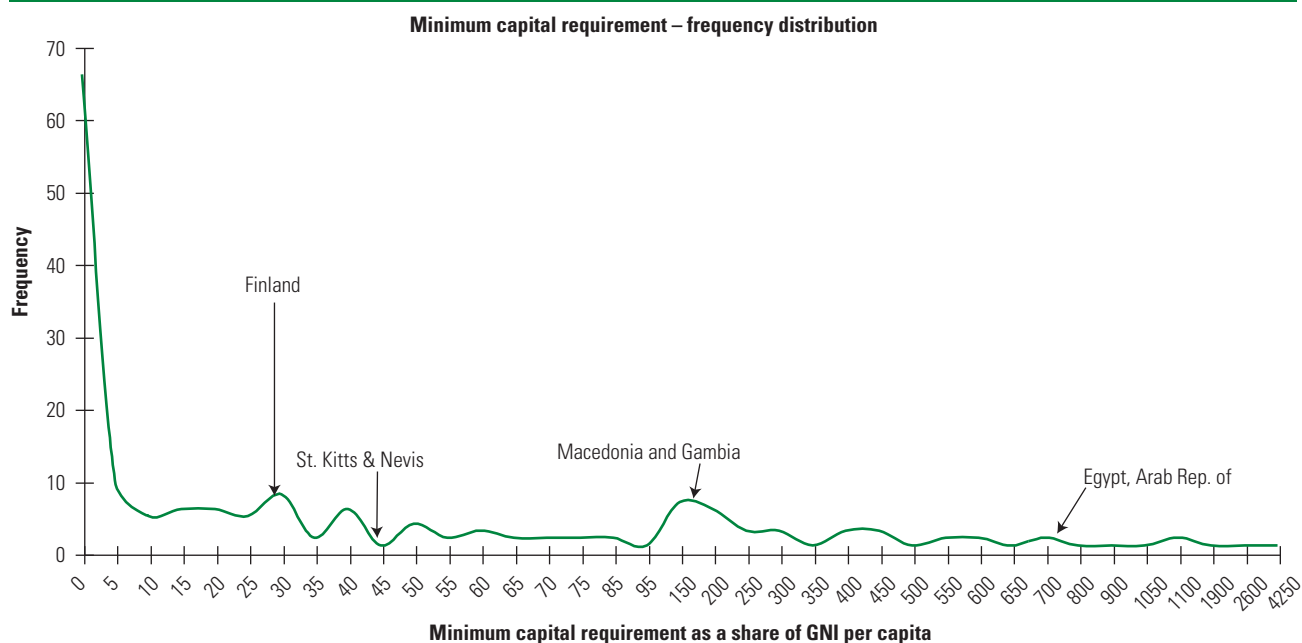
**Example 1: How much does the tax rate have to fall to improve ranking on *paying taxes*?** As seen in figure B.1, the frequency distribution for total tax rate as a share of profits for all countries ranges from 9.3 percent in Maldives to 291.4 percent in Gambia.

Almost all the countries (165, or 94 percent) fall within one standard deviation from the mean. Table B.1 presents the results of simulations<sup>2</sup> after improvements in the total tax rate. Sierra Leone is in the dispersed segment at the bottom of the total tax rate distribution, right before Burundi and Gambia. Despite a 43 percentage point reduction in total tax rate, the country improved only one position in the simulated ranking for *paying taxes*. Belarus's substantial tax reduction likewise did not affect the simulated ranking. Latvia, by contrast, despite only reducing the total tax rate by 10 percentage points, improved 17 positions because it is situated in the most populated segment of the distribution. Kuwait and Botswana received an even stronger boost from their tax reduction because of the same effect.

**Example 2: How does reducing the minimum capital requirement affect ranking on *starting a business*?** In 2008, Egypt drastically reduced its minimum capital requirement—from 695 percent of

**Table B.2: Despite Egypt's Efforts In Reducing the Minimum Capital Requirement, St. Kitts and Nevis, Gambia, and Macedonia Will Gain More on DB Rankings for Lower Reductions**

Country	Minimum capital requirement 2007 (%)	Minimum capital requirement 2008 (%)	Rank, <i>starting a business</i> , 2007	Simulated rank, <i>starting a business</i> , with 2008 value	Difference in <i>starting a business</i> rank
Finland	27	8	19	13	6
St. Kitts and Nevis	45	0	105	61	44
Gambia	120	0	124	70	54
Macedonia, FYR	112	0	76	27	49
Egypt	695	13	125	92	33

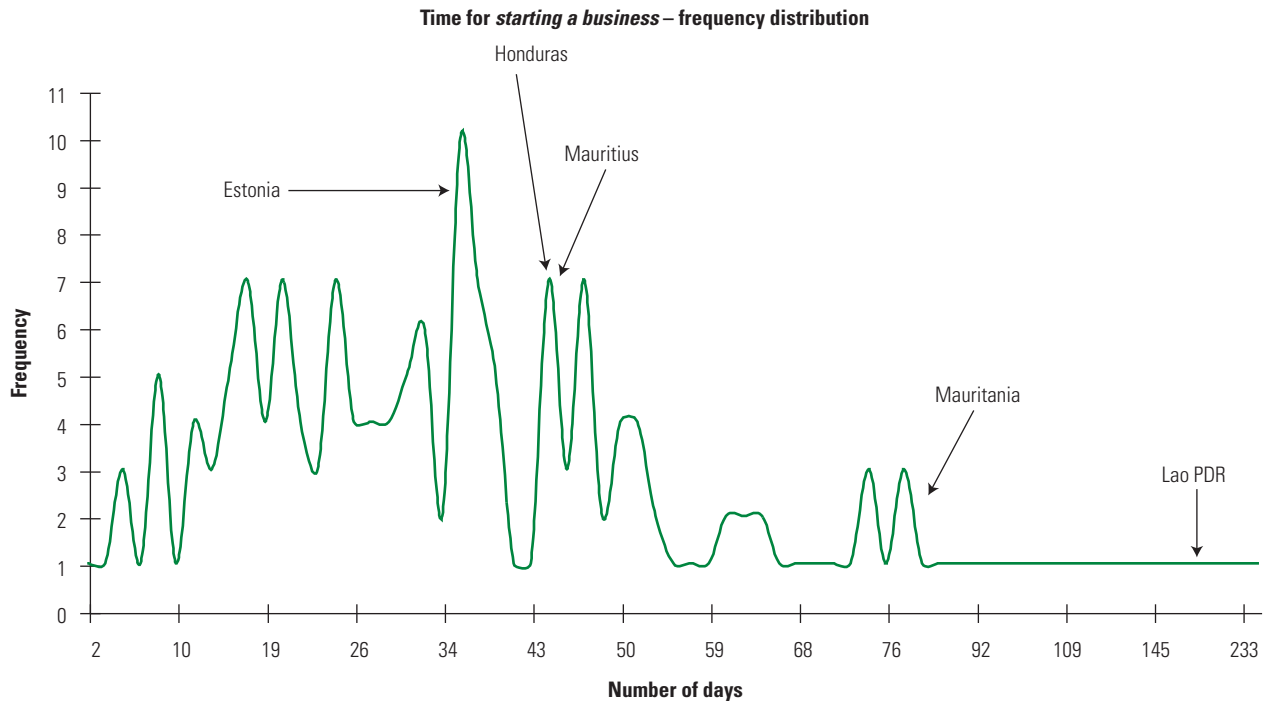
**Figure B.2: Distribution of the Minimum Capital Requirement Subindicator for *Starting a Business***

income per capita to just 13 percent. Holding other countries' actions constant, it would have generated a 33-position boost in the *starting a business* ranking (see table B.2). The distribution of this subindicator, as shown in figure B.2, is concentrated around zero. More than a third of the countries (66 of them) do not have a minimum capital requirement. Although Gambia, Macedonia, and Saint Kitts and Nevis all reduced the minimum capital requirement much less than Egypt in absolute terms in 2008, they would have

boosted their rankings more than Egypt would have. By eliminating the minimum capital requirement, these three countries tied with the other 66 countries for first place in this subindicator. In turn, this substantially reduced their total average percentile for *starting a business*, improving their ranking for this indicator. Finally, a country such as Finland was also able to advance in the rankings, although less than the other countries, because of the relative lack of concentration around it in the distribution.

**Table B.3: Countries in the Bottom Quartile on the Minimum Capital Requirement Subindicator Need to Do Much More to Increase Rankings Relative to Countries in the 2nd and 3rd Quartiles**

Country	Time (days) 2007	Time (days) 2008	Rank, <i>starting a business</i> , 2007	Simulated rank, <i>starting a business</i> , with 2008 value	Difference in <i>starting a business</i> rank
Estonia	35	7	51	27	24
Honduras	44	21	138	121	17
Mauritius	46	7	30	10	20
Mauritania	82	65	164	164	0
Lao PDR	163	103	73	73	0

**Figure B.3: Distribution of the Time to Start a Business**

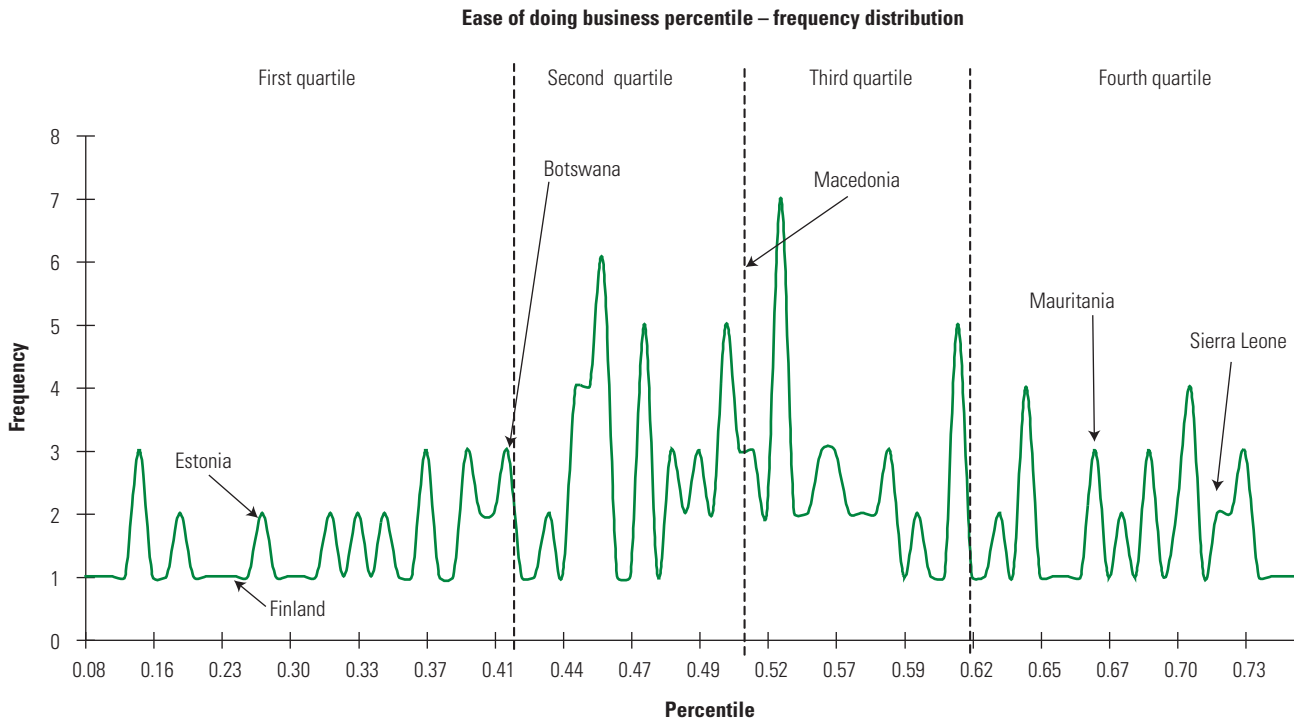
**Example 3: How does reducing the time to open a business improve starting a business?** The Republic of Lao reduced the time to start a business by 60 days in 2008, yet such a change did not affect the simulated ranking for *starting a business* (table B.3). Mauritania experienced a similar result. Mauritius, by contrast, reduced the time by 41 days, thereby advancing 20 positions on *starting a business*. Honduras and Estonia, both in the middle segment of the distribution and close to the majority of countries, also made significant progress in the ranking for *starting a business*. Lao and Mauritania are at the bottom end of the distribution and fairly isolated (see figure B.3). A change in the sparsely populated bottom end will be less likely to improve the percentile ranking of a country in that subindicator. In turn, it will have little effect on the average of the percentiles of the subindicators, which gives the indicator ranking.

### How Do Reforms Affect the EODB Distribution?

As mentioned above, the overall ranking of

EODB is calculated from the average of the percentile scores for the 10 indicators. This final percentile average, the EODB percentile, is a distribution of cardinal values ranging from 0.08 for Singapore to 0.82 for the Democratic Republic of Congo (DRC). These values are then ranked in order, with the first position belonging to Singapore and the last to DRC. Figure B.4 shows the distribution of the EODB percentiles for 2007.

The simulations presented in tables B.1–B.3, aside from causing changes in the indicator ranking, also produced changes in the EODB ranking. Table B.4 summarizes some of these changes for selected countries. Mauritania and Sierra Leone are at the most dispersed part of the distribution and did not improve in the overall ranking, despite the improvements in time to start a business and total tax rate, respectively. Finland and Estonia also show no improvement. Botswana, in contrast, improved 6 positions thanks to its tax reform, and

**Figure B.4: Average Percentile of 10 DB Indicators**

Macedonia improved 9 positions because of the elimination of the minimal capital requirement, because both countries are located in the more tightly distributed portions of the indicator.

Thus, a considerable improvement in the absolute value of a subindicator might not be enough to cause an improvement at the indicator level if that country is starting from a very low base. Countries in the most dispersed part of the distributions will need sizeable relative improvements in their subindicator values to catch up with the rest. This is the case for most of the countries in Africa.

### Does the Ranking System Distort Reform Priorities?

It has been suggested that DB's use of rankings might create an incentive for countries to reform the areas where they are most likely to move up in the EODB ranking for the least

reform effort. If this were the case, one would expect the highly concentrated subindicators to be associated with more reforms in a given year.<sup>3</sup> Table B.5 ranks DB's subindicators from most to least concentrated and shows the number of reforms associated with each of them in 2007.<sup>4</sup>

**Table B.4: Despite Positive Changes, Countries at the Bottom and Top Quartiles Did Not Improve in Overall Rankings**

Country	EODB 2007	Simulated EODB rank with 2008 reform	Difference in EODB rank
Finland	13	13	0
Estonia	17	16	1
Botswana	48	42	6
Macedonia, FYR	92	83	9
Mauritania	148	148	0
Sierra Leone	168	168	0

**Table B.5: No Apparent Relationship between Tightness of Distribution and Reforms**

Doing Business indicator	Subindicator	Number of countries in 1 standard deviation range	Percentage of countries in range	Frequency of reform in 2007
Paying taxes	Total tax rate	165	94	23
Starting a business	Minimum capital requirement	164	94	7
	Time	164	94	7
Employing workers	Firing costs	162	93	5
Dealing with licenses	Cost	158	90	9
Starting a business	Cost	158	90	5
Protecting investors	Time	158	90	2
Registering property	Time	150	86	6
Dealing with licenses	Procedures	149	85	12
Employing workers	Rigidity of hours	146	83	4
Starting a business	Procedures	138	79	28
Dealing with licenses	Time	135	77	3
Trading across borders	Time to export	134	77	17
Getting credit	Legal rights index	131	75	24
Enforcing contracts	Time	131	75	7
Trading across borders	Documents for export	129	74	10
	Payments	128	73	12
Registering property	Cost	127	73	14
	Procedures	126	72	7
Protecting investors	Disclosure index	124	71	9
Getting credit	Credit information index	123	70	13
Closing a business	Recovery rate	117	67	12
Protecting investors	Director liability index	117	67	4
	Shareholders suits index	116	66	3
Enforcing contracts	Procedures	115	66	20
Employing workers	Difficulty of firing index	113	65	1
	Difficulty of hiring index	109	62	2
Average		137	78	10
Median		131	75	7
Correlation between % of countries in range and number of reforms				0.01

The total tax rate is the third-most-frequent area of reform, and it has the tightest distribution of all the subindicators, with 94 percent of the countries' rankings within one standard deviation from the mean. But the two most popular areas for reform—number of procedures to start a business and legal rights of creditors and debtors—are not among the most

tightly distributed. The correlation between tightness of distribution and frequency of reforms is almost nonexistent (0.01), offering no support to the hypothesis that the ranking arithmetic is distorting reforms. Alternative hypotheses are that governments implement reforms that are politically or administratively easier, or the ones they think most relevant.

APPENDIX C: DIFFERENCES BETWEEN DATA IN 2007 DB REPORT AND DB  
WEB SITE (OCTOBER 2007) FOR SAME DATA COLLECTION PERIOD

	Number of differences	Reason	Written explanation	Differences of 10% or less
<b>Starting a business</b>				
Procedures (number)	24	Data corrections	] Not found	10
Time (days)	32	Data corrections		
Cost (% of income per capita)	19	Data corrections		
Minimum capital (% of income per capita)	11	Data corrections		
<b>Dealing with licenses<sup>a</sup></b>				
Procedures (number)	130	Methodology change/ data corrections	] Page 68 of <i>Doing Business 2008</i>	—
Time (days)	148	Methodology change/ data corrections		
Cost (% of income per capita)	106	Methodology change/ data corrections		
<b>Employing workers</b>				
Difficulty of hiring index (0–100)	44	Methodology change	] Page 68 of <i>Doing Business 2008</i>	—
Rigidity of hours index (0–100)	40	Methodology change		
Difficulty of firing index (0–100)	46	Methodology change		
Firing cost (weeks of salary)	28	Methodology change		
<b>Registering property</b>				
Procedures (number)	10	Data corrections	] Not found	1
Time (days)	17	Data corrections		
Cost (% of property value)	29	Data corrections		
<b>Getting credit</b>				
Depth of credit information index (0–10)	12	Data corrections	] Not found	—
Strength of legal rights index (0–10)	46	Data corrections		
<b>Protecting investors</b>				
Extent of disclosure index (0–10)	34	Data corrections	] Not found	—
Extent of director liability index (0–10)	23	Data corrections		
Ease of shareholder suits index (0–10)	33	Data corrections		

*(continues on the following page)*

	Number of differences	Reason	Written explanation	Differences of 10% or less
<b>Paying taxes<sup>a</sup></b>				
Payments (number per year)	127	Methodology change/ data corrections	Page 78 of <i>Doing Business 2008</i>	—
Time (hours per year)	54	Methodology change/ data corrections		—
Total tax rate (% of profit)	160	Methodology change/ data corrections		—
<b>Trading across borders</b>				
Documents to export (number)	104	Data corrections	Not found	9
Time to export (days)	109	Data corrections		38
Cost to export (US\$ per container)	121	Data corrections		40
Documents to import (number)	124	Data corrections		19
Time to import (days)	114	Data corrections		37
Cost to import (US\$ per container)	116	Data corrections		34
<b>Enforcing contracts<sup>a</sup></b>				
Procedures (number)	166	Methodology change/ data corrections	Page 68 of <i>Doing Business 2008</i>	—
Time (days)	78	Methodology change/ data corrections		—
Cost (% of claim)	157	Methodology change/ data corrections		—
<b>Closing a business</b>				
Recovery rate (cents on the dollar)	22	Data corrections	Not found	3

a. According to the DB team, for these three indicators, the methodology changes affect so many countries that it is difficult to separate corrected errors from methodology revisions.

There is a great body of literature hypothesizing that differences in economic prosperity can be traced to the legal systems of countries. Some research has posited that countries with a legal system originating in the English common law tradition have enjoyed greater per capita growth than countries whose legal systems originated in the French civil law tradition, deriving from the European civil codes, especially the Napoleonic Code. This appendix explores whether legal origins affect the performance of countries on the DB indicators. The results show that common law countries perform better in four indicators, yet differences wane in two of them as additional control variables are included.<sup>1</sup>

Regression analysis was performed using the 32 subindicators that feed the 10 indicators. The subindicators served as the dependent variable. The controls variables included were income per capita and a dummy variable for civil law legal origin. The results are displayed in table D.2. The 175 countries in *Doing Business 2007* were coded into five categories according to legal origin<sup>2</sup>: common law (59), civil law (76), German (20), Nordic (5), and Socialist (11). Four of the 175 countries were excluded because their legal origin was not clear. When testing for differences between common and civil law origin, the sample was limited to those 135 countries.

There are 4 indicators and 13 subindicators where civil law countries perform significantly worse than common law countries. These are:

- The four subindicators that comprise the *starting a business* indicator
- The director liability index and shareholder suits index that comprise *protecting investors*

- Three of the indicators for *employing workers*: rigidity of hiring index, rigidity of hours index, and rigidity of firing index
- The legal rights subindicator under the *getting credit* indicator.

In addition, the number of procedures and time under the *paying taxes* and the time under *dealing with licenses* indicators are significantly different, favoring common law countries. The only indicator that favors countries with a civil law origin is the credit information index in *getting credit*. This, according to Djankov and others (2006), can be attributed to the presence of a public credit registry in countries with a French civil law tradition. Differences in all other subindicators are not statistically significant.

### What Explains the Differences?

The four subindicators in *starting a business*—number of procedures, time, cost, and minimum capital requirement—are significantly higher in French-origin countries. It is plausible that in the case of the first three, the differences are a result of the participation of notary publics in the business registration process.

The differences in *protecting investors* and *getting credit* could also be attributed to legal origin, since the Napoleonic Code deals with commercial procedures, among other issues. However, there are no statistically significant differences between the two groups of countries in any of the subindicators for *enforcing contracts*, which could have been plausibly attributed directly to differences in legal origin as well.

The differences in *employing workers* are not as

easy to understand, since the Napoleonic Code does not delve deeply into this issue. A general hypothesis could be that, on average, countries with a civil law tradition favor direct supervision of markets. In this case, civil law countries would prefer more government regulation to protect the rights of workers.

The differences in *paying taxes* are also not easy to understand, since the number of payments and the time it takes to file taxes would depend more on the efficiency of tax collection than legal origin. For instance, DB rewards countries with full online filing by counting the tax as paid once a year, even if the payment is more frequent.

### Controlling for Additional Factors

As a second stage of the analysis, additional control variables were introduced to test the robustness of the differences in DB indicator rankings, specifically for the *employing workers* and *paying taxes* indicators. For example, the difference in ratings for the *employing workers* indicator may reflect the preference for greater social welfare, specifically in continental European countries. Similarly, on *paying taxes*, the differences may reflect the level of efficiency of the state. In sum, the differences based on legal origin for *employing workers* are somewhat less robust, and disappear for *paying taxes* once other factors are accounted for. (The analysis is summarized in table D.1 and detailed in Attachment D.1.)

**Table D.1: Differences between Countries Based on Legal Origin on *Employing Workers* and *Paying Taxes* Wane after Adding Other Control Variables**

Controls	Employing workers		
	Difficulty of hiring	Difficulty of firing	Rigidity of hours
1) None	<b>Significant (99%)</b>	<b>Significant (99%)</b>	<b>Significant (99%)</b>
2) Welfare variables (individually and together)	Not significant	<b>Significant (99%)</b>	<b>Significant (99%)</b>
3) Welfare variables (excluding small countries)	<b>Significant (99%)</b>	Not significant	<b>Significant (99%)</b>
4) Continental Europe	<b>Significant (95%)</b>	<b>Significant (95%)</b>	<b>Significant (95%)</b>
5) Income group (with welfare controls)			
• High income	<b>Significant (95%)</b>	<b>Significant (95%)</b>	<b>Significant (95%)</b>
• Upper-middle income	Not significant	Not significant	<b>Significant (95%)</b>
• Lower-middle income	<b>Significant (95%)</b>	Not significant	<b>Significant (95%)</b>
Controls	Paying taxes		
	No. of procedures	Time	Total tax rate
1) None	<b>Significant (95%)</b>	<b>Significant (95%)</b>	Not significant
2) Revenue collection proxy	Not significant	Not significant	Not significant

ATTACHMENT D.1: RESULTS OF REGRESSION ANALYSIS FOR TEST DIFFERENCES  
 BASED ON LEGAL ORIGIN ON *EMPLOYING WORKERS* AND *PAYING TAXES*

### Employing Workers

**Controlling for welfare preferences.** A possible explanation for the differences in *employing workers* could be the preferences for more social welfare in countries with a civil law tradition. To proxy for this, aside from income per capita, three additional control variables were introduced into the regression: (a) revenue as a share of GDP,<sup>3</sup> (b) tax revenue as a share of GDP, and (c) public health and education expenditures as a share of GDP.<sup>4</sup> When these are included individ-

ually in the regression, the difference between common and civil law legal origin countries is statistically significant (99 percent level) on two subindicators—difficulty of hiring and rigidity of hours. The significance of the differences in the difficulty of firing index depends on the control variable. The results do not change if revenue or tax revenue is used simultaneously with health and education spending in the regression.

Subindicator	Common vs. civil law legal origin subindicators for <i>employing workers</i>				Significance of difference between countries of common and civil law legal origin, controlling for income per capita and—		
	Scale (0 is best)	Common law average	Civil law average	Difference	Total revenue as share of GDP	Tax revenue as share of GDP	Public health and education spending as share of GDP
Difficulty of hiring index	0 – 100	17.0	46.2	29.2	0.99	0.99	0.99
Rigidity of hours index	0 – 100	20.7	48.7	28.0	0.99	0.99	0.99
Difficulty of firing index	0 – 100	20.4	40.0	19.6	Not significant	Not significant	0.99
Firing costs (weeks of wages)	0 – infinity	58.3	51.3	–7.0	Not significant	Not significant	Not significant
Number of observations		59	76		135	135	135

**Creating a continental Europe origin group.** The analysis has so far excluded Nordic (Denmark, Finland, Iceland, Norway, and Sweden) and German legal origin countries (Austria, Germany, Switzerland, and Eastern European countries). It can be argued that these countries might have similar preferences for the level of taxation and the provision of public goods as do French origin countries. Therefore, a new group was created, continental Europe, which

adds civil law legal origin countries with the German and Nordic countries of Europe. When this group is paired against common law countries, all differences in the values of the subindicators remained statistically significant, at least at a 95 percent level. That is, on average, countries with common law legal origin continue to perform better in all three subindicators—difficulty of hiring, of firing, and rigidity of hours.

Subindicator	Continental European vs. English legal origin				Significance of difference between common law and continental European legal origin countries, controlling for income per capita and–		
	Scale (0 is best)	Common law average	Continental European legal origin		Total revenue as share of GDP	Tax revenue as share of GDP	Public health and education spending as share of GDP
			average	Difference			
Difficulty of hiring index	0 – 100	17.0	43.3	26.3	0.99	0.99	0.99
Rigidity of hours index	0 – 100	20.7	49.2	28.5	0.99	0.99	0.99
Difficulty of firing index	0 – 100	20.4	38.3	17.9	0.95	0.95	0.99
Firing costs (weeks of wages)	0 – infinity	58.3	45.7	–12.6	Not significant	Not significant	Not significant
Number of observations		59	98		81	79	93

**Stratifying by income group.** The analysis was also performed by income group because associations with the welfare variables could be influenced by a country's revenue-collecting capacity. When controlling for the three welfare state proxies for the high-income-country group, differences

between legal origins for the three subindicators are still statistically significant. The hypothesis that there are differences between the rigidity of labor laws in common law and continental European tradition high-income countries, as measured by DB, cannot be disproved.

Subindicator	Limiting to high-income countries, N=30				Significance of difference between common law and continental European legal origin countries, controlling for income per capita and–		
	Scale (0 is best)	Common law average	Continental European legal origin		Total revenue as share of GDP	Tax revenue as share of GDP	Public health and education spending as share of GDP
			average	Difference			
Difficulty of hiring index	0 – 100	5.5	33.3	27.8	0.95	0.95	0.95
Rigidity of hours index	0 – 100	13.3	48.9	35.6	0.99	0.99	0.99
Difficulty of firing index	0 – 100	5.9	32.2	26.3	0.99	0.99	0.99
Firing costs (weeks of wages)	0 – infinity	37.6	29	–8.6	Not significant	Not significant	Not significant
Number of observations		12	18		23	24	24

When the analysis is performed on the upper-middle-income group, only the rigidity of hours

index continues to be statistically higher in countries with a continental European origin.

Subindicator	Limiting to upper-middle-income countries, N=34				Significance of difference between common law and continental European legal origin countries, controlling for income per capita and–		
	Scale (0 is best)	Common law average	Continental European legal origin		Total revenue as share of GDP	Tax revenue as share of GDP	Public health and education spending as share of GDP
			average	Difference			
Difficulty of hiring index	0 – 100	0 – 100	15.7	40.1	24.4	Not significant	Not significant
Rigidity of hours index	0 – 100	0 – 100	16.7	51.8	35.1	99	95
Difficulty of firing index	0 – 100	0 – 100	19.2	39.1	19.9	Not significant	Not significant
Firing costs (weeks of wages)	0 – infinity	0 – infinity	43.7	42.4	–1.3	Not significant	Not significant
Number of observations			12	22		20	18

However, in the case of lower-middle-income countries, it is the difficulty of hiring index that continues to be statistically greater in continental law origin countries after controlling for proxies

of the welfare state. The significance of differences for the rigidity of hours index and the difficulty of firing index wane when welfare proxies are added.

Subindicator	Limiting to lower-middle-income countries, N=47				Significance of difference between common law and continental European legal origin countries, controlling for income per capita and–		
	Scale (0 is best)	Common law average	Continental European legal origin		Total revenue as share of GDP	Tax revenue as share of GDP	Public health and education spending as share of GDP
			average	Difference			
Difficulty of hiring index	0 – 100	12.6	44.9	32.3	0.99	0.99	0.95
Rigidity of hours index	0 – 100	20	43	23	Not significant	Not significant	0.95
Difficulty of firing index	0 – 100	12.9	39.1	26.2	Not significant	Not significant	Not significant
Firing costs (weeks of wages)	0 – infinity	40.9	58.6	17.7	Not significant	Not significant	Not significant
Number of observations		14	33		25	24	24

In the low-income group, only the rigidity of hours index continues to be statistically higher in countries with a continental European origin after controlling for proxies of the welfare state.

Nevertheless, in this particular group, the information for the control variables is scarce, which led to only using 13 or 17 observations in the regressions.

Subindicator	Limiting to low-income countries, N=46				Significance of difference between common law and continental European legal origin countries, controlling for income per capita and–		
	Scale (0 is best)	Common law average	Continental European legal origin		Total revenue as share of GDP	Tax revenue as share of GDP	Public health and education spending as share of GDP
			average	Difference			
Difficulty of hiring index	0 – 100	27.2	51.4	24.2	Not significant	Not significant	Not significant
Rigidity of hours index	0 – 100	27.6	55.2	27.6	0.95	0.99	0.99
Difficulty of firing index	0 – 100	34.3	40.8	6.5	Not significant	Not significant	Not significant
Firing costs (weeks of wages)	0 – infinity	90.1	44.2	–45.9	Not significant	Not significant	Not significant
Number of observations		21	25		13	13	17

The results of these regressions do not change substantially when comparing common law versus civil law origin instead of continental European. Although some of the differences remain despite the inclusion of the control variables, the disappearance of some could be evidence that other factors aside from legal origin are important for explaining performance on the *employing workers* indicator.

**Controlling for small-country outliers.** Some small countries in the sample have unusually high values for the welfare control variables. Therefore, countries with a population of less than 2 million (the Bank's suggested definition of a small country) were excluded from the analysis. Once the proxies for the welfare state were added and small countries were excluded, the differences in the difficulty of firing index were not statistically significant.

Subindicator	Excluding countries with population of less than 2 million				Significance of difference between common law and continental European legal origin countries, controlling for income per capita and—		
	Scale (0 is best)	Continental		Difference	Total revenue as share of GDP	Tax revenue as share of GDP	Public health and education spending as share of GDP
		Common law average	European legal origin average				
Difficulty of hiring index	0 – 100	18.9	44.2	25.3	0.99	0.99	0.99
Rigidity of hours index	0 – 100	23.3	49.4	26.1	0.99	0.99	0.99
Difficulty of firing index	0 – 100	25.3	36.1	10.8	Not significant	Not significant	Not significant
Firing costs (weeks of wages)	0 – infinity	76	43.8	–32.2	Not significant	Not significant	0.95
Number of observations		36	84		71	68	74

### Paying Taxes: Controlling for Additional Factors

Two of the subindicators for *paying taxes*, number of payments and time, are statistically significantly higher in civil law countries than in common law

countries. However, these differences could be attributed to the government's efficiency in tax collection. When an additional control variable, tax revenue as a share of GDP, is introduced into the regression, the differences cease to exist.

Subindicator	Scale	Common law average		Difference	Controlling for income per capita and tax revenue as share of GDP
		Common law average	Civil law average		
Payments (number)	0 – infinity	28.9	37.2	8.3	Not significant
Time (hours)	0 – infinity	207.1	314.5	107.4	Not significant
Total tax rate (% profit)	0 – infinity	46.9	57.3	10.4	Not significant

**Table D.2: Regression Results for Common and Civil Law Countries at the Subindicator Level**

Indicator	Subindicator	Scale	Common law average	Civil law average	Difference	Significance of difference after controlling for income per capita - Oct. 2007
Starting a business	Procedures (number)	0 – infinity	8.2	10.9	2.6	0.99
	Time (days)	0 – infinity	37.8	64.2	26.4	0.95
	Cost (% of income per capita)	0 – infinity	44.4	96.3	51.9	0.99
	Min. capital (% of income per capita)	0 – infinity	16.0	154.1	138.1	0.99
Dealing with licenses	Procedures (number)	0 – infinity	16.5	18.6	2.1	Not significant
	Time (days)	0 – infinity	190.8	231.4	40.6	0.95
	Cost (% of income per capita)	0 – infinity	539.6	693.7	154.1	Not significant
Employing workers	Difficulty of hiring index	0 (best) – 100 (worst)	17.0	46.2	29.2	0.99
	Rigidity of hours index	0 (best) – 100 (worst)	20.7	48.7	28.0	0.99
	Difficulty of firing index	0 (best) – 100 (worst)	20.4	40.0	19.6	0.99
	Firing costs (weeks of wages)	0 – infinity	58.3	51.3	–7.0	Not significant
Registering property	Procedures (number)	0 – infinity	6.2	6.5	0.3	Not significant
	Time (days)	0 – infinity	78.3	88.7	10.4	Not significant
	Cost (% of property value)	0 – infinity	6.9	8.4	1.5	Not significant
Getting credit	Credit information index	0 (worst) – 6 (best)	1.9	2.8	0.9	0.99
	Legal rights index	0 (worst) – 10 (best)	5.3	3.4	–1.9	0.99
Protecting investors	Disclosure index	0 (worst) – 10 (best)	4.9	4.8	–0.1	Not significant
	Director liability index	0 (worst) – 10 (best)	5.5	3.3	–2.1	0.99
	Shareholder suits index	0 (worst) – 10 (best)	6.5	4.7	–1.8	0.99
Paying taxes	Payments (number)	0 – infinity	28.9	37.2	8.3	0.95
	Time (hours)	0 – infinity	207.1	314.5	107.4	0.99
	Total tax rate (% profit)	0 – infinity	46.9	57.3	10.4	Not significant
Trading across borders	Documents for export (number)	0 – infinity	7.1	7.7	0.6	Not significant
	Time for export (days)	0 – infinity	25	29.6	4.6	Not significant
	Cost to export (US\$ per container)	0 – infinity	1,128.1	1,298.6	170.5	Not significant
	Documents for import (number)	0 – infinity	8.3	9	0.7	Not significant
	Time for import (days)	0 – infinity	30.2	35.7	5.5	Not significant
	Cost to import (US\$ per container)	0 – infinity	1,340.4	1,529.7	189.3	Not significant
Enforcing contracts	Procedures (number)	0 – infinity	38.1	39.1	1.0	Not significant
	Time (days)	0 – infinity	609.2	672.7	63.5	Not significant
	Cost (% of debt)	0 – infinity	33.2	40.9	7.7	Not significant
Closing a business	Recovery rate (cents on the dollar)	0 to \$1.00	32.2	24.1	–8.0	Not significant

Note: N = civil law, 76; common law, 59; significant levels set at 95 percent or higher.



### **Appendix E.1: Interview Protocol for Doing Business Informants**

---

[Greeting] I am calling on behalf of the World Bank's Independent Evaluation Group (IEG), which reports directly to the Board of Directors of the World Bank. The IEG is undertaking an evaluation of the World Bank Group's DB indicators.

I'm calling/contacting you because you are listed as an informant to the DB survey in Country X. As part of the evaluation, we are reviewing the process for collecting the data used in the DB report. We would very much value your views about the process and information collected. Your contribution is important for enhancing the future work of the World Bank Group.

This interview will about 20 minutes. Please be assured that your views will remain anonymous, and responses to this survey will not be attributed to you personally, or to your organization.

#### **Background Information**

- a) What are the topics/questions that DB asks you to provide information on? What is your professional experience with these topic(s)?
- b) How you were approached to participate? When did you first participate and how many times have you taken part?
- c) Why do you participate?
- d) How long did it take you to answer the survey, including time spent by colleagues or subordinates?

#### **Validity of Assumptions**

- e) The DB survey presents a business case or a standard firm as the basis for your responses. In your opinion, are the assumptions described in the survey representative of a typical firm in your country? Why or why not?
- f) In your judgment, how many firms fitting this assumption have used your services?
- g) If you had to change the assumptions to make them more consistent with your country's realities, which assumptions would you change and why? And how would these changes affect your answers?

#### **Survey Content and Structure**

- h) In your view, do the questions asked in the survey capture the essence of the business climate challenges on the topic? Are the questions focusing on the right aspects?
- i) Do you have any other comments about the structure of the survey?

#### **Validity of Information in DB Report**

- j) Have you seen the data published in the last DB report for your topic(s) or your country? Do you agree with the information?
- k) In your view, do you think the DB report captures the changes in laws and regulations from one year to the next appropriately? Why or Why not?

#### **Closing:**

- l) How useful has the Doing Business exercise been in your country? Please explain.
- m) Is there anything else you would like to add about the DB survey process or report?

## Appendix E.2: Interview Protocol for Policy Makers and Senior Government Officials

### Introduction

We are writing on behalf of the World Bank's Independent Evaluation Group (IEG), which reports directly to the Board of Directors of the World Bank. The IEG is undertaking an evaluation of the World Bank's DB indicators. An important

aspect of our work is to determine the relevance and the use of the DB indicators to the government and policy makers in developing countries. Your contribution is important for enhancing the future work of the World Bank Group.

Our survey will take about 45 minutes to complete. Please be assured that your views will remain anonymous, and responses will not be attributed to you personally.

### I. Background:

- In order of importance, please tell us, what, in your view, are the three factors affecting or impeding the growth of domestic private sector enterprises?
- What issues have you or your government raised with donors, including the World Bank Group, regarding the development of the domestic private sector?

### II. Relevance of the DBI:

- Are you aware of the Doing Business indicators published by the World Bank Group? (Yes/No)
- The Doing Business indicators, the subject of this evaluation, present information on 10 aspects of the business climate. For each, please tell us how important each of these are to enhancing the environment for domestic enterprises. Please use a scale of 1–4 where 1 = Very Important, 2 = Important, 3 = Slightly Important, and 4 = Not important.

Aspects	1. Very important	2. Important	3. Slightly important	4. Not important	Comments
Starting a business					
Getting credit					
Enforcing contracts					
Employing workers					
Paying taxes					
Dealing with licenses					
Registering property					
Protecting investors					
Trading across borders					
Closing a business					
<b>Any other (please list)</b>					

- Do you have any comments about the methodology underlying the DB indicators?
- Overall, your country is ranked A out of B by the DB 2007 report. Do you agree with this ranking? Why or Why not?

Indicator	Ranking	Indicator	Ranking	Comments
1. Starting a business		6. Registering property		
2. Employing workers		7. Dealing with licenses		
3. Getting credit		8. Trading across borders		
4. Enforcing contracts		9. Investor protection		
5. Paying taxes		10. Closing a business		

**III. Use of the DB indicators**

g) Have you ever used the DB indicators in the course of your work? How have you used them? Please specify. (If not, skip to Q10).

h) Please rank the use of the DB indicators specifically in:

	<b>1. Very useful</b>	<b>2. Useful</b>	<b>3. Slightly useful</b>	<b>4. Not useful</b>	<b>Comments</b>
<b>Motivating reform</b>					
Starting dialogue with country policy makers					
Creating consensus among stakeholders					
Other (please specify)...					
<b>Designing reforms</b>					
Suggestions on changes in legislation					
Prioritization of reform areas					
Other (please specify)...					

i) Please rank the usefulness of the following characteristics of the DBI?

	<b>1. Very useful</b>	<b>2. Useful</b>	<b>3. Slightly useful</b>	<b>4. Not useful</b>	<b>Comments</b>
Specific indicators? (Please list)					
Use of country benchmarking					
In-depth analysis of laws					
Media coverage of the DB indicators					
<b>Other?</b>					

j) What other indicators did you find to be useful when designing policy or activities for developing domestic private enterprises? In your view, what is the relative value of the DB indicators to these other indicators?

k) Please tell us about your involvement, if any, with the Bank group's Doing Business team.

- During preparation of the report?
- Commenting on the indicators?

**IV. Impact of DB indicators:**

l) In your view, in order of importance, what have been the major reforms that have aided or hindered the development of the domestic private enterprise in your country over the last 5 years?

m) The DB reports over the last 3 years list the following reforms in your country (see table). In your view, how significant are these reforms to the development of domestic enterprises and why?

<b>Reforms noted by DB</b>	<b>1. Very significant</b>	<b>2. Significant</b>	<b>3. Slightly significant</b>	<b>4. Not significant</b>	<b>Comments</b>

n) In your view, to what extent did the DB initiative, including DB reports, contribute to these reforms?

*Thank you.*